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Quality of Life for Patients with Senile Cataracts

J. Ait Elhaj[1*], R. Rachid[1], A. Abounaceur[1], A. Mchachi[1], L. Benhmiddoune[1], A. Chakib[1], M. Elbelhadji[1]

[1]Adult Ophthalmology Department, Hospital August 20, CHU IBN ROCHD of Casablanca, Faculty of Medicine and Pharmacy of Casablanca, Morocco

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***Corresponding author:** J. Ait Elhaj
Adult Ophthalmology Department, Hospital August 20, CHU IBN ROCHD of Casablanca, Faculty of Medicine and Pharmacy of Casablanca, Morocco

Abstract **Original Research Article**

Introduction: The aim was to measure the life quality of patients with senile cataract and cross-cultural adaptation of the NEI-VFQ-25 scale. ***Methods:*** The survey included patients with senile cataract, aged 65 years and older. Recruitment of participants was performed from the preoperative consultation of the day hospital at the adult ophthalmology department as well as from the postoperative control consultation. Investigation sheets containing socio-demographic, clinical data and the Moroccan version of the NEI VFQ25 quality of life questionnaire; were handed out to each patient. The internal reliability of the NEI VFQ-25 scale was assessed by the Cronbach alpha coefficient. The comparison of the scores was carried out using the Student's test. The association of the scores with the visual acuity was studied using the correlation coefficients. ***Results:*** A total of 1000 patients were enrolled including 50% men with a mean age of 72.17 (SD = 5.8310). Half of the patients had unilateral cataract and 32% underwent surgery. Most of patients had visual acuity less than 1/10 even after correction while the mean visual acuity after cataract surgery with correction was 8,6 with a standard deviation of 1,5. The internal coherence of the global scale was very satisfactory (alpha coefficient = 0.86). This coefficient varied from 0.77 to 0.96 for the subscales. The mean VFQ25 score was better in the operated patients (p = 0.029). ***Conclusion:*** The senile cataract had a genuine impact on the life quality of our patients while the surgical management allowed to improve the overall scores and a large number of dimensions.

Keywords: NEI-VFQ-25, life quality of patients, Senile Cataracts, visual acuity, correlation coefficients.

INTRODUCTION

Cataracts are defined as entire or partial clouding of the lens. It is the leading cause of curable blindness in the world [1]. The deterioration in the life quality of cataract patients is evident, affecting all sectors of the component, whether through the reduction or inability to perform a large number of activities of daily life, by the difficulties encountered in social and relational life, but also by the main impact of blindness on the patient's psyche [2].

METHODS

Our study was descriptive cross-sectional, carried out in 2021. The target population consisted of patients with senile cataracts aged 65 and over. Excluded from this study are patients with post-traumatic, pathological (linked to whole or ocular pathology) or iatrogenic cataract (after prolonged corticosteroid therapy or post-radiation). The recruitment of participants was carried out from the preoperative consultation of the day hospital at the adult ophthalmology department as well as at the follow-up consultation over a one-year-period from January 2021 to December 2021. Our study was based on interviews. The information was collected after questioning the patients and using data from the patients medical file. The questionnaires were anonymous and were self-administered by the participants whenever possible assisted by the coordinator, or administered by interviewers (illiterate participants, people not wishing to complete it alone). The first part of the questionnaire related to the characteristics of patients and senile cataracts. The second part included the version translated into Moroccan dialect of the NEI VFQ-25 questionnaire for the assessment of the life quality which is a generic scale constituted by the reduction of the NEI-VFQ-51, with twenty-five questions relating to quality of life in relation to the visual function. This scale, which applies to chronic eye diseases, has 12

dimensions: General health (1 item), general vision (2 items), eye pain (4-19 items), near vision (5-6-7 items), far vision (8-9-14 items), peripheral vision (10 item), color vision (12 items), driving (15c-16-16a items), social life (11-13 items), physical health related to vision (3-21-22-25 items), limitation of activities (17-18 items), dependence in relation to vision (20-23-24 items).

