

Cataract awareness program: improving cataract prevention knowledge and behavior in the elderly

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ABSTRACT

Cataract remains one of the leading causes of avoidable visual impairment among older adults, particularly in community and rural settings where awareness and access to eye health services are limited. Low levels of knowledge, misconceptions that cataract is a normal and untreatable part of aging, and delayed health-seeking behaviour contribute to late diagnosis and preventable blindness. This community service program aimed to improve knowledge, awareness, and preventive behaviour regarding cataract among older adults through a community-based educational intervention using a field visit approach. The program was conducted in a selected community and involved older adult participants recruited with the support of local leaders. Activities were conducted in a single-day session and included structured health education on cataract, interactive discussions, basic health assessments, and free eye examinations. Educational materials covered the definition of cataract, risk factors such as smoking, ultraviolet exposure, and chronic diseases, early signs and symptoms, preventive measures, and available treatment options. The interactive discussion allowed participants to clarify misconceptions and relate the information to their personal experiences. The results showed a clear improvement in participants' knowledge levels after the intervention, with a marked shift from low to moderate and reasonable knowledge categories. Participants also demonstrated increased awareness of the importance of early detection and regular eye examinations. The integration of education with basic health and eye screening enhanced participant engagement and reinforced the relevance of eye health within overall healthy aging. This program demonstrates that community-based cataract education using a field visit approach is a practical and effective strategy to strengthen eye health literacy among older adults and supports efforts to prevent avoidable visual impairment at the community level.



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INTRODUCTION

Visual impairment among older adults remains a significant public health concern globally, with cataract identified as one of the leading causes of reversible blindness (Chen et al., 2025). Cataract is characterised by progressive clouding of the lens, resulting in blurred vision, reduced contrast sensitivity, and eventual vision loss if left untreated. Although cataract surgery is a highly effective and widely available intervention, a substantial proportion of older adults continue to experience avoidable visual impairment due to delayed diagnosis, limited access to services, and low awareness of eye health (Das et al., 2024). In many low- and middle-income settings, including rural communities, cataract-related blindness persists not because of the absence of treatment options, but because preventive and promotive health efforts have not been optimally implemented (Du, 2023).

The urgency of cataract prevention and early detection is closely linked to demographic transitions marked by an increasingly aging population (Dunnigan et al., 2025). As life expectancy rises, the prevalence of age-related degenerative conditions, including cataract, continues to increase (Gomes et al., 2023). Visual impairment in older adults has far-reaching consequences, affecting independence, mobility, social participation, and overall quality of life. Poor vision is also associated with higher risks of falls, injuries, depression, and reduced ability to perform daily activities. From a health systems perspective, untreated cataracts contribute to an increased burden on families and communities, as older adults with visual impairment often require long-term assistance and care (Morjaria et al., 2025).

Despite the magnitude of this problem, cataract is frequently perceived by the community as an inevitable consequence of aging rather than a preventable and treatable condition (Nezhad et al., 2025). This misconception constitutes a critical barrier to timely eye examinations and appropriate management. Many older adults delay seeking care until vision loss becomes severe, at which point functional limitations and dependency are already pronounced (Olivier et al., 2024). Furthermore, cultural beliefs, fear of surgery, misinformation regarding treatment outcomes, and reliance on traditional remedies further exacerbate delays in accessing eye care services. These factors highlight the need for targeted health education that addresses not only knowledge gaps but also attitudes and beliefs related to cataract and eye health (Paudel et al., 2022).

Another significant challenge lies in the limited integration of eye health promotion into routine community-based health activities. Health promotion efforts often prioritize non-communicable diseases such as hypertension and diabetes, while eye health receives comparatively less attention (Pouyan et al., 2024). This is concerning given that systemic conditions, including diabetes mellitus, hypertension, and lifestyle factors such as smoking and prolonged ultraviolet exposure, are well-established risk factors for cataract development and progression. Without adequate education, older adults may remain unaware of the link between these modifiable risk factors and eye health, thereby missing opportunities for prevention and early intervention (Reichelt et al., 2025).

Geographical and logistical barriers further compound the problem, particularly in rural and semi-rural areas. Older adults may face difficulties accessing health facilities due to distance, transportation costs, or physical limitations (Saultier & Michel, 2024). These barriers reduce the likelihood of routine eye examinations and contribute to the underdiagnosis of cataract at an early stage. Consequently, community-based approaches that bring health education and basic screening closer to the population are essential to bridge the gap between health services and community needs (Stapleton et al., 2023).

