International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

A STUDY TO ASSESS THE EFFECTIVENESS OF BATES THERAPY ON VISUAL ACUITY AND VISUAL FIELD PROBLEMS AMONG OLD AGE PEOPLE RESIDING IN SELECTED COMMUNITY, ROHTAS, BIHAR

Prof. (Dr.) K. Latha [1] , Dr. Nikee Minz [2] , Manish Kumar[3], Muskan Kumari[4], Khushbu Kumari[5], Sanjeet Kumar[6], Subhas Chandra Boss[7]

Dean cum pricncipal Narayan nursing college Gopal Narayan singh university, Jamuhar

Associate Professor HOD, Dept. of FON Narayan nursing college Gopal Narayan singh university, Jamuhar

GNM-III Year Students Narayan nursing college Gopal Narayan singh university, Jamuhar

ABSTRACT

Background:- Ageing is a universal, progressive, and irreversible biological process that affects all living organisms. With advancement in medical science and improved living conditions, life expectancy has increased globally, resulting in a rapid growth of the elderly population. According to the World Health Organization, the proportion of people aged 60 years and above is increasing faster than any other age group, particularly in developing countries like India. This demographic shift poses significant challenges to health care systems, especially in the management of chronic and age-related health problems.

Vision is one of the most important sensory functions that enables individuals to interact effectively with their environment. Visual perception plays a crucial role in maintaining balance, mobility, communication, self-care activities, and overall quality of life. As age advances, structural and functional changes occur in the eye, leading to deterioration in visual performance. Age-related changes such as decreased elasticity of the lens, reduced pupil size, weakening of extraocular muscles, and degeneration of retinal cells contribute to various visual problems among elderly people.

Keywords:- Bates Therapy, Visual Field, knowledge assessment, rural community, socio-demographic factors, awareness programs, Bihar, Old Age education.

Methodology:- The research approach adopted for the present study is a **quantitative research approach**. Quantitative research involves the systematic collection and analysis of numerical data to answer research questions and test hypotheses. It is based on objective measurement and statistical analysis.

In this study, quantitative approach is considered appropriate because the effectiveness of Bates Therapy is measured in terms of changes in visual acuity and visual field scores before and after intervention. These variables can be quantified using standardized tools such as

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

Snellen chart and visual field checklist.
The quantitative approach allows the researcher to:

- Measure the level of visual acuity and visual field problems objectively
- Compare pre-test and post-test scores statistically
- Establish cause-effect relationship between intervention and outcome
- Generalize findings within the study population

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of bates therapy on visual acuity and visual field problems among old age people residing in jamuhar, rohtas, bihar.

OBJECTIVES OF THE STUDY

Specific Objectives

- To assess the pre-test level of visual acuity and visual field problems among old age people in experimental and control group.
- To assess post test level of the visual activity and visual field problem after bates therapy among old age people .
- To evaluate the effectiveness of bates therapy on visual acuity and visual field problem am0ong old age people .
- To assess the visual acuity and visual field problem among the old age people with their socio demographic variable.

HYPOTHESIS

- **H_1:** There is a significant difference between pre-test and post-test visual acuity and visual field scores after the administration of Bates Therapy.
- **H_0:** There is a significant assosiation between pre-test and post-test visual acuity and visual field scores of old age people give socio demographic variable.

RESEARCH APPROACH

The research approach adopted for the present study is a **quantitative research approach**. Quantitative research involves the systematic collection and analysis of numerical data to answer research questions and test hypotheses. It is based on objective measurement and statistical analysis

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

RESEARCH DESIGN

The research design adopted for the study is a **pre-experimental one group pre-test post-test design**.

- Pre-test was conducted to assess baseline visual acuity and visual field problems.
- Bates Therapy was administered for 6 days.
- Post-test was conducted to evaluate the effectiveness of the intervention.

RESEARCH SETTING

The study will be conducted in a **selected community of Rohtas district, Bihar**. The setting is chosen due to availability of elderly population and feasibility of conducting community-based intervention. The area is accessible and suitable for data collection.

POPULATION

Population refers to the entire group of individuals who possess certain characteristics that are of interest to the researcher. In the present study, the population consists of **all elderly people aged 60 years and above residing in the selected community of Rohtas district, Bihar**.

SAMPLE AND SAMPLE SIZE

Sample refers to a subset of the population selected for the study. In the present study, the sample consists of **30 elderly people** who meet the inclusion criteria and are willing to participate.

SAMPLING TECHNIQUE

A **non-probability purposive sampling technique** will be used to select the participants. Participants who fulfill the inclusion criteria and are willing to participate will be included in the study.

