ORIGINAL ARTICLE

THE USE OF VISUAL FUNCTION INDEX-14 (VF-14) QUESTIONNAIRE IN DETERMINING CATARACT PATIENTS' QUALITY OF LIFE IN JONGGOL SUBDISTRICT, INDONESIA

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ABSTRACT

***Introduction and Objective**: Unresolved cataract primarily has caused patients to have disturbance in carrying out daily activities, thus lowering their quality of life (QoL). We aim to use the Visual Function Index-14 (VF-14) questionnaire, one of the most frequently used tools, to discover the extent of daily activities disturbance in patients with cataract.*

***Methods**: In this observational study, we conducted eye screening to 47 subjects in Jonggol subdistrict, Bogor, Indonesia. Patients were asked several questions based on the translated VF-14 questionnaire into Bahasa and also tested to find out their best-corrected visual acuities. Lens examination was carried on using handheld slit lamp.*

***Result**: Out of all 47 subjects, 34 (72,3%) patients had cataract that was marked by lens opacities in either one or both eyes. According to distant vision impairment categories by International Classification of Diseases 11, 8,8% of cataract patients had normal vision from the better eye, 20,6% had mild, 64,7% had moderate, 0% had severe impairment, and 5,9% had blindness. From the assessment using VF-14 translated questionnaire, 14,7% subjects had no disruption in doing daily activities, 82,3% had disruption, and 2,9% could not do the mentioned activities at all. From the Spearman correlation test, there was a significant association with moderate correlation between the degree of vision impairment and QoL ($p = 0.006$, $rs = 0.459$).*

***Conclusion**: The majority of cataract patients in Jonggol subdistrict had moderate vision impairment and had disruption in doing daily activities, therefore lowering their QoL.*

***Keywords :** cataract, Visual Function Index-14 (VF-14), quality of life*

INTRODUCTION

One of the senses that supports our daily activities is the ability to see. Visual impairment can make daily tasks more difficult, from minor to severe. One of the consequences we are most concerned with is blindness.

Based on the Rapid Assessment of Avoidable Blindness survey (RAAB) from 2013 - 2017 in Indonesia, the blindness rate has reached 3%. Due to this, Indonesia has the highest rate of blindness in Southeast Asia. The most affected provinces in Indonesia are West Java and West Nusa Tenggara with cataracts the most common cause of blindness.[1]

Cataracts are an increase in the opacity of the lens or capsule, which prevents light from entering the eye. The incidence of cataracts increases to 3.9% worldwide between 55 and 64, increasing to 92.6% at the age of 80. The incidence of blindness in Indonesia has risen to 1.5%, with cataracts accounting for 52% of cases, according to a national survey carried out between 1993 and 1996. [2]

The study conducted in Ghana showed that cataract patients' quality of life decreased and had been found to be enhanced through the use of cataract surgery for reducing visual disturbances. One of the instruments frequently used to evaluate this function is the Visual Function Index-14 (VF-14) [3]. The assessment of the patient's quality of life due to vision impairment is performed using a variety of tests. This questionnaire objectively assesses the patient's subjective quality of life based on 14 typical daily activities. [4]

Visual related quality of life (VRQOL), which is a measure of quality of life (QoL) in relation to visual function, is all about the ability to be active, social, and have a positive impact on the economy.[5] The study was designed to examine the impact on everyday quality of life from vision impairment for cataract patients.

METHODS

We examined the eyes of 47 patients from a health centre in Jonggol, Bogor district, Indonesia as part of this observation study. Screening aims at identifying visual problems that patients have experienced, which may influence their quality of life. For Indonesia we use the VF-14 questionnaire, which has been converted from English into Indonesian and adapted to local conditions. The patients completed an identity form, got their visual acuity checked using a Snellen chart, debriefed using a VF-14 questionnaire, examined using a slit lamp, and got their BCVA evaluated as the first stages of the screening process.