The NEI VFQ-25 questionnaire was translated into Moroccan dialect by two different translators and then retranslated into English by two other translators. Then the Morrocan version (Annex 2) and the reversed-translated English versions (Annex 3 and 4) were compared to the original version of the questionnaire (in English) (Annex 1), in order to check that all the items and concepts were maintened.

Statistical Analysis

Statistical analysis was fulfilled in the medical informatics department at the faculty of medicine and pharmacy of Casablanca using SPSS. The internal reliability of the NEI VFQ-25 scale was estimated by Cronbach's alpha coefficient. The comparison of scores by having had surgery was realised using the Student's t test, and the association of scores with visual acuity was investigated by correlation coefficients.

Ethical Considerations

The work team ensured patient information, free (oral) consent, anonymity and confidentiality of data provided by participants.

RESULTS

A total of 1000 patients were recruited from the adult ophthalmology department of the August 20th Hospital at the Ibn Rochd University Hospital Center in Casablanca. The mean age was 72.17 years with a standard deviation of 5.83 years. Half of the patients were male. Among the patients recruited, 40% were illiterate and 36% were in occupational activity. Most of patients (64%) lived in urban areas. Of all 1,200 patients, 65% had comorbidities mainly diabetes (48%) and high blood pressure (36%), 20% had a history of ocular pathology (Glaucoma, retinopathy, uveitis ...), and 32% had already been operated on cataracts. The visual acuity of patients with unoperated cataract was measured before and after correction as well for the eye that was operated on. Most of patients with cataracts had visual acuity less than 1/10 even after correction. The mean visual acuity after cataract surgery was 8.6 with a standard deviation of 1.5. The internal consistency of the overall scale was very satisfactory (alpha coefficient = 0.86). Cronbach's alpha coefficient ranged from 0.77 to 0.96 for the subscales. The highest Cronbach's alpha values were obtained for the areas of eye pain (alpha = 0.96) followed by driving (alpha = 0.95), dependence in relation to vision (alpha = 0.94), limitation of activities (alpha = 0.93), mental health in relation to vision (alpha = 0.93), and far vision (alpha = 0.93) (Table I).

The mean VFQ25 score was 46.08 with a standard deviation of 23.13. The average of the highest score was that of eye pain which was 52.75 with a standard deviation of 23.74 followed by that of social life which was 51.50 with a standard deviation of 27.94 then followed by the peripheral vision. device which was 50.76 with a standard deviation of 25.62. The lowest score was that of general health with a mean of 29.75 with a standard deviation of 22.10 (Table II).

The average VFQ25 score in patients who did not have cataract surgery was 43.04 with a standard deviation of 23.80 and it was 52.85 with a standard deviation of 20.31 in patients who had cataract surgery (p = 0.029). The highest average score in patients who did not undergo cataract surgery was eye pain which was 50.18 (standard deviation = 24.20) followed by peripheral vision which was 47.43 (standard deviation = 25.97), then by the average of social life which was 47.10 (standard deviation = 29.09. On the other hand, in patients having had cataract surgery the mean of the highest score was the average of social life which was 61.29 (standard deviation = 22.67) followed by the average of eye pain which was 58.47 (standard deviation = 21.98) and that of peripheral vision which was 58.06 (standard deviation = 23.62) (Table III). Significant differences were noticed between the two operated and non-operated groups involving several areas.

Table I: Internal reliability of the subscales

Domain	Coefficient Alpha de Cronbach
General health	-
General vision	-
Eye pain	0,956
Near vision	0,769
Far vision	0,925
Peripheral vision	-
Vision des couleurs	-
Car driving	0,951
Social life	0,921
Mentalhealth in relation to vision	0,925
Limitation of activities	0,929
Dependance in relation to vision	0,937

Table II: Scores for the different areas of quality of life

Domain	Average
General health	29,75(22,10)
General vision	35,00 (15,92)
Eye pain	52,75(23,74)
Near vision	40,66(25,46)
Far vision	45,71(22,81)
Peripheral vision	50,76(25,62)
Color vision	49,74(31,52)
Car drinving	47,55(27,56)
Social life	51,50(27,94)
Mental health in reation to vision	48,87(28,39)
Limitation of activities	42,12(27,85)
Depandence in relation to vision	49,92(31,64)