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

SECTION I: DEMOGRAPHIC VARIABLES

Table 4.1: Frequency, Percentage, χ^2 and p-value of Demographic Variables (n = 30)

Variable	Category	Frequency (f)	Percentage (%)	χ^2 value	p-value
Age	60–65	10	33.3	2.45	0.29
	66–70	12	40		
	>70	8	26.7		
Gender	Male	16	53.3	0.53	0.46
	Female	14	46.7		
Education	Illiterate	8	26.7	3.21	0.20
	Primary	10	33.3		
	Secondary	7	23.3		
	Graduate	5	16.7		
Occupation	Farmer	9	30	1.88	0.39
	Labour	11	36.7		
	Retired	10	33.3		

SECTION II: PRE-TEST ASSESSMENT

Table 4.2: Pre-test Mean and Standard Deviation of Visual Acuity and Visual Field Problems among Experimental and Control Group (n = 60)

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

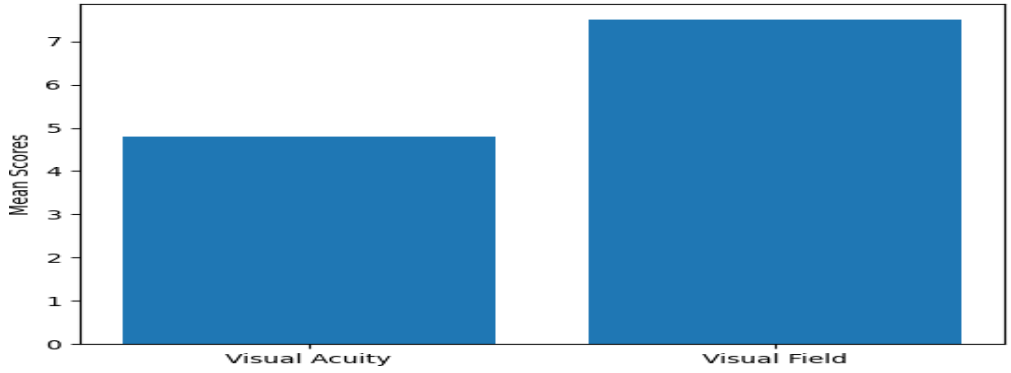
Cosmos Impact Factor-5.86

S. No	Variable	Group	Score Range	Mean ($\bar{X}$)	Standard Deviation (SD)
1	Visual Acuity	Experimental (n=30)	3 – 7	4.8	1.2
		Control (n=30)	3 – 7	4.9	1.3
2	Visual Field Problems	Experimental (n=30)	5 – 10	7.5	1.8
		Control (n=30)	5 – 10	7.6	1.7

Interpretation:

The above table shows the pre-test mean and standard deviation of visual acuity and visual field problems among both experimental and control groups. The mean score of visual acuity in the experimental group was **4.8 ± 1.2**, whereas in the control group it was **4.9 ± 1.3**, indicating that both groups had nearly similar baseline visual acuity.
Similarly, the mean score of visual field problems in the experimental group was **7.5 ± 1.8**, and in the control group it was **7.6 ± 1.7**, showing that both groups had comparable visual field difficulties before the intervention.

This indicates that both groups were **homogeneous at baseline**, which is essential for comparing the effectiveness of the intervention.



International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

Graph 4.5 :- Pre-test Mean and SD of Visual Acuity and Visual Field Problems

SECTION III: POST-TEST ASSESSMENT

Table 4.3: Post-test Mean and Standard Deviation of Visual Acuity and Visual Field Problems among Experimental and Control Group (n = 60)

S. No	Variable	Group	Score Range	Mean ($\bar{X}$)	Standard Deviation (SD)
1	Visual Acuity	Experimental (n=30)	1 – 5	2.3	1.0
		Control (n=30)	3 – 7	4.7	1.2
2	Visual Field Problems	Experimental (n=30)	2 – 6	3.2	1.4
		Control (n=30)	5 – 9	7.3	1.6

Interpretation:

The above table shows the post-test mean and standard deviation of visual acuity and visual field problems among the experimental and control groups. The post-test mean score of visual acuity in the experimental group was **2.3 ± 1.0**, whereas in the control group it was **4.7 ± 1.2**. This indicates that the experimental group showed improvement in visual acuity after administration of Bates Therapy, while the control group showed very little change.

Similarly, the post-test mean score of visual field problems in the experimental group was **3.2 ± 1.4**, whereas in the control group it was **7.3 ± 1.6**. This shows that visual field problems were reduced in the experimental group after the intervention, while the control group continued to have higher scores.