In response to these challenges, community-based health education emerges as a strategic, sustainable solution to improve cataract awareness and preventive behaviours among older adults. Health education interventions delivered directly within the community can enhance knowledge about cataract, its risk factors, early symptoms, and available treatment options. By using simple language, culturally appropriate messages, and interactive communication methods, such programs can correct misconceptions, reduce fear, and empower older adults to take an active role in maintaining their eye health. Importantly, education that emphasizes the benefits and safety of early medical consultation and cataract surgery can foster positive attitudes toward seeking professional care.

Therefore, community-based cataract education programs are essential to address the persistent gaps in knowledge, access, and preventive behavior among older adults. By focusing on health promotion, early detection, and empowerment, these interventions can significantly reduce avoidable visual impairment and improve quality of life in ageing populations. This initiative underscores the importance of strengthening community engagement in eye health promotion as a key component of public health strategies to prevent blindness and support healthy ageing.

METHOD

This community service program employed a field visit-based educational approach aimed at improving knowledge, awareness, and preventive behaviors related to cataract among older adults. The activity was conducted directly within the community to ensure accessibility and active participation of the target population. The program targeted older adults living in the selected community, with participants recruited through coordination with local community leaders. The intervention was delivered in a single-day session and included structured health education, interactive discussion, and basic health and eye screening activities.

The educational component included information on the definition of cataract, risk factors, early signs and symptoms, prevention strategies, and available treatment options. The material was presented using simple language and interactive methods to facilitate understanding. An open discussion session allowed participants to ask questions and share personal experiences related to visual problems. To reinforce the educational messages, the program also provided basic health assessments, including blood pressure and selected metabolic screenings, as well as free eye examinations conducted by the health team. These activities aimed to support early detection and encourage participants to seek further care at health facilities when needed. The field visit method enabled direct engagement with older adults in their local environment, fostering trust, increasing participation, and enhancing the effectiveness of cataract health education and promotion activities.



Figure 1. Stages of Community Service Implementation

Stage	Activity Phase	Description of Activities
1	Preparation and Coordination	Coordination with community leaders and local health stakeholders to determine the activity schedule, location, and target participants. Preparation of educational materials on cataract, screening tools, and logistical arrangements for the field visit.
2	Community Engagement and Opening	Introduction of the health team and explanation of the program objectives to participants. Establishing rapport with older adults to encourage active participation and create a supportive learning environment.
3	Health Education Delivery	Delivery of structured health education on cataract, including definition, causes, risk factors (smoking, UV exposure, chronic diseases), early symptoms, prevention strategies, and available treatment options using simple language and interactive communication.
4	Interactive Discussion and Counselling	Facilitation of a question-and-answer session allowing participants to share experiences, clarify misconceptions, and receive individualized counseling related to visual complaints and eye health.
5	Health and Eye Screening, Evaluation	Provision of basic health screening (blood pressure and selected metabolic checks) and free eye examinations. Evaluation of participant understanding through observation and discussion, followed by recommendations and referrals to health facilities when necessary.

RESULT AND DISCUSSION

RESULT

This section presents the outcomes of a community-based cataract education program conducted through field visits among older adults. The results focus on participant characteristics, implementation of educational activities, levels of participation, and observed changes in knowledge, awareness, and attitudes toward cataract prevention and eye health. In addition, findings from basic health and eye screening activities are summarised to illustrate the program's immediate impact in supporting early detection and promoting proactive health-seeking behaviour among participants.