Table III: Quality of life scores in patients who have had and those who have not had cataract surgery

Domain	Patients who have not had cataract surgery mean (deviation type)	Patients who have had cataract surgery mean (deviation type)
General health	27,89 (20,80)	33,87 (24,62)
General vision	32,46 (15,76)	40,64 (15,04)
Eye pain	50,18 (24,20)	58,47 (21,98)
Near vision	38,05 (25,06)	46,37 (25,79)
Far vision	43,07 (23,02)	51,48 (21,58)
Peripheral vision	47,43 (25,97)	58,06 (23,62)
Color vision	46,27 (31,16)	57,76 (31,41)
Car driving	45,42 (27,89)	50,59 (27,82)
Social life	47,10 (29,09)	61,29 (22,67)
Mental health in relation to vision	45,38 (29,17)	56,65 (28,39)
Limitation of activities	40,04 (29,12)	46,77 (24,57)
Dependence in relation to vision	46,26 (33,50)	58,06 (27,82)

DISCUSSION

As the NEI VFQ-25 questionnaire was initially developed in North America and used mainly in studies on the Western populations, its items were developed and validated from the specificities of these populations [3-5] which required its transcultural adaptation.

In our study, the NEI VFQ25 scores obtained are globally comparable to those reported in the literature: study carried out at Strasbourg University Hospital Center in France [6] as well as a study carried out in Turkey [7]. The quality of life is generally altered in the dimensions relating to the psychological aspect (mental health, limitations in activities, dependence linked to vision) as well as in the dimensions relating to visual function (general vision, near vision, far vision and driving). In this study it was also found that the most altered dimension was the general health probably due to the age of the population studied and the comorbidities they presented [8, 9], The quality of life seems less affected by problems of eye pain, which is fairly consistent with the clinical picture of senile cataract. The dimensions of peripheral vision or color vision appear to have little impact on the life quality of the sample.

The scores obtained after take in charge are higher in each of the dimensions. There is a subjective improvement in vision in general and in the mental state of patients. This is correlated with the very important benefit obtained in the dimension of near vision but also with the dimension of mental health. Two previous studies showed a statistically significant improvement in the dimension of near vision [10,11] but also general vision, far vision and peripheral vision [11]. Cataract surgery also significantly improved the dimension of limitation of vision-related activities. This reinforces the observation of Kuik *et al*., according to which the dimensions relating to the psychological aspect of the patient could be improved as soon as the capacities acquired during visual rehabilitation influenced the patient their everyday life [12]. The other dimensions, in particular mental health and dependence are also improved. This relationship between psychological signs and quality of life after cataract surgery is reciprocal. The results of a study in Senegal showed that there was a deterioration in the quality of life in patients who had psychological signs related to their vision [1]. This poor quality of life was greater on 7-day- postoperative (44%). Those who had no psychological signs had a good quality of life. We found this improvement over time with OWSLEY [13] in whom the quality of life score in relation to psychological distress was 62%. It had rose to 77.7% 4 months after surgery. On the other hand, our results did not go against those of DANQUAH [14]. In his, the

quality of life score in relation to psychological signs was good 1 year after surgery with 83.8% but deteriorated over time with 75.9% at 6 years. This deterioration in quality of life could be linked in their patients, was explained by the influence of other factors (secondary cataract, associated comorbidities) or the fear of loss of vision and therefore of relationships with surroundings.

The dimensions of general health and social life are more or less identical before and after treatment [9, 15], since the general health score was not significantly improved by cataract surgery, which may be accounted for by the high age of patients with senile cataracts (mean age of the study population was 72 years) and then by the fact that most patients had comorbidities affecting this area. This was the case of our study population where 48% had diabetes, 36% had high blood pressure and 20% had other conditions. These results agree with the data in literature. According to a study carried out in Senegal in three different hospitals [1], the authors observed a better improvement in the quality of life score in younger subjects compared to elderly subjects. These figures were comparable to those of Lum *et al*., [9] and those of Lundström *et al*., [8]. They observed that the patients who were not satisfied and who did not have a good quality of life score were the oldest. The factors that could be identified as being responsible for such results were mainly related to the physiological aging of the entire visual system, but also to the higher prevalence of comorbidity in the elderly [8, 15].