In our current study, we used the VF-14 questionnaire to assess cataract patients' QoL. VF-14 questionnaire consists of questions about vision-dependent daily activities such as recognizing people, seeing steps, writing, reading, watching television, cooking, doing fine handiworks, doing sports, playing games, and driving. The difficulty in carrying out each activity is rated on a scale 0 to 4; where (0) means not possible, (1) means a lot of difficulty, (2) means moderate difficulty, (3) means slight difficulty, and (4) means no difficulty at all. For questions number 13 and 14, the difficulty is rated only on a four-category scale; ranging from 1 to 4 with the same interpretation as mentioned. [6]

According to the vision data, there are three levels of impairment: Mild, Moderate and Severe.[7] The VF-14 questionnaire scoring results were then classified as no disruption in doing

daily activities, had disruption in doing daily activities, and could not do the daily activities at all.

Then, for the analysis of SPSS 16, the collected data is stored in Microsoft Excel. In order to determine whether there is a strong relationship between visual impairment and quality of life, the data shall be correlated with Spearman's correlation test.

RESULTS

From the 47 subjects, 28 of them were aged 40 to 60 years (59,57%) and 19 were aged 60 to 80 years old (40,43%) (Fig. 1). More than half of the patients were female (72,34%) (Fig. 2). Visual acuities based on the International Classification of Diseases 11 varied among the subjects. [6] Of all subjects, 6 had normal vision (12,76%), 9 had mild visual impairment (19,15%), 28 had moderate impairment (59,57%), and 4 had blindness (8,51%) (Fig. 3).

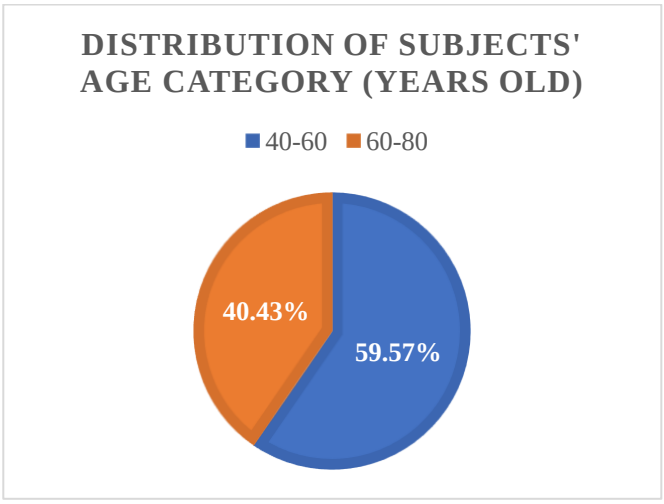

Figure 1. Distribution of Subjects' Age Category (Years Old)