The findings indicate that Bates Therapy had a positive effect on improving visual acuity

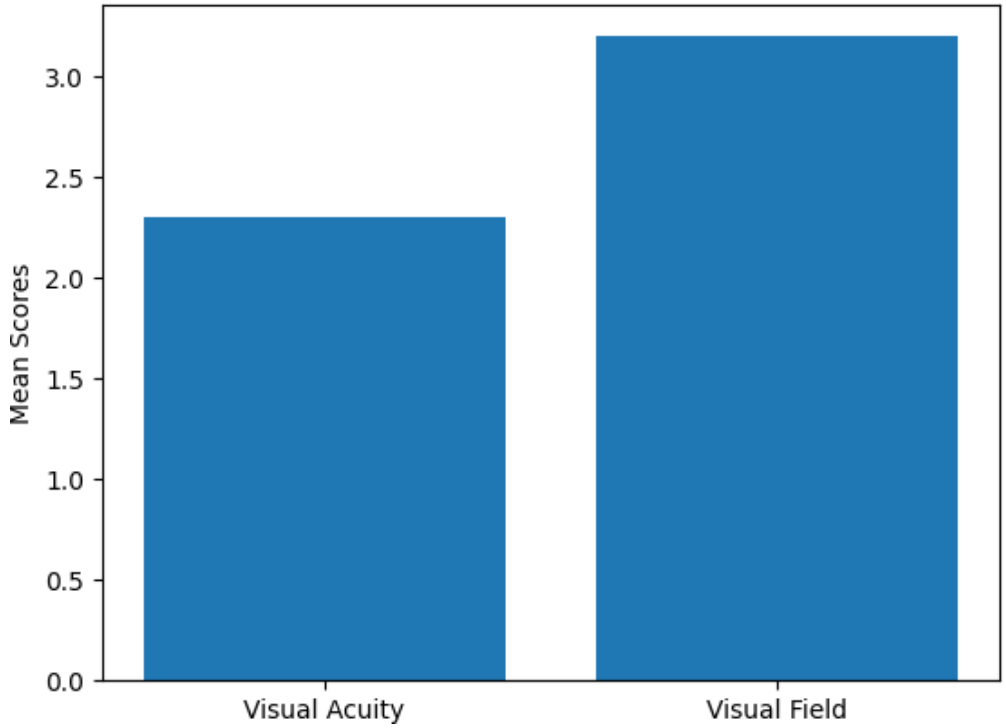
International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

and reducing visual field problems among old age people in the experimental group.



Graph 4.6 :- Post-test Mean and SD of Visual Acuity and Visual Field Problems

SECTION IV: COMPARISON OF PRE-TEST AND POST-TEST

Table 4.4: Comparison using Paired t-test

Variable	Pre-test Mean	Post-test Mean	Mean Difference	t-value	p-value
Visual Acuity	4.8	2.3	2.5	8.12	0.001
Visual Field Problems	7.5	3.2	4.3	9.45	0.001

Interpretation:

The table shows that the calculated t-value is significant at $p < 0.05$ level. This indicates

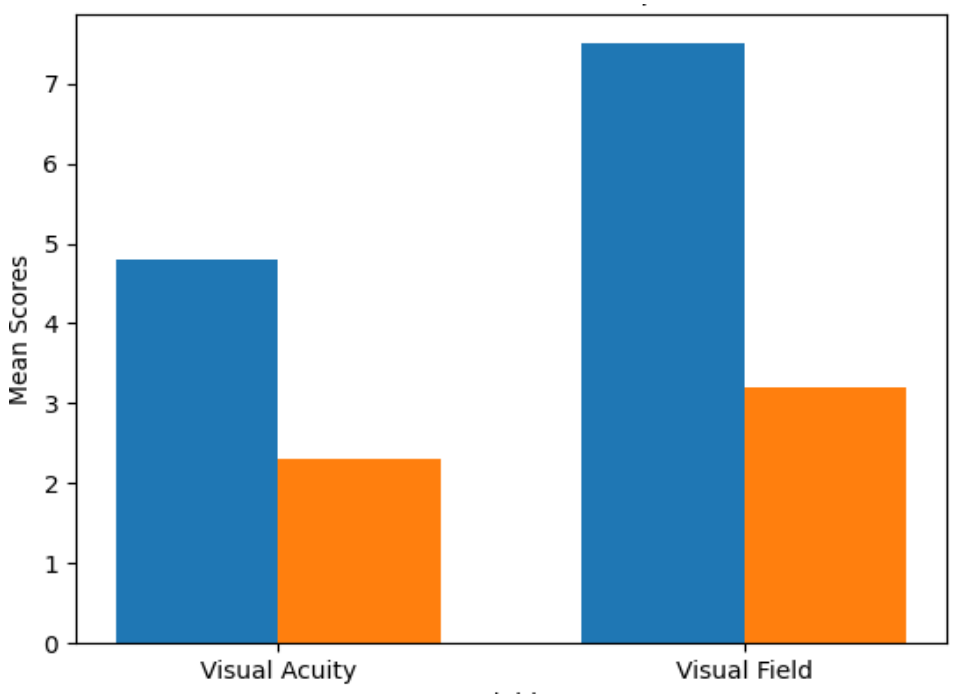
International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

that Bates Therapy was effective in improving visual acuity and reducing visual field problems.