Several studies tend to delay the effect of cataract surgery on patients whose age is far from negligible, since it is likely to slow the decline in health-related quality of life, in its acceptance, but also to improve the memory and intellectual faculties of patients. Thus, Fagerstrom study [16], involving 100 patients aged 71 to 75 years, demonstrated a significant improvement in the memorization and learning faculties of patients undergoing cataract surgery, thanks to a satisfactory restoration. visual functions. This improvement is less for patients with ophthalmologic comorbidity (mainly, in this study, glaucomatous visual field alterations), or general (incipient dementia, mainly cerebrovascular pathology). The social life score was high even before the treatment, which can be explained by the family situation of the patients in our sample and the sociability in our Moroccan context.

In our study we also observed, a much better improvement in the quality of life after treatment in patients having undergone cataract surgery, which is more important for the dimensions of mental health in relation to vision, driving, and near vision with a difference of more than 30 points. These results seem identical with the study carried out by Liu JW *et al*., [17] in China and other studies assessing the effect of the cataract surgical technique on the patient's quality of life [18, 19]. It should be noted that phacoemulsification is the reference technique in developed countries by the quality and speed of the functional rehabilitation that it allows, but also by a lower rate of per-operative and postoperative complications compared to other interventions [18, 20, 21], especially for senile cataracts, since patients with senile cataracts are often found to be diabetic (48%).

The combination of diabetes and cataracts constitutes an additional risk for the development of intraoperative and postoperative complications [22, 23]. With the development of microsurgery and the occurence of phacoemulsification, these complications have become less frequent [24]. In our sample, almost all of the patients had visual acuity of less than 1/10 even after correction, that is to say at a stage of severe visual impairment up to blindness, unlike studies carried out in the developed countries [2, 25] where the majority of patients have an average visual acuity of 3/10 after correction [26, 27], this is accounted for by the fact that in our Moroccan context, patients only consult in advanced stages [28], given the socio-economic level of the patients and the level of education, or because of the distance from the ophthalmological consultation structures. This has a very important influence on the life quality of patients even after treatment, since the very low visual acuity before the take in charge of patients affects the results of refractive surgery. In literature, the quality of life scores of the non-professional population were lower. In fact, due to the drop income, financial support for morbidity and the cost of cataract surgery are becoming factors that affect quality of life [29].

Despite very low visual acuity, we noticed that the quality of life scores was more or less average even before treatment (overall VFQ25 score before cataract surgery is 43.04), this can be explained by the fact that the low visual acuity of the eye with cataract is compensated by the other eye without cataract in the case of unilateral cataract or by the surgery of the other eye in the case of bilateral cataract.

The average visual acuity after cataract surgery was 8.6 with a standard deviation of 1.56, therefore incomplete recovery of visual acuity, which may be due to a miscalculation of the intraocular lens implant, to postoperative complications postoperative, or even due to the association with another ocular pathology, especially in the context of senile cataracts (age-related macular degeneration, diabetic retinopathy, etc.) [30, 24].

Although the recovery of good visual acuity remains the concern of the doctor, its management must be entire, this was demonstrated by AMKA *et al*., in its study in Senegal [1], where some patients, whose visual acuity improved significantly, yet were not satisfied with the outcome, while others were, despite relatively

poor visual acuity [31, 32]. Although having a positive influence on the quality of life, visual acuity remains an insufficient measure of life quality, it requires a conjunction of several factors [31–34]. Patients who had better near vision had a higher quality of life score. We can say that better visual acuity allowed our patients to be able to carry out their daily activities better, to be independent and to reduce the risk of falls, resulting in a better quality of life.

CONCLUSION

Considering the extent of senile cataracts in the world and particularly in low-income developing countries including Morocco, the fight against senile cataracts and improving the life quality of affected patients must benefit from the support of all: political authorities, health authorities, health stuff, development partners and populations.

Conflicts of Interest: The authors declare no conflicts of interest.

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