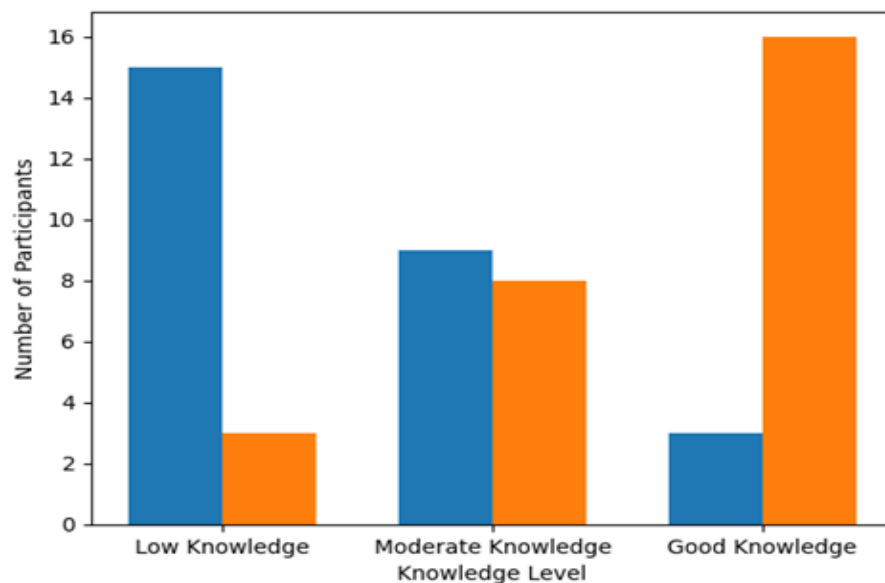


Figure 2. Cataract Knowledge Levels Before and After Community Education

The results of this community-based cataract education program demonstrate a clear and meaningful improvement in participants' knowledge levels following the field visit intervention. The bar chart illustrates a substantial shift from low to moderate and good knowledge categories after the educational activities were conducted. Prior to the intervention, most older adults exhibited limited understanding of cataract, its risk factors, early symptoms, and available treatment options. This finding reflects common conditions in many community settings where cataract is often perceived as a normal and unavoidable part of aging, leading to delayed health-seeking behavior.

After the educational sessions and interactive discussions, a marked increase was observed in the number of participants categorized as having good knowledge. This improvement suggests that the field visit approach was effective in delivering eye health information in a manner that was accessible, understandable, and relevant to older adults' daily experiences. Direct engagement within the community environment likely contributed to increased attention, trust, and willingness to participate, which are essential components of successful health education interventions.

The reduction in the proportion of participants with low knowledge indicates that key messages regarding cataract prevention, early detection, and treatment were well received. Participants demonstrated improved awareness of modifiable risk factors, such as smoking and prolonged exposure to ultraviolet light, as well as a better understanding of the importance of regular eye examinations. This enhanced knowledge is critical, as it forms the foundation for positive behavioral change, including timely consultation with health services when visual disturbances occur.

Furthermore, the combination of education with basic health and eye screening reinforced the relevance of the information provided. By linking theoretical knowledge with practical assessments, participants were able to contextualise their personal health status, which may strengthen motivation for preventive action. Overall, the findings indicate that community-based cataract education using a field visit approach is an effective strategy for improving eye health literacy among older adults. Such interventions have the potential to contribute to early detection of cataract, reduce avoidable visual impairment, and support healthy aging at the community level.

DISCUSSION

The findings of this community-based cataract education program indicate that a field visit-based educational intervention can effectively improve knowledge and awareness of cataract among older adults. The observed shift from predominantly low to moderate and good knowledge levels after the intervention aligns with health promotion

theories that emphasise the importance of accessible, contextually relevant education in shaping cognitive and behavioural outcomes. According to health education and promotion frameworks, knowledge is a critical precursor to attitude change and the adoption of preventive health behaviors, particularly among populations with limited prior exposure to formal health information.

The improvement in participants' knowledge following the intervention supports the principles of the Health Belief Model, which suggests that individuals are more likely to engage in preventive actions when they understand the nature of a health problem, recognize their susceptibility, and perceive clear benefits of early detection and treatment (Sullivan et al., 2023). Prior to the intervention, many older adults demonstrated limited understanding of cataract, often perceiving visual impairment as an inevitable consequence of aging. This misconception has been widely reported in previous studies, which indicate that low awareness and misinterpretation of cataract symptoms contribute significantly to delayed health-seeking behavior and preventable blindness. By providing clear explanations regarding the causes, progression, and treatability of cataract, the educational sessions helped reshape these perceptions and reduce fatalistic attitudes (Suprpto et al., 2020).

The effectiveness of the field visit approach observed in this program is consistent with the existing literature, which highlights the value of community-based and outreach-oriented health education strategies (Suprpto et al., 2021). Studies on eye health promotion have shown that interventions delivered directly within community settings are more likely to reach older adults who face barriers to accessing health facilities, such as mobility limitations, transportation challenges, or financial constraints. The field visit method facilitates direct interaction between health educators and participants in a familiar environment, fostering trust and encouraging active engagement. This interactive setting allows participants to ask questions, share personal experiences, and receive immediate clarification, which enhances comprehension and retention of information (Suranta Ginting et al., 2024).

