

Research Paper

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

Manish Kumar Sharma^{1*}, Dr. Monika Abrol²

ABSTRACT

This study explores the prevalence and effects of Dementia and Mild cognitive impairment (MCI) among rural and urban area of district Palwal Haryana. Dementia is most common disease of elderly persons. Dementia and MCI (Mild cognitive impairment) are cognitive disorders that significantly impair memory, thinking, decision making, and the ability to perform daily activities impacting individuals' life and interaction in community. The study aims to find out the disparities in the onset, progression, and impact of these conditions between rural and urban areas, where access to healthcare, education and social support varies considerably. A cross-sectional study design was employed, involving structured interviews, cognitive assessments, and demographic data collection from both rural and urban areas. Results indicate significant disparities' in the prevalence of Dementia and MCI, with rural population exhibiting a higher incidence of cognitive decline, likely due to lower health care access and awareness. Urban population while having better healthcare access, showed higher levels of comorbidities, such as hypertension and diabetes, contributing to cognitive impairments. The study underscores the need for targeting interventions' to improve early diagnosis and management in both populations, with special focus on rural areas. The findings highlight the importance of healthcare accessibilities, socioeconomic factors, education, physical health & activities, stress & life style and dietary factors in mitigating the effects of Dementia and MCI.

Keywords: *Dementia, Mild Cognitive Impairment (MCI), Rural & Urban Population, Palwal Haryana*

Dementia is a general term used to describe a decline in cognitive function severe enough to interfere with daily life. It affects memory, thinking, problem-solving, language, and other mental abilities. Dementia is not a specific disease but rather a syndrome and it can result from various conditions that damage the brain. Alzheimer's disease is the most common cause of dementia, but there are other types as well.

¹PhD, Scholar, Research Officer Psychologist, Sanskriti University Mathura
Orcid ID- 0009-0000-7481-5972

²Dean School of Humanities and Social Sciences Department of Psychology, Sanskriti University Mathura
**Corresponding Author*

Received: July 20, 2025; Revision Received: September 13, 2025; Accepted: September 17, 2025

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

There are some types of Dementia

1. **Alzheimer's disease:** Symptoms of Alzheimer's disease include memory loss, confusion, difficulty in speaking or writing and mood change. It is the most common form of dementia, mostly up to 80% cases Alzheimer's disease are found.
2. **Vascular Dementia:** Vascular dementia caused by reduced blood flow to the brain, it is due to strokes or some other vascular conditions. The majorly symptoms are difficulty in judgments, difficulty with motor activities and feeling confusions.
3. **Lewy Body Dementia:** It is mostly caused by abnormal protein deposits (Lewy bodies) in the brain. The symptoms are movement problems just like Parkinson's disease, visual hallucinations, sleep disturbance and fluctuating cognitive abilities.
4. **Frontotemporal Dementia (FTD):** It is the group of disorders caused by degeneration of the frontal and temporal lobes of the brain. The symptoms of this type of dementia are changes in personality, behavior, and language abilities.
5. **Mixed Dementia:** It is the combination of two or more types of dementia, often Alzheimer's disease and vascular dementia. In this type symptoms can depends on the types of dementia involved.
6. **Parkinson's disease Dementia:** In this type of disease dementia develops as the disease progresses. The symptoms include memory problems, difficulty in concentration and slowed thinking.

These are the most common types of dementia majorly found in the community. Each type of dementia are different but all results decline in memory and cognitive abilities that impact on daily life activities decline.

Mild Cognitive Impairment (MCI): It is the condition of a person that characterized by noticeable cognitive decline that is greater than expected for a person's age but not severe enough to interfere significantly with daily life activities. MCI can affect various aspect of cognitive function, such as a memory, thinking, and decision-making, but individuals are still able to perform most everyday activities.

There are two types of Mild Cognitive Impairment (MCI)

1. **Amnesic MCI:** Primarily affects memory. Individuals may have difficulty in recalling recent events or conversations, but other cognitive abilities remain intact. This type of MCI is often considered risk factor for Alzheimer's disease, though not all cases progress to dementia.
2. **Non Amnesic MCI:** It affects cognitive abilities other than memory, such as decision-making, language, or spatial awareness. This type of MCI may be linked to other forms of dementia like Lewy body dementia or Frontotemporal dementia.

Symptoms of Mild Cognitive Impairment (MCI):

- Forgetfulness about important dates or time.
- Difficulty follows the flow of a conversation or findings the right words.
- Difficulty in planning, problem solving and decision making.
- Difficulty in navigating streets or remembering how to get place.

Cause of Mild Cognitive Impairment (MCI):

- Ageing: Due to aging cognitive abilities naturally decline with age, but MCI represents a sharper decline than usual.