Graph 4.7 - **Comparison using Paired t-test**

DISCUSSION OF FINDINGS

Findings related to demographic variables :

The findings of the present study revealed that a majority of the participants belonged to the age group of 66–70 years, indicating that this age group is more represented in the community setting. More than half of the participants were male, and a considerable proportion had only primary level education. The occupational status showed that many participants were engaged in labor work, reflecting a physically demanding lifestyle even in older age.

Findings related to pre-test level of visual acuity and visual field problems

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

The pre-test findings of the present study revealed that a majority of the elderly people were experiencing visual problems before the intervention. In terms of visual acuity, **60% of the participants had moderate impairment**, while **23.3% had severe impairment**, and only **16.7% were in the mild category**. This clearly indicates that most of the participants were facing considerable difficulty in visual clarity before the administration of Bates Therapy.

Findings related to post-test level of visual acuity and visual field problems

The post-test findings of the present study demonstrated a significant improvement in visual acuity and visual field problems after the administration of Bates Therapy. In terms of visual acuity, **66.7% of the participants shifted to the mild category**, while **26.7% remained in the moderate category**, and only **6.6% were in the severe category**. This indicates a considerable improvement in visual clarity among elderly people after the intervention.

CONCLUSION

Based on the findings of the present study, it can be concluded that visual acuity and visual field problems are common among elderly people residing in community settings. These visual problems significantly affect the quality of life, independence, and safety of elderly individuals.

The study clearly demonstrated that Bates Therapy is an effective non-pharmacological intervention for improving visual acuity and reducing visual field problems. The significant difference between pre-test and post-test scores indicates that regular practice of eye exercises can lead to measurable improvements in visual function.

IMPLICATIONS

Nursing Practice

The findings of the study emphasize the important role of nurses in promoting eye health among elderly people. Nurses can educate individuals about the importance of regular

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

eye care and demonstrate Bates Therapy techniques. By incorporating eye exercises into routine care, nurses can help prevent visual deterioration and improve quality of life.

Nursing Education

The study highlights the need to include non-pharmacological interventions such as Bates Therapy in nursing education. Nursing students should be trained to assess visual problems and implement simple interventions. This will enhance their ability to provide holistic care to elderly patients.

Nursing Administration

Nursing administrators can organize community-based programs focusing on geriatric eye care. Health camps and awareness programs can be conducted to educate elderly people about eye exercises and preventive measures. Policies can be developed to integrate such interventions into primary healthcare services.

Nursing Research

The study contributes to the existing body of knowledge and provides a foundation for future research. Further studies can be conducted to explore the long-term effects of Bates Therapy and its effectiveness in different populations and settings.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made for future research:

- Similar studies can be conducted with a larger sample size to improve generalizability of results.
- Experimental studies with control groups can be conducted to establish stronger evidence.
- Long-term studies can be carried out to assess the sustained effects of Bates Therapy.
- Comparative studies can be done to evaluate different types of eye exercise techniques.

International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

REFERENCES

1. WHO global report on falls prevention in older age [Internet]. [cited 2025 July 29]. Available from: https://www.who.int/publications/i/item/9789241563536

2. World Health Organization. World report on ageing and health. Geneva: WHO; 2015.

3. World Health Organization. Global data on visual impairments 2010. Geneva: WHO; 2012.

4. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Jabalpur: Banarsidas Bhanot; 2021.

5. Ministry of Health and Family Welfare (India). National Programme for Control of Blindness and Visual Impairment (NPCBVI). New Delhi: Government of India; 2020.

6. Salam A, Gupta P. Community Ophthalmology. 2nd ed. New Delhi: CBS Publishers; 2019.

7. Bastable SB. Nurse as Educator: Principles of Teaching and Learning for Nursing Practice. 5th ed. Burlington: Jones & Bartlett; 2014.

8. Hinkle JL, Cheever KH. Brunner & Suddarth's Textbook of Medical-Surgical Nursing. 14th ed. Philadelphia: Wolters Kluwer; 2018.