



Evaluation of Presbyopia in a Peripheral Eye Clinic in Port Harcourt, Nigeria

C. S. Ejimadu^{1*}, A. A. Onua¹ and E. Ani¹

¹*Department of Ophthalmology, University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Nigeria.*

Authors' contributions

This work was carried out in collaboration between all authors. Author CSE designed the study and wrote the protocol. Author AAO performed the statistical analysis, wrote the first draft of the manuscript and managed the literature searches. Author EA managed the analyses of the study. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JAMMR/2017/33717

Editor(s):

(1) Italo Giuffre', Department of Ophthalmology, Catholic University of Rome, Italy.

Reviewers:

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Complete Peer review History: <http://www.sciencedomain.org/review-history/19750>

Original Research Article

Received 26th April 2017
Accepted 31st May 2017
Published 28th June 2017

ABSTRACT

Background: Uncorrected presbyopia is a significant and increasing cause of visual disability globally. Presbyopia is the decline of the focusing ability of the crystalline lens due to loss of elasticity which makes it less effective in accommodation. Presbyopia is primarily age-related and as the world's population increases, ages and becomes more literate, cases of presbyopia correspondingly rises.

Aim: To evaluate the distribution of presbyopia among patients who presented at DDS Eye Centre and Surgery, Port Harcourt over a 3 year period of study.

Methods: A hospital-based study from January 2014 to December 2016. All the patients diagnosed with presbyopia who consented were recruited in this study. The patients' ages, gender, relevant past medical and ocular history was recorded. Their refraction was done objectively with ReKto ORK 11 Auto Ref-Keratometer and later subjectively refined. Presbyopia was defined if subjects were unable to read N6 optotype with distance correction and if they were able to read at least one more line with the addition of a plus lens. Data were analysed with statistical package for social sciences (SPSS) 20.

*Corresponding author: E-mail: theraphaproject@yahoo.com;
Email: onuadr@gmail.com;

Results: Eight hundred and thirty-six (180 males and 656 and females) participated in the study. The mean age was 54.2 ± 12.4 years. Presbyopia occurred between the age range of 31 and above. The prevalence of presbyopia was higher among the female gender.

Conclusion: The age of presentation of presbyopia could be as early as 31 years in our local setting. Females are more likely to develop presbyopia earlier than their male counterparts.

Keywords: Presbyopia; distribution; peripheral eye clinic.

1. INTRODUCTION

Presbyopia is a global challenge. More than a billion individuals require near-vision aids to accomplish a broad range of near tasks such as reading and writing, sorting rice, weeding, sewing, cooking food, lighting and adjusting lamps, winnowing grain, harvesting, as well as dressing children [1].

It has been estimated that 1.04 billion people in 2005 were presbyopic, 517 million of them were without adequate spectacle correction [1]. As the world's population increases, ages and becomes more literate the demand for near spectacle correction will increase. Age is overwhelmingly the most important risk factor, but climate, geographic location, gender and ethnicity also contribute to presbyopia [1]. By 2030, the global population older than 40 is expected to rise to 41% and uncorrected refractive error/presbyopia would be one of the leading causes of ocular morbidity [2].

The onset of presbyopia is primarily influenced by three factors: focusing ability, habitual reading distance, and depth of focus. Secondary factors that can influence the onset of presbyopia include occupation, existing refractive error and other ocular aberrations, arm length, pupil size, and possible differences in lens optical density. Other tertiary factors that could lead to differences in the onset time of presbyopia could include solar radiation, complexity of near tasks, indoor light levels, and/or other task-specific conditions that could have a sex bias [3].

Researchers have shown that there are sex/gender differences in the prevalence, age at presentation, and severity of presbyopia, [3,4,5,6,7] in the types of tasks for which men and women use near vision and in the ability of men and women to afford spectacles for correction of presbyopia [8]. The prevalence of presbyopia in low- and middle-income countries is not well known, but several studies have

indicated that the prevalence is higher among women. There is evidence that adult women have a shorter measured habitual reading distance than adult men. [3] This could be one of the reasons for the greater need for near correction in women.

In terms of priority setting for provision of services for presbyopia, the World Health Organization (WHO) has recommended that if less than one-third of those affected have Near correction, the population would be ranked as a high priority for service delivery [6]. In developing countries, particularly in rural areas, spectacles are available for purchase through optical suppliers and hospitals, but usually located in urban areas where prices are usually out of the reach of the poor [8]. Strategies to improve presbyopic spectacle coverage in rural areas of developing countries should include free community distribution schemes from government and donor agents as well as philanthropists.