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

- Neurodegenerative Disease: MCI can be an early indicator of disease like Alzheimer's or other dementias.
- Vascular Issues: Conditions affecting blood flow to the brain, such as stroke or cardiovascular disease, may lead to MCI.
- Other causes: Depression, anxiety, stress, or sleep disorders can also contribute to cognitive impairment.

Diagnosis & treatment: Doctors use cognitive tests, questionnaires and clinical evaluation to assess cognitive function. CT scan and MRI may be used for changes in brain structure. There is no specific treatment for MCI, but some changes of lifestyle such as physical activities, mental exercise and a healthy diet can help this type of condition of MCI.

Psychological therapies are more beneficial for MCI and dementia patients, focusing on improving cognitive functioning, emotional well-being and coping strategies to help individuals manage their symptoms. These interventions do not cure MCI but aim to slow cognitive decline, improve quality of life.

These therapies are important for patients like Cognitive behavior therapy (CBT), Cognitive stimulation therapy (CST), Cognitive rehabilitation, Mindfulness-based stress reduction (MBSR), Reminiscence therapy, Psychological interventions, Music and art therapy etc.

Benefits of psychological therapies:

- Slows cognitive decline by engaging the brain in stimulating activities.
- Enhance emotional well-being and reduce symptoms of depression and anxiety.
- Improves coping strategies, helping individuals maintain independence and quality of life.
- Provides social engagement, reducing isolation and improving mood.
- Combining these therapies with lifestyle changes, such as physical activity and a healthy diet, can offer holistic support for individuals with MCI.

LITERATURE REVIEW

1. Prevalence and Impact of Dementia and MCI

Dementia and MCI are cognitive disorders with significant impacts on older populations. Dementia, characterized by severe cognitive decline affecting daily functioning, is a leading cause of disability among older adults. MCI is considered an intermediate stage between normal aging and dementia, involving memory or cognitive problems without significant impact on daily activities (Petersen et al., 2018). The global prevalence of dementia has been increasing, and it is projected to triple by 2050 (Prince et al., 2015).

2. Diagnosis and Early Detection

Early diagnosis of dementia and MCI is crucial for timely intervention. Tools such as the Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) are widely used for screening cognitive impairment (Nasreddine et al., 2005). Advanced imaging and biomarkers have been explored to enhance the diagnostic process (Jack et al., 2018).

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

3. Risk Factors and Influences

Numerous studies highlight factors influencing the risk of dementia and MCI, such as genetics, lifestyle, and education. Education levels have been shown to have a protective effect against cognitive decline, suggesting that individuals in urban areas, who often have higher literacy rates, may experience a lower prevalence of MCI and dementia compared to rural populations (Livingston et al., 2020). Socioeconomic status and access to healthcare also play crucial roles in diagnosis and management (Sindi et al., 2017).

4. Non-Pharmacological Therapies

Non-pharmacological interventions, including cognitive training, physical exercise, and social engagement, have been shown to delay cognitive decline in people with MCI and early dementia (Ngandu et al., 2015). Such interventions are particularly important in rural areas, where access to advanced medical treatments may be limited.

5. Cognitive Decline in Rural vs. Urban Populations

Research has consistently shown differences in the prevalence and impact of cognitive decline between rural and urban populations. Urban populations often have better access to healthcare services, more educational opportunities, and increased social engagement, all of which are associated with a lower risk of cognitive decline (Yaffe et al., 2013). Conversely, rural populations face barriers such as limited healthcare infrastructure, lower educational attainment, and higher levels of social isolation, contributing to a higher prevalence of dementia and MCI (Baldwin et al., 2017).

6. Cultural Perceptions and Awareness

Cultural factors significantly impact the recognition and management of dementia and MCI. In rural areas, dementia is often misunderstood or attributed to normal aging, resulting in delayed diagnosis and treatment (Ayalon et al., 2013). Awareness campaigns and education in both rural and urban settings are essential for early detection and prevention (Cheng, 2017). Studies indicate that awareness programs tailored to local cultural norms can improve early diagnosis and community support (Lai et al., 2018).

7. Socioeconomic Status and Its Impact on Cognitive Health

Socioeconomic disparities play a critical role in the risk and progression of cognitive decline. People from lower socioeconomic backgrounds, common in rural settings, are often at higher risk for cognitive impairment due to factors such as inadequate nutrition, lack of access to medical care, and chronic stress (Kobayashi et al., 2018). Conversely, urban residents may benefit from better nutrition and healthcare access, although socioeconomic disparities persist within urban populations as well.

