



The Difference in Anxiety Scores Prior and After Cataract Surgery among Bilateral Senile Cataract Patients at Sumatera Eye Center Medan

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Abstract

Edited by: Branislav Filipović
Citation: Putri IV, Effendy E, Nasution NM. The Difference in Anxiety Scores Prior and After Cataract Surgery among Bilateral Senile Cataract Patients at Sumatera Eye Center Medan. Open Access Maced J Med Sci. 2022 Mar 29; 10(T7):1-4. <https://doi.org/10.3889/oamjms.2022.9286>
Keywords: Anxiety; Cataract surgery; Hospital anxiety and depression scale-anxiety
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Received: 27-Dec-2021
Revised: 12-Mar-2022
Accepted: 19-Mar-2022
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Funding: This research did not receive any financial support.
Competing Interests: The authors have declared that no competing interests exist
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BACKGROUND: A cataract defines as a dense, cloudy area that forms in the lens of the eyes, altering one's physical function, as well as social and psychological aspects. The only definitive treatment option for cataracts is surgery which may lead to anxiety either before the intervention, on intervention, or after the intervention.

AIM: This study is to investigate the difference in anxiety scores among bilateral senile cataract patients at Sumatera Eye Centre Medan before and after undergoing cataract surgery.

METHOD: This comparative analytical study was carried out using Hospital Anxiety and Depression Scale-Anxiety Subscale to assess anxiety symptoms experienced by 40 bilateral senile cataract patients. Measurement was taken twice, before the surgery and after undergoing surgery.

RESULT: There is a significant difference in anxiety scores before and after undergoing surgery ($p < 0.001$).

CONCLUSION: There is a significant difference in anxiety scores before and after undergoing surgery among our subjects. We also found that anxiety is more likely to occur before the surgery.

Introduction

A cataract is a condition, in which a dense and cloudy area form in the lens of the eyes, leading to decreased sensitivity and eyesight [1], [2]. The incidence of cataracts in Indonesia is approximated to be 0.1%/year. Indonesians are also known to be at increased risk of developing a cataract, to the extent of 15 times higher compared to those living in subtropical areas. This may be due to the fact that ultraviolet exposure is denser in Indonesia. It is approximated that 16–22% of cataract patients in Indonesia undergo surgery before turning 55 years old [3]. Indonesia is also marked as the second with the highest number of blindness cases caused by cataracts worldwide [1], [3]. Phacoemulsification is known as the only definite intervention which is effectively useful to improve eyesight among cataract patients. Yet, there are still boundaries that, to some extent, cause this treatment option to be unreachable, mostly due to surgery cost, lack of awareness, and fear or anxiety experienced by cataract patients to undergo surgery. Anxiety may be related to known side effects of the surgery, mainly pain and sensitivity to light [3], [4], [5], [6], [7].

Anxiety is conceptualized as a normal and adaptive response to stressors threatening one's life or preventing harmful consequences, which are also characterized by the increased somatic and autonomic response [8]. Furthermore, anxiety is also pictured as either a state or a trait. Anxiety as a state fluctuates in accordance with the density of the stressor, while anxiety as a trait is a natural predisposition of someone that may later increase the anxiety severity [9].

A study by Nijkamp *et al.* in 2004 involving 128 patients that are planned to undergo cataract surgery found that anxiety severity is highest before the surgery, then lessen after the surgery. Yet, it bounces back at post-surgery follow-up. They also found that anxiety among the patients is related to those with anxiety trait, social support, wishes related to surgery result, gender, and hospital's ambience [9]. Another previous study in 2016 by Coker *et al.* also showed that 5.2% of cataract patients experience anxiety before surgery, and 1.3% experience it after the surgery. High severity of anxiety symptoms experienced by patients before surgery leads to worse outcomes; therefore, the early management to overcome anxiety before the surgery is strongly required [10]. Based on these earlier studies, we aim to investigate the difference in anxiety

scores before and after surgery among bilateral senile cataract patients.

Method

Population and sample

This prospective analytical comparative study was conducted from November to December 2020 in Sumatera Eye Center Medan involving bilateral senile cataract patients that were planned to undergo cataract surgery and fulfilled inclusion and exclusion criteria. The sample was gathered consecutively in accordance with inclusion criteria as in the following; (1) bilateral senile cataract patients that were planned to undergo first cataract surgery and (2) age of above 50 years old. On the other hand, those with any ongoing or history of psychiatry morbidities failed to complete the questionnaire, and those who refused to come for post-operative follow-up a day after the surgery were all excluded from the study. An early study in September 2020 was conducted and involved ten patients that were planned to undergo cataract surgery. A total of 40 subjects were given informed consent before the study and were requested to fill in personal data on the participant's form. Subjects may leave the study at any time, and personal data given by subjects remained confidential and will not be disclosed. The anxiety score was assessed twice. First, it was assessed 30 min before surgery and 1 day after the surgery when patients visited the clinic again for post-operative follow-up.

Measurement

Hospital Anxiety and Depression Scale (HADS) was developed by Zigmond and Snaith in 1983 to assess the occurrence of anxiety and depression. HADS consists of 14 questions that are divided into two subscales (anxiety and depression subscale), each consisting of seven questions. The score for each question is 0–3, indicating how often the patients experience the symptoms [11], [12]. It takes only 2–5 min to complete the questionnaire, and studies have shown that it can also be applied to non-hospital settings [13].

In Indonesia, HADS has been validated and translated by Rudy *et al.* in 2015. They found that the anxiety subscale of HADS shows a Kappa coefficient of 0.706 ($p < 0.01$) with a good inter-rater agreement score, suggesting that HADS-A is a reliable instrument to assess anxiety score [13].