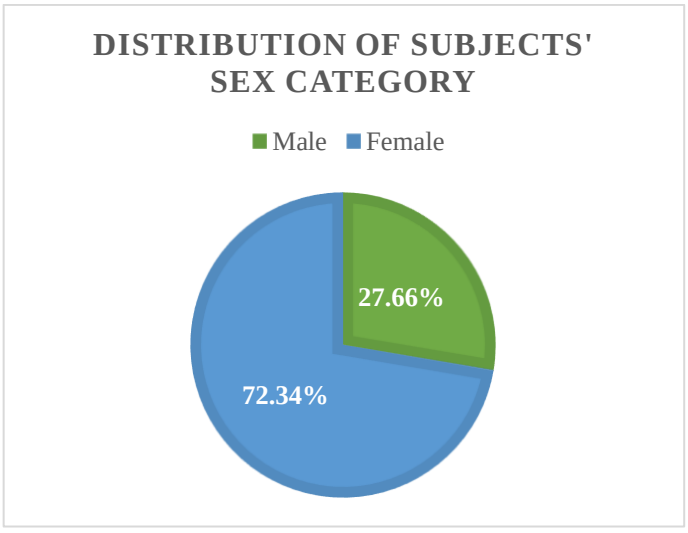

Figure 2. Distribution of Subjects' Sex Category

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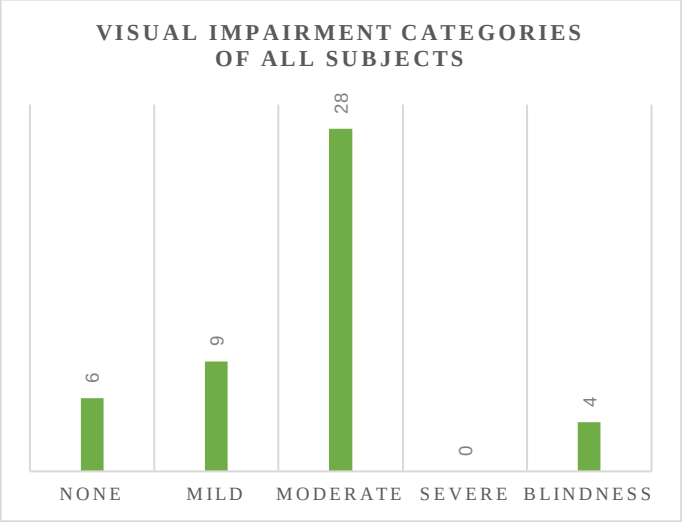

Figure 3. Visual Impairment Categories of All Subjects

The majority of subjects, 34 out of 47 persons (72,34%) had cataract which was marked by lens opacities in either one or both eyes. Ten patients had clear lenses in both eyes, two patients had intraocular lenses (one of which also had lens opacity in the other eye), one had ocular prosthesis, and one patient had no data of slit lamp examination result. From all cataract patients in this study, 8,82% of cataract patients had normal vision from the better eye, 20,59% had mild, 64,70% had moderate, 0,00% had severe impairment, and 5,88% had blindness (Fig. 4). The assessment from the VF-14 translated questionnaire shows that 14,70% subjects had no disruption in doing daily activities, 82,35% had disruption, and 2,94% could not do the mentioned activities at all (Fig. 5).

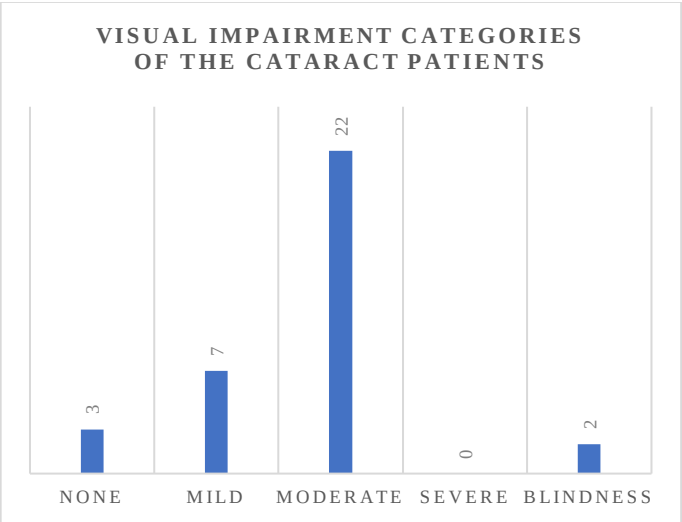

Figure 4. Visual Impairment Categories of the Cataract Patients

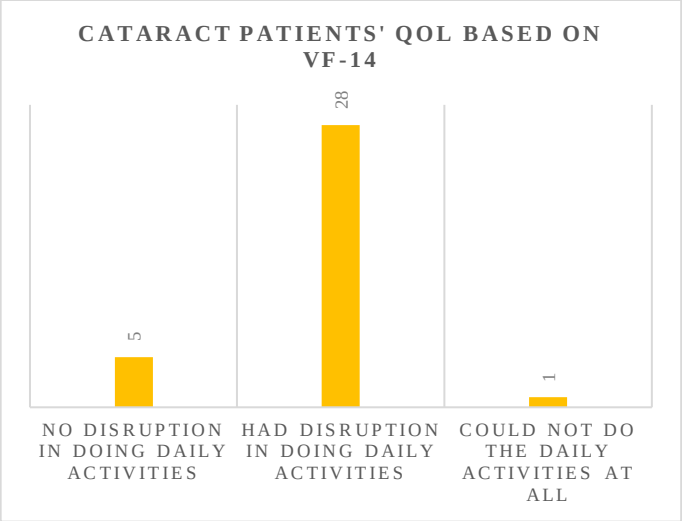

Figure 5. Cataract Patients' Quality of Life Based on the VF-14 Questionnaire

After the data was retrieved, we performed Spearman correlation test to evaluate whether there was association between visual acuity of cataract patients and their QoL. From the nonparametric correlation of the Spearman test, there was a significant association with moderate correlation between the degree of vision impairment in cataract patients and their QoL ($p = 0.006$, $rs = 0.459$).