8. Role of Non-Pharmacological Interventions

Non-pharmacological interventions have been effective in managing MCI and preventing its progression to dementia. Multi-domain interventions, such as combining cognitive training, physical activity, and social engagement, have shown positive results in slowing cognitive decline (Valenzuela & Sachdev, 2009). Programs designed for rural communities need to consider limited resources and focus on easily accessible activities like community-based group exercises or memory workshops (Ginis et al., 2017).

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

9. Technological Interventions for Early Detection

Advancements in technology have provided new tools for the early detection and monitoring of cognitive decline. Mobile health applications, telemedicine, and online cognitive assessments have emerged as effective ways to reach rural populations with limited access to healthcare services (Topol, 2019). Studies suggest that integrating technology-based assessments could bridge the gap between rural and urban healthcare disparities (Boustani et al., 2010).

10. Policy Implications and Future Directions

The findings from comparative studies of rural and urban populations can guide public health policies. Effective strategies must address the unique challenges of rural settings, such as improving healthcare infrastructure, promoting educational programs, and providing community support networks (World Health Organization, 2020). Future research should explore sustainable, community-driven solutions that involve local leaders and stakeholders to foster better health outcomes.

Research objectives:

- To compare the prevalence of dementia and MCI between rural and urban population of Palwal Haryana.
- To assess the level of awareness and knowledge about dementia and MCI among rural and urban population of Palwal Haryana.
- To explore the gender difference in the effects of dementia and MCI in rural and urban area population of Palwal.
- To analyze the impact of dementia and MCI on the quality of life in the individuals and their caregivers in rural versus urban area of Palwal Haryana

Study Design:

- There is a cross-sectional study, this design for the comparison of dementia and MCI effects in rural and urban population of Palwal Haryana.
- There are 100 participants selected for find out the effects of Dementia and MCI in rural and urban area of Palwal Haryana.
- 50 participants are for urban and 50 participants for rural area of Palwal Haryana.

Sampling Technique:

We are using stratified random sampling; ensure that both rural and urban population is adequately represented in the sample.

Inclusion Criteria:

- Adults aged 60 and above.
- Residing in rural and urban area of Palwal Haryana at least 1 year.
- For MCI and Dementia cases we are using psychological assessment tools.
- Exclusion criteria: individual with severe co morbid psychiatric or neurological conditions that may confound the study.
- Individual denials the consent and do not interested for participating the study.

Data collection method:

Cognitive assessment- we are using the Addenbrooke's cognitive assessment tool ACE-III, Clinical dementia rating scale.

These tests are validated and globally accepted.

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

We are taking information about SDD, age, gender, education, occupation, diet, physical activity and medical history also.

Data analysis: Calculate frequencies, percentages, means and standard deviation to describe the sociodemographic and health characteristics of the participants.

Ethical consideration:

- Informed consent: Ensure that all participants provide informed consent after understanding the purpose and procedure of the study.
- Confidentiality: Personal information and data should be securely stored to protect participant's privacy.

Expected outcomes:

A detailed comparison of the prevalence, awareness, and impact of dementia and MCI in rural and urban population of Palwal Haryana.

Identification of unique risk factors and barrier to healthcare assess in each population.

RESULTS

On the basis of this comparative study of effects of dementia and MCI with the 100 participants of Palwal Haryana, 50 rural area participants & 50 urban area participants' findings as mentioned above:

- Out of the 100 participants, 7 participants were identified as having mild cognitive impairment (MCI).
- The remaining participants were classified as cognitively normal.
- The data distribution between the rural (50 participants) and urban (50 participants) included literate and illiterate participants also.

Following results are shown in these tables:

Table-1

Age	Frequency	Percent
60-65	40	40
65-70	28	28
70-75	26	26
more than 75	6	6
Total	100	100

Table 1 depicts the frequency and percentage of people of various age groups, age group 60-65 has a frequency 40 and percentage is also 40%; likewise, the frequency of age group 65-70 is 28 and percentage is 28%; age group 70-75 has frequency and percentage as 26 and age group more than 75 has frequency and percentage 6.

Table -2

Sex	Freq.	Percent
Female	57	57
Male	43	43
Total	100	100

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

Table 2 depicts the frequency and % of male and female. The females have frequency and % as 57 whereas males have the frequency and % of 43.

Table-3

Education	Freq.	Percent
Literate	50	50
Illiterate	50	50
Total	100	100

Table 3 depicts the data of education i.e. literate or illiterate. The frequency and% of literate people is 50 and illiterate is also 50.

Table-4

Literate

ACE-III	Mean	Standard deviation	95% Confidence Interval	(Min -Max)
Attention	17.54	1.402767	(17.15-17.93)	(12 - 18)
Memory	21.52	3.032073	(20.68-22.36)	(15 - 26)
Fluency	11.38	1.085902	(11.08-11.68)	(10 - 14)
Language	24.04	2.594814	(23.32-24.76)	(14 - 26)
Visuospatial	13.22	2.712706	(12.47-13.97)	(7 - 16)
Total	87.7	7.41551	(85.64-89.76)	(64 - 97)

Table 4 depicts the mean, standard deviation, of the variables of ACE-III (i.e. attention, memory, fluency, language & visuospatial of literate population.

