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Original Article

DOI: 10.55735/gh72gs77

HJPRS

The Healer Journal of Physiotherapy and Rehabilitation Sciences

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Journal homepage: www.thehealerjournal.com

Effects of Refractive Correction on Quality of Life in Elderly People

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KEYWORDS

Independence
Productivity
Quality of life
Refractive correction
Refractive error

DECLARATIONS

Conflict of Interest: None
Funding Source: None

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ABSTRACT

Background: Error of refraction takes place due to the inability of the ocular system to converge rays of light at a single point, producing an unfocused, blurred image of an object on the retinal plane due to any irregularity in the structure of the eye. **Objective:** To evaluate the effects of refractive correction on the quality of life and daily living activities among elderly people. **Methodology:** In this descriptive cross-sectional study, data were collected by using a self-designed questionnaire with categorized scoring of quality of life, filled out by elderly patients who evaluated the effect of refractive correction on their quality of life. The descriptive cross-sectional study utilized a sample size of 93. The questionnaire was comprised of various questions about daily living activities, independence, and productivity level in elderly people, so that the quality of life in them could be assessed. Qualitative variables were presented in the form of percentages and frequencies. Data was collected by using a self-designed questionnaire with categorized scoring of quality of life, filled by elderly people which evaluated the effect of refractive correction on their quality of life. **Results:** The level of quality of life with scoring of 0-20 that represented poor quality of life, 21-50 represented moderate and 51-75 represented good quality of life, it was evaluated that 18 participants (19.4%) showed moderate quality of life, 75 participants (80.6%) showed good quality of life and none of the participants showed poor quality of life with refractive correction. Out of 93, 71 participants (76.4%) did not have difficulty in performing their daily living activities with refractive correction. About 74 (79.6%) participants felt comfort and independence in doing their tasks with refractive correction. While 77 people (82.8%) were feeling productive and creative in doing social networking, that helped them achieve a good quality of life. **Conclusion:** Correction of refractive error in elderly people improves their quality of life, enabling them to accomplish daily activities with comfort and independence. Good quality of vision due to corrected refractive error leads to a good quality of life that adds to the overall well-being of people in old age.

How to cite the article: Usman L, Sajid A, Afzal S, Mahnoor, Naseem S, Batool A. Effects of Refractive Correction on Quality of Life in Elderly People. The Healer Journal of Physiotherapy and Rehabilitation Sciences. 2025;5(3): 18-23.

INTRODUCTION

Error of refraction takes place due to the inability of the ocular system to converge rays of light at a single point, producing an unfocused, blurred image of an object on the retinal plane due to any irregularity in the structure of the eye. In Asia, the major eye problem is refractive error, causing an impact on vision-related quality of life.[1] Myopia is one of the most common causes of visual disability throughout the globe, and the prevalence changes with age.[2] Among elderly people, the impact of this error on health quality and productivity increases during the later stages of life.[3] The common error that influences children and elderly persons, causing blurring of vision, is hyperopia (farsightedness). It occurs when the axial length of the eyeball becomes shorter than 21mm, so rays of light cannot properly refract and impose a heavy burden and weight on the life of an individual, regardless of age.[4]

The most common vision defect in older age is presbyopia, in which the crystalline lens capsule becomes hard, causing difficulty in focusing objects at near distance on the retina due to any geometrical, structural, and lenticular changes in the eye. Astigmatism is an important type of refractive error in which rays of light cannot focus at a single point in the eye due to optical changes in the refractive media of the eye.[5] Quality of life is an essential health intervention for everyone, that is, the presence of physical, mental, and social wellness and the absence of any disease, so it eventually contributes to the overall health of a person. It is also defined as a person's perception of his life in the context of the culture and value system in which he lives, according to his goals, expectations, concerns, and standards, according to the World Health Organization. Experts see quality of life as "a broad ranging concept affected in a complex way by a person's physical health, psychological state, and level of independence, social relationships, and their relationship to silent features of their environment."[6]

Uncorrected refractive error is the most common reason for vision deterioration with negative consequences on life's quality, reducing productivity, independence, and routine life activities.[7] There are multiple options to treat any type of refractive error. Spectacle correction is the most generally used treatment in which refractive error is corrected with glasses in a simple way. A contact lens with multiple purposes is used to correct any refractive error by directly placing it on the corneal or scleral surface. There are also various types of refractive surgeries available to treat any type of refractive error.[8] Near vision glasses are prescribed for age-dependent presbyopia to minimize the difficulty in clearing reading tasks or objects at near distance, which helps in daily reading, writing, and walking activities, producing a positive impact on the value of life among elderly people.[9]