DISCUSSION

To assess the QoL in patients with visual disturbances, there are so many existing ophthalmic patient-reported outcomes (PRO) tools or questionnaires that can be used. Generally, National Eye Institute's Visual Functioning Questionnaire (NEI VFQ-25) and VF-14 are two of the most frequently used instruments to evaluate the QoL in patients with visual disturbances, especially VF-14 use in patients with cataracts. [3, 6] From a systematic review by Khadka et al, the other recommended PRO instruments that can be applied in cataract patients are Catquest-9SF, Visual Disability Assessment (VDA) scales, and Indian Visual Function Questionnaire (IND-VFQ) scales. Both Catquest-9SF and VDA scales assess patients' activity limitation, while IND-VFQ is usually used in developing countries to assess mobility, emotional well-being, and symptoms. [8]

In our current study, we used the VF-14 questionnaire to assess cataract patients' QoL. We chose this questionnaire because of the fewer number of questions that needed to be asked compared to the NEI VFQ-25 since we had limited time in obtaining the data from the subjects in Jonggol subdistrict. The VF-14 questionnaire was originally designed for cataract patients, but it also has been validated to be used with other ocular conditions.[6] It consists of questions

about vision-dependent daily activities such as recognizing people, seeing steps, writing, reading, watching television, cooking, doing fine handiworks, doing sports, playing games, and driving. The scores are calculated by summing the responses which were then divided by the number of valid answers, then further multiplied by 25 to get the final scores ranging from 0 (the worst possible functioning) to 100 (the best possible functioning).[3]

The majority of our subjects had moderate impairment according to the final scores of the tool. From our statistical analysis, cataract patients' visual impairments have a significant association with moderate correlation to their QoL. The result is in accordance with studies by Finger RP et al, Polack S et al, and Steinberg EP et al which stated that patients who have visual impairments are shown to affect their QoL negatively. [9-11] Those with no visual disturbances reported to have significantly better emotional well-being and vision-specific mobility than those who were impaired visually ($P < 0.004$). [9]

In Indonesia, there are still limited studies regarding VF-14 questionnaire use in assessing the QoL in patients with low vision. Meanwhile, NEI VFQ-25 was reported to be used in Indonesian populations with glaucoma which showed strong correlation between the progression of visual field defects according to visual field index and the patients' QoL.[12] However, according to a study conducted in the Chinese population with cataracts, NEI VFQ-25 and VF-14 demonstrated deficiencies which suggested that neither of the questionnaires is optimal to assess the patients' QoL.[3] Nevertheless, the German VF-14, which validity was assessed with Rasch analysis, is shown to be valid and reliable in the German population with various ocular conditions other than cataracts. [6]

In our study, the limitation includes the sex imbalances in our subjects which the majority was female (72,34%). Some of the subjects could not speak in Bahasa fluently as well and understand Sundanese better. The duration of the data collection from the subjects were limited as well, since the examinations were performed during a social service which was arranged by the Doctoral Programme committee of Faculty of Medicine Universitas Indonesia that involved many other specialties than the ophthalmology field. Moreover, the translated version of VF-14 questionnaire in Bahasa also has never been validated previously in Indonesia. Those factors could contribute as biases in the outcomes of this study.

CONCLUSION

Our study shows that the majority of cataract patients in the Indonesian population from Jonggol subdistrict had moderate vision impairment and had disruption in doing daily activities, therefore lowering their QoL. The result was according to the assessment by VF-14

questionnaire, which is one of the most used tools in assessing patients with cataracts and other ocular conditions as well. However, there needs to be further studies regarding the validity of this instrument, especially in the Indonesian population.

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Figure Legends

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