Table-5

Illiterate

ACE-III	Mean	Standard deviation	95% Confidence Interval	(Min -Max)
Attention	17.18	2.007028	(16.62-17.74)	(10 - 18)
Memory	22.1	3.290369	(21.19-23.01)	(11 - 26)
Fluency	11.2	1.069045	(10.9-11.5)	(10 - 14)
Language	24.08	3.002312	(23.25-24.91)	(11 - 26)
Visuospatial	14.18	2.057242	(13.61-14.75)	(8 - 16)
Total	88.74	8.532794	(86.37-91.11)	(60 - 99)

Table 5 depicts the mean, standard deviation, of the variables of ACE-III (i.e. attention, memory, fluency, language & visuospatial of illiterate population.

Table-6

ACE-III SCORE	Total
No Impairment	93
MCI/0.5	7
	100

Table 6 depicts the ACE-III score.

CONCLUSION

Prevalence of MCI:

The findings indicate that MCI affects 7% of the population studied. This suggests that while the majority of participants are not currently affected, a significant minority shows early signs that could potentially progress to dementia if not addressed.

Implications for Prevention:

Early detection in these 7 participants highlights the importance of continuous monitoring and early intervention strategies, especially with a non-pharmacological approach that might include lifestyle changes, cognitive training, and community support.

Rural vs. Urban insights:

If the 7 MCI cases are distributed unevenly between rural and urban participants, this could indicate potential disparities in risk factors such as lifestyle, education, and access to healthcare, which may guide tailored prevention strategies.

Future Directions:

The study emphasizes the need for ongoing research to identify the underlying causes and risk factors contributing to MCI, particularly considering the socioeconomic and cultural differences between rural and urban settings in Palwal Haryana.

REFERENCES

- Ayalon, L., & Areán, P. A. (2013). Knowledge of Alzheimer's disease in four ethnic groups of older adults. *International Journal of Geriatric Psychiatry*, 19(1), 51–57
- Bidisha Bhattacharyya, A. P. (2024). Illiterate Addenbrooke's Cognitive Examinatin -III in three Indian languages: An Adaptation and Validation study. *Researchgate.net*, 14.
- Carlos Calderon, C. B.-G.-C. (2021). Psychometric properties of Addenbrooke's Cognitive Examkination (ACE-III): An item response theory approach. *Researchgate.net*, 17.
- Jack, C. R., Jr., Bennett, D. A., Blennow, K., Carrillo, M. C., Dunn, B., Haeberlein, S. B., ... Silverberg, N. (2018). NIA-AA research framework: Toward a biological definition of Alzheimer's disease. *Alzheimer's & Dementia*, 14(4), 535–562
- K.S.Shaji, V. J. (2018). Indian research on ageing and dementia. *Indian Journal of psychiatry*, 5.
- Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., ... & Mukadam, N. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet*, 396(10248), 413–446.
- Nasreddine, Z. S., Phillips, N. A., Bédirian, V., Charbonneau, S., Whitehead, V., Collin, I., ... & Chertkow, H. (2005). The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. *Journal of the American Geriatrics Society*, 53(4), 695–699
- Ngandu, T., Lehtisalo, J., Solomon, A., Levälähti, E., Ahtiluoto, S., Antikainen, R., ... & Kivipelto, M. (2015). A 2-year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial. *The Lancet*, 385(9984), 2255–2263
- Petersen, R. C., Lopez, O., Armstrong, M. J., Getchius, T. S., Ganguli, M., Gloss, D., ... & Stevens, J. (2018). Practice guideline update summary: Mild cognitive impairment. Report of the AAN guideline subcommittee. *Neurology*, 90(3), 126–135.

A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana

Prince, M., Wimo, A., Guerchet, M., Ali, G. C., Wu, Y. T., & Prina, M. (2015). World Alzheimer Report 2015 – The Global Impact of Dementia: An Analysis of Prevalence, Incidence, Cost and Trends. Alzheimer's Disease International.

Sindi, S., Mangialasche, F., & Kivipelto, M. (2017). Advances in the prevention of Alzheimer's disease. *F1000Research*, 6, 2053.

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Sharma, M.K. & Abrol, M. (2025). A Comparative Study of Effect of Dementia & Mild Cognitive Impairment (MCI) in Rural & Urban Population of Palwal Haryana. *International Journal of Indian Psychology*, 13(3), 3581-3589. DIP:18.01.326.20251303, DOI:10.25215/1303.326