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RESEARCH ARTICLE

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## IMPROVING QUALITY OF LIVING OF LOW VISION PATIENTS IN PATNA, INDIA WITH LIVING SPACE MODIFICATIONS AND HOUSEHOLD ARTEFACTS

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### ABSTRACT

The burden of low vision is rapidly increasing globally, and locally, in the developing world. The study aims to more specifically assess various commonly used low visual aids and the outcome in patients. 36 patients with low vision were examined, investigated and treated by the author in the period between Dec 2018 to April 2019, using a variety of new instruments and rehabilitation techniques. Following this, there was improvement in visual acuity in 32 patients as well as improvement in quality of living where patients were able to undertake several household and profession related tasks and activities. Through this, the author concludes that for low vision patients, following proper diagnosis, and treatment, proper rehabilitation tools and techniques are needed to bring improvement in the quality of life.

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## INTRODUCTION

Low vision is defined as visual impairment despite treatment, surgery, or standard refractive correction, but with the potential to use the residual vision. The World Health Organization describes a person with low vision (LV) as one who has an impairment of visual function, even after treatment and/or standard refractive correction, and has a visual acuity (VA) of <6/18 to perception of light (PL), or a visual field of <10° from the point of fixation, but who uses—or is potentially able to use—vision for the planning and/or execution of a task for which vision is essential. LV is characterized by irreversible visual loss, decreased visual field, glare, and contrast, and decreased ability to perform daily activities such as reading or writing, and some people who suffer from this condition may be socially withdrawn. The prevalence of LV in a population-based cross-sectional study in India was reported to be 1.05% in the year 2000, with a burden of 10.6 million people requiring LV services. The magnitude of LV is estimated to be 54.5 million in India (Fig. 1).

**Aim of study:** The aim of the study was to explore the clinical profile of patients requiring Low Vision Aids (LVA) and assess the effectiveness of common everyday household artefacts to improve the quality of life of patients with low vision. As opposed to optical devices such as tele-lens and other more expensive low vision aids, an

attempt was made to explore the availability and use of household artefacts, readily available or modifiable in a patients' household, to improve the quality of life among patients with low vision.

## METHODOLOGY

A cross-sectional analysis of LV patients attending a Low Vision Clinic in Patna between November 2021 to February 2022 was undertaken with a telephone prospective follow up after few weeks. A total of 138 patients who were referred to the Low Vision Clinic were screened with Snellen's chart. The Snellen chart was used to assess VA for distance and for near vision. For all cases, BCVA was determined after refraction. Color vision, contrast sensitivity and visual field were done, wherever possible. A semi-structured interview was undertaken to understand their abilities and disabilities around their day-to-day activities and tasks (modified Activity of daily living tool). A general interaction helped determine the condition of their residences and living spaces, the availability of household artefacts in the places of their residence and their ability to modify them for their use. Oral informed consent was obtained from the patients who were explained about their condition and supported to use LVAs. The study adhered to all ethical protocols. Household modifications and artefacts were categorised as per place and need to use to improve quality of life in LV patients. This was combined with

simple techniques, user training and counselling to improve motivation and confidence. These were as follows:

- Kitchen and cooking: change of wall color along with source and direction of light. Special or modified utensils for safety and user friendliness, techniques for pouring hot and cold beverages differently.
- Outdoor and Indoor field of vision: M training; walking cane; foldable walking cane with alarm.
- Common household activities and finer work: needle threader, torch light; coloured chocolate beads, mobiles with usage of voice commands.
- Writing and reading: Signature guide
- Money related: Cardboard notex for counting money.

Patients were followed up physically or on phone to assess their improvement and overall satisfaction at a five-point scale; the highest point being for most satisfaction.

## RESULTS

Of the 140 patients who attended Low Vision Clinic, 110 (79%) were male and 30 (21%) were female. Of the patients 23% were young (first 2 decades), 55% were mid-aged (3<sup>rd</sup> to 5<sup>th</sup> decades), 20% were senior citizens (6<sup>th</sup> and 7<sup>th</sup> decade) and 2% were elderly (8<sup>th</sup> decade or older). On screening with Snellen's chart after best correction of visual acuity (BCVA), 18% had Perception of Light in RE and 14% in LE; and 14% and 22% hand movement in RE and LE, acuity between and including 6/60 and 6/36 was 55% in RE and 41% in LE, visual acuity between and including 6/18 and 6/6 were 13% in RE and 23% in LE. On enquiry of activities of daily living, difficulties were faced in viewing and using mobile phones (45%), viewing TV (21%), undertaking outdoor tasks (20%), undertaking household work (12%), undertaking finer work like writing and reading (10%), undertaking kitchen work (14%) and transport, work or occupation related (25%). (Multiple responses were allowed so the percentages will not add to 100%) During follow up, 138 patients responded and 2 were lost to follow up, and their responses related to living space modifications and household artefacts were as follows (multiple responses): 81% benefitted from the counselling; 8% reported improvement through modifications in household lighting, 8% through changes in kitchen ambience and utensil modifications; among artefacts 10% benefitted by using torch light, 25% benefitted from money counting notex, 9% benefitted from use of walking stick or cane, and 36% benefitted from a non-specific mix of household modifications, artefacts and counselling.

Patient satisfaction to the set of interventions were overall very high with 65% rating 5/5, 32% rating 4/5 and 3% rating 3/5, and they reported a general improvement in overall quality of life and ease in doing day to day tasks.

## DISCUSSION AND CONCLUSION

Patients with low vision suffer from a complex set of problems ranging from loss of confidence, hesitancy, fear and overall visual and physical inabilities and challenges to live their day to day lives. While they can be from any age range, most difficulties are faced during the productive years of their lives; and in general men access low vision aid clinics more than women. A holistic approach to therapy using a mix of counselling, modification of household ambience and use of household artefacts have a combined result of improving overall patient satisfaction and quality of life. The author concludes that humble counselling, individual training and use of simple household artefacts, based on specific needs and opportunities, can do miracles in low vision patients who had no hope of living normal and productive lives. The holistic intervention set encompasses the patients home and work spheres of lives, and intervenes across a wide range of daily tasks and accomplishments; and brings an overall improvement in the quality of daily living.

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