Utilization of spectacles can be increased by counselling regarding their awareness and vision restoration benefits, as these are cost-effective, safe, easily available, and provided for distance vision and for near vision tasks. Multifocal glasses are prescribed and utilized among elderly people.[10] Infrequent use of contact lenses among elderly presbyopes is due to discomfort, handling, and adaptation issues. A small population of presbyopic elderly utilizes contact lens multifocal designs.[11] Surgical refractive correction and techniques of accommodative multifocal intraocular lenses for presbyopia or any other type of refractive error in old age are still developing to stabilize errors for the execution of daily tasks.[12] The refractive status of an individual varies from hyperopic to myopic and back to hyperopic with age from birth to the average age due to refractive index and lenticular changes.[13] A significant effect of refractive correction is observed on people's quality of life in old age, despite refractive error frequency, burden, and magnitude.[14]

To achieve excellence of life in old age, the main objective is to maintain mental and physical health, autonomy, and quality of independence with inclusion in society, which is also associated with the correction of respective error of refraction for maintenance of ocular health.[15] Quality of life declines due to near vision impairment in older adults, which affects routine tasks with associated anxiety and depression.[16] Refractive error that remains uncorrected causes a reduction in visual health quality with asthenopic symptoms of strain and headache while performing near activities.[17] Reduced vision interferes with tasks of everyday life and affects the standard functioning of life.[18]

Disability due to unaided vision reduces quality of life and affects the ability of older adults to function properly.[19] Corrected vision is required to complete the various habitual activities of life. When vision is not corrected completely, it impacts the visual performance of an individual, especially

in older age.[20] Correction of uncorrected error of refraction improves the value of life as well as mental well-being in older people.[21] The study aimed to evaluate the impact of refractive correction on quality of life and to inquire about its effect on independence in doing daily living activities among elderly people.

METHODOLOGY

Data was collected by using a self-designed questionnaire with categorized scoring of quality of life, filled out by elderly patients who evaluated the effect of refractive correction on their quality of life. The descriptive cross-sectional study utilized a sample size of 93. The questionnaire was comprised of various questions about daily living activities, independence, and productivity level in elderly people, so that the quality of life in them could be assessed.

The people who followed the inclusion and exclusion criteria were allowed to participate in this study. Statistical package for social sciences (SPSS version 25.00) was used for data analysis. Qualitative variables were presented in the form of percentages and frequencies. Data was collected by using a self-designed questionnaire with categorized scoring of quality of life, filled by elderly people who included questions about managing daily routine activities with corrected vision, which evaluated the effect of refractive correction on their quality of life.

RESULTS

Among 93 elderly participants, 51 (54.8%) were male participants and 42 (45.2%) were female participants. After filling self-rated questionnaire that contained three levels of quality of life with scoring of 0-20 that represented poor quality of life, 21-50 that represented moderate quality of life and 51-75 that represented good quality of life, it was evaluated that 18 participants (19.4%) showed moderate quality of life, 75 participants (80.6%) showed good quality of life and none of the participants showed poor quality of life with refractive correction (Table 1). About 71 participants (76.4%) did not have difficulty in performing their daily living activities with refractive correction. 18 participants (19.3%) had problems performing their habitual activities with corrected error of refraction. While 74 (79.6%) participants were feeling comfortable and independent in doing their tasks with refractive correction, and 19 (20.6%) could not do their tasks independently (Table 1).

Almost 77 people (82.8%) were feeling more productive, creative, and less troubled in doing social networking, which helped them achieve a good quality of life, than 16 (17.2%) people who were feeling difficulty in social networking. 71 (80.4%) people were satisfied with their current quality of vision with refractive correction. 22 (23.7%) people were not satisfied with the quality of vision. The percentage of elderly people who were able to read at arm's length distance was (70.9%) 66, and (29.1%) 27 were feeling difficulty. Out of 93 participants, 76 (85.8%) could travel to their required destination independently, while 17 participants (18.3%) could not travel alone safely. 70 participants (75.2%) could read easily due to corrected vision, and 23 participants (24.8%) were having trouble reading. (Table 1).