2. MATERIALS AND METHODS

A hospital-based study from January 2014 to December 2016. All the patients diagnosed with presbyopia who consented were recruited in this study. The patients' ages, gender, relevant past medical and ocular history were recorded. Their refraction were done objectively with ReKto ORK 11 Auto Ref-Keratometer and later subjectively refined. Presbyopia is diagnosed from patient's presenting complaint of difficult in near vision, measurements of accommodative amplitude, near subjective refraction. The near point of accommodation was used to measure the amplitude of accommodation. Using the Air Force Rule, it is the difference in dioptric power between the eye at rest and the fully accommodated eye.

Presbyopia was defined if subjects were unable to read N6 optotype with distance correction and if they were able to read at least one more line with the addition of a plus lens. Data were entered into a spread sheet using statistical

package for social sciences (SPSS) 20 statistical software and subsequently analysed.

3. RESULTS

The age range of study-participants with presbyopia was 31 and 76. The modal class was 41-50 years. The occurrence of presbyopia among the various age groups of the study participants was not statistically significant ($p=1.000$).

Table 1. Age distribution of the study population

Age group (Years)	Frequency	Percentage	P-value
31-40	154	18.4	1.000
41-50	385	46.1	
51-60	183	21.9	
61-70	76	9.1	
70 & Above	38	4.5	
Total	836	100	

In this study, the males were 180 (21.5%) and females 656 (78.5%) giving a ratio of 1: 3.64 in favour of the females.

4. DISCUSSION

Eight hundred and thirty-six patients were diagnosed presbyopic in DDS Eye Center and

Surgery, in Port Harcourt between January 2014 and December 2016. There was preponderance of women among the presbyopic (78.5%). Our finding collaborates with the observation of some researchers in other centres. In Ghana, Morny, observed that women have a higher prevalence of presbyopia than their male counterparts: using hospital chart reviews; a prevalence of 65 per cent of presbyopia was found among Ghanaian women [9]. In southern India, Nirmalan et al. found a prevalence of 55 per cent in subjects aged 30 years and older. The prevalence of presbyopia increased with increasing age and women had 40 per cent higher odds of being presbyopic [10]. In rural Tanzania, Age-adjusted data collected from 1,709 people aged 40 and above in showed higher prevalence among women than men [11].

Age plays a major role in the recession of accommodative ability of the optical system. Although most authors agree that presbyopia begin to manifest at 40 years [3]; our findings show that the presentation of presbyopia could be as early as 31 years. Duarte et al. in Brazil observed that presbyopia occurred among adults aged 30 years and above [12]. The cofounding roles of race, ethnicity, climate, rurality, and geographic locations in the age of presentation of presbyopia need to be investigated.

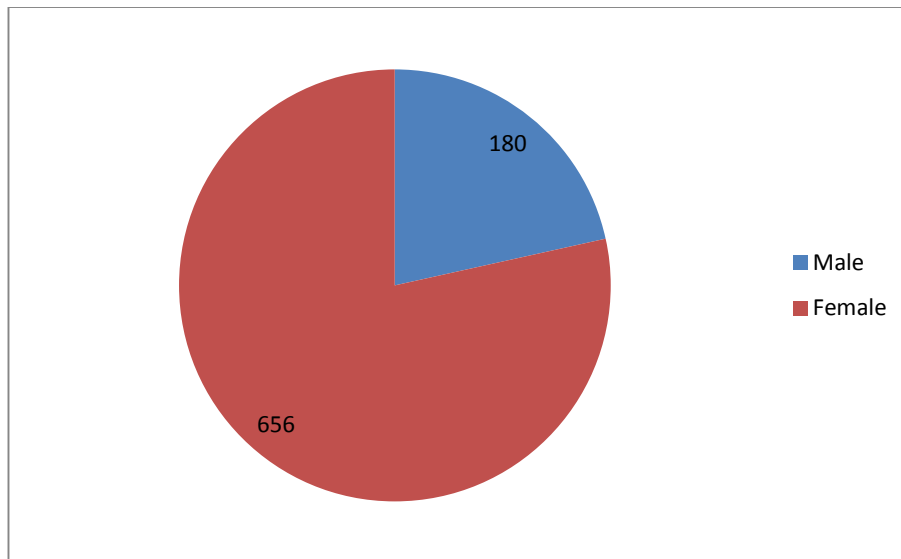


Fig. 1. Pie chart depicting the sex distribution of the study participants

5. CONCLUSION

The presentation of presbyopia could be as early as 31 years in our local setting. The female folk are more likely to develop presbyopia earlier than their male counterparts. This gender difference should be considered as another dimension in presbyopia correction programmes.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

The authors obtained Informed consent, protection of privacy from the participants of this study. Ethical approval from the University of Port Harcourt Teaching Hospital Research Ethics Committee was obtained.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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