The integration of interactive discussions within the educational sessions appears to have played a key role in improving learning outcomes. Adult learning theory emphasizes that adults learn more effectively when education is participatory, problem-centered, and directly related to their lived experiences. In this program, participants' active involvement in discussions about their own visual complaints and concerns helped contextualize the educational content and increased its relevance. Similar findings have been reported in previous community eye health programs, where dialogue-based education was associated with higher levels of understanding and satisfaction than one-way lectures (Tri Wijayanti et al., 2024).

Another important aspect of this intervention was the combination of health education with basic health and eye screening activities. Providing screenings for blood pressure and metabolic markers, alongside eye examinations, reinforced the link between systemic health conditions and eye health (Wang et al., 2024). Theoretical and empirical evidence indicates that chronic conditions such as diabetes mellitus and hypertension are

significant risk factors for cataract development and progression. By highlighting these connections and providing on-site assessments, the program enabled participants to understand better the multifactorial nature of cataract and the importance of holistic health management. This integrated approach is supported by public health literature, which advocates for comprehensive interventions that address multiple risk factors simultaneously to achieve greater impact (Xia et al., 2025).

The observed increase in knowledge following the intervention also has important implications for preventive behavior and early detection. Previous studies have demonstrated that improved knowledge about cataract is associated with increased willingness to undergo eye examinations and cataract surgery when indicated (Yousefiazar et al., 2025). Fear of surgery and misinformation about treatment outcomes are commonly cited barriers to cataract care. Through education that emphasised the safety, effectiveness, and benefits of early treatment, the program likely contributed to reducing anxiety and negative perceptions related to medical intervention. Although behavioral outcomes were not directly measured in this program, the positive shift in knowledge and attitudes suggests a potential pathway toward improved health-seeking behavior (Suprpto, 2020).

From a public health perspective, the results underscore the importance of strengthening community-level eye health promotion as part of strategies to prevent avoidable blindness. Global and national eye health initiatives consistently emphasise that a substantial proportion of visual impairment from cataract can be prevented or treated through timely intervention. However, achieving this goal requires more than the availability of surgical services; it necessitates sustained efforts to raise awareness, address misconceptions, and empower communities. The findings of this program align with published evidence indicating that community education interventions are cost-effective and scalable for improving eye health literacy, particularly among older adults in underserved areas.

Nevertheless, this program has certain limitations that should be considered when interpreting the results. The intervention was conducted over a relatively short period, and the assessment focused primarily on immediate changes in knowledge rather than on long-term behavioural outcomes or clinical indicators. Future programs and studies could benefit from incorporating follow-up assessments to evaluate the sustainability of knowledge gains and their translation into preventive practices, such as regular eye examinations or reduced exposure to modifiable risk factors. Additionally, expanding the scope of interventions to involve family members may further enhance support for older adults in seeking timely eye care.

Overall, the findings of this community-based cataract education program are consistent with theoretical models and empirical studies that highlight the effectiveness of participatory, community-oriented health education. The field visit approach proved to be a practical and impactful strategy for improving cataract-related knowledge among older adults. By linking educational content with screening activities and interactive engagement, the program addressed both informational and perceptual barriers to eye

health. These results support the continued development and scaling of similar community-based interventions as part of comprehensive efforts to reduce the burden of cataract-related visual impairment and promote healthy aging.

CONCLUSION

This community-based cataract education program, implemented through field visits, was effective in improving older adults' knowledge and awareness of cataract. The results demonstrated a clear shift from low to higher levels of understanding regarding cataract risk factors, early symptoms, prevention, and treatment options. The combination of interactive education and basic health and eye screening enhanced participant engagement and reinforced the relevance of eye health within the broader context of healthy aging. Overall, the program highlights the value of community-oriented health education as a practical strategy to support early detection and reduce the risk of avoidable visual impairment due to cataract.

It is recommended that community-based cataract education programs be implemented regularly and expanded to other communities, particularly in rural and underserved areas. Future initiatives should integrate eye health education into routine community health activities and include follow-up evaluations to assess long-term behavioral changes, such as regular eye examinations. Strengthening collaboration between community health workers and local health facilities is also essential to ensure continuity of care and timely referral for older adults at risk of cataract.

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Conflict of Interests

All authors declare no conflict of interest in this community service program.

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