Only 22 people were having headaches and strain while doing close work, 71 people (80.4%) were not feeling any symptoms of headache and strain while doing habitual close work with refractive correction. The corrected vision with good quality in 78 people (83.9%) did not harm the mental and emotional well-being of elderly people, which contributed to their good quality of life. 79 elderly participants (84.8%) with corrected vision were not worried about their refractive status and they could enjoy a good life, while 14 people (15.1%) were worried about their vision quality even with the correction of refractive errors (Table 1). The quality of life due to corrected vision in 75 elderly participants out of 93 was evaluated.

DISCUSSION

Uncorrected refractive error can affect the health, daily activities, productive abilities, social and psychological status of an elderly person when they become visually impaired due to uncorrected vision.[22] Visual disability due to uncorrected error of refraction can significantly limit the routine productive activities, which reduces the quality of life.[23] Correction of age-dependent or any other refractive error has positive implications on vision and life quality in elderly people.[24] Results obtained from my studies show that 76.4% participants with corrected glasses did not find difficulty in performing daily activities. Participants who were using any correction for refractive error were not facing difficulty in near-reading tasks. According to the questionnaire,

Table 1: Frequency and percentage of different variables

Variables	Responses	Moderate (21-50)	Good (51-75)	Total
Difficulty in performing daily activities	Strongly agree	3 (16.7)	0	3 (3.2)
	Agree	8 (44.4)	7 (9.3)	15 (16.1)
	Not sure	1 (5.6)	3 (4)	4 (4.3)
	Disagree	5 (27.8)	44 (58.7)	49 (52.7)
	Strongly disagree	1 (5.6)	21 (28)	22 (23.7)
Total		18 (100)	75 (100)	93 (100)
Not satisfied with current quality of vision	Strongly agree	1 (5.6)	0	1 (1.1)
	Agree	4 (22.2)	11 (14.7)	15 (16.1)
	Not sure	4 (22.2)	2 (2.7)	6 (6.5)
	Disagree	6 (33.3)	46 (61.3)	52 (55.9)
	Strongly disagree	3 (16.7)	16 (21.3)	19 (20.4)
Total		18 (100)	75 (100)	93 (100)
Worried about your vision	Very severe	2 (11.1)	2 (2.7)	4 (4.3)
	Severe	7 (38.9)	3 (4)	10 (10.8)
	Moderate	5 (27.8)	11 (14.7)	16 (17.2)
	Mild	4 (22.2)	22 (29.3)	26 (28)
	None	0	37 (49.3)	37 (39.8)
Total		18 (100)	75 (100)	93 (100)

about 71.2% elderly participants with corrected errors did not have trouble reading a medicine prescription. The percentage of participants who did not have trouble reciting the Holy Quran/ Book was about 75.2%. It was estimated in this study that up to 70% people did not feel a problem reading news on television. It was reported that 70.9% participants did not have difficulty in reading at arm's length with refractive correction. Seventy-four participants out of ninety-three (79.6%) examined in my study did not experience asthenopic symptoms of headache, strain, and fatigue. According to the results of my study, there was a significant effect of refractive correction on independence and productivity in the lives of older adults.

Out of 93 elderly participants, 74 had an independent and productive life because of improved quality of vision. In this study, only 16 had difficulty in social networking. In summary, 83.9% people were mentally and emotionally satisfied with vision quality due to the corrected error of refraction. Furthermore, 75.8% people with refractive correction felt safe travelling alone. 80 were able to recognize food and were not having difficulty in eating, which significantly contributed to the overall health of elderly participants. It was concluded that 67.8% people with any type of refractive correction were not worried about their visual status. The percentage of elderly people in my study who were satisfied with their corrected quality of vision was 80.4% which helped them achieve a good quality of life.

CONCLUSION

The correction of any type of refractive error in elderly people improves their quality of life, enables them to accomplish daily activities with comfort, and enhances their productivity and independence level as they become more productive and less dependent on other people for doing habitual tasks. It has a positive impact on emotional and mental health due to a satisfying vision. Good quality of vision due to corrected

refractive error leads to a good quality of life that adds to the overall well-being of people in old age.

DECLARATIONS

Consent to participate: Written consent had been obtained from patients. All methods were performed following the relevant guidelines and regulations.
Availability of Data and Materials: Data will be made available upon request. The corresponding author will submit all dataset files.
Competing interests: None
Funding: No funding source involved.
Authors' contributions: All authors had read and approved the final manuscript.

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