Statistical analysis

Data collection and analysis were conducted using SPSS software version 25. Instead of the

Kolmogorov–Smirnov test, we used Shapiro–Wilk to assess the normality of the data as our sample size is small ($n \leq 50$). When data is normally distributed, the paired t-test can be used. On the other hand, when data are not normally distributed, Log will be used to transform the data. Only when the data remains not normally distributed, Wilcoxon test will be used.

Result

Demographical characteristic is presented on Table 1 which shows that approximately our subjects were 65.58 ± 5.808 years of age. The majority of our subjects were female ($n = 23$, 57.5%), and almost half were graduated from senior high school ($n = 19$, 47.5%). More than half of the subjects do not have any occupation ($n = 22$, 55%), and among our subjects, 26 were already married (65.0%). The majority of our subjects also admitted that they had not had any surgery before their first cataract surgery ($n = 28$, 70.0%) and more than half admitted to having existing comorbidity ($n = 23$, 57.5%).

Table 1: Demographical characteristics

Variable	Value (n = 40)	
	Mean \pm SD	n (%)
Age (years)	65.58 \pm 5.808	
Gender		
Male		17 (42.5)
Female		23 (57.5)
Education		
Elementary		2 (5.0)
Junior high school		7 (17.5)
Senior high school		19 (47.5)
University		12 (30.0)
Occupation		
Yes		18 (45.0)
No		22 (55.0)
Marital status		
Married		26 (65.0)
Not married		14 (35.0)
History of other surgery		
Yes		12 (30.0)
No		28 (70.0)
Comorbidities		
Yes		23 (57.5)
No		17 (42.5)

We found that among the subjects, anxiety was already present before cataract surgery. Approximately, anxiety score was found 11.30 ± 2.584 among the subjects (Table 2), indicating that our subjects experienced moderate anxiety before cataract surgery. On the other hand, post-operative anxiety score was presented as median (as the data were not normally distributed) that ranges from 5 to 10 (Table 3).

Table 2: Anxiety scores before cataract surgery

	N	Mean \pm SD
HADS-A score	40	11.30 \pm 2.584

Thus, we found that there is a difference in anxiety scores before and after the surgery. We found that the mean difference was 3.15 ± 1.981 . Paired t-test

Table 3: Anxiety scores after cataract surgery

	n	Median (min-max)
HADS-A score	40	8 (5-10)

showed that the difference is statistically significant ($p < 0.001$) (Table 4).

Table 4: Difference in anxiety score prior and after cataract surgery

	n	Mean \pm SD	Difference	p
HADS-A score before surgery	40	11.30 \pm 2.584	3.15 \pm 1.981	<0.001*
HADS-A score after surgery	40	8.15 \pm 1.562		

*paired t-test.

Discussion

Demographical characteristics of our subjects are similar to those involved in a previous study by Ates *et al.* in 2019, which shows that cataract patients are most likely to be 65–74 years of age [14]. This is also in line with the WHO statistical data showing that most cataract patients are above 60 years of age [15]. This may be explained by the nature of the cataract itself, which develops as the ageing process takes place. The aging process may be linked to altered lens structures and adaptation from time to time [16].

A previous study by Ursea *et al.* in 2011 found that most cataract patients are female, which is in line with our study. This may be explained by estrogen; loss of estrogen when women hit menopause has been linked to an increased risk of cataracts among women [10], [17]. In 2007, Marback *et al.* found in their study involving 110 cataract patients that 83.3% of them do not have any job. This unemployment among cataract patients is mainly caused by decreased or even loss of visual ability, which definitely impairs an individual's ability to perform any job [18].

Moderate anxiety was found among our subjects before cataract surgery which is also in line with an earlier study by Arif *et al.* in 2019 that assessed anxiety using State-Trait Anxiety Inventory. This may be due to characteristics of the patient, which mostly are already above 50–60 years of age. Older age has been known to exhibit better emotional control and adaptive behavior. Moreover, current cataract surgery has been way more advanced with minimal incision and less time, which may alleviate anxiety among these patients [14]. On the other hand, the post-operative anxiety score showed only mild anxiety among our subjects which are also similar to a study by Coker *et al.*, which found that 5.2% of cataract patients experience anxiety before surgery and only 1.3% experience it after the surgery [10]. To prevent or alleviate anxiety among cataract patients who undergo cataract surgery, proper education is necessary. Pre-operative counseling may be required to allow patients to ask out about their doubts and allows clinicians to assure the patients [10], [18].

Conclusion

There is a significant difference in anxiety scores before and after undergoing surgery among our subjects. We also found that anxiety is more likely to occur before the surgery.

Study Limitation and Future Direction

We are also aware that our study is limited as it was only conducted in one place and a direct interview was very limited due to the COVID-19 pandemic situation. Therefore, a questionnaire was self-reported by patients. It is possible that patients did not complete the questionnaire with the truest information; yet, further affirmation by conducting a direct personal interview was very limited. Our study may serve as an initial basis, as it is now clear that there is a marked difference in anxiety before and after cataract surgery. Further studies, particularly investigating risk factors related to anxiety in cataract patients, will be useful in developing proper psychiatry support for these individuals.

Declarations

Authors' contributions

All authors contributed equally to this work

Acknowledgments

The authors express their gratitude to Sumatera Eye Center, Department of Psychiatry, Faculty of Medicine, Universitas Sumatera Utara, Indonesia and all the participant of this study.

Ethics approval and consent to participate

The Research Ethics Committee approved this study at the Faculty of Medicine, Universitas Sumatra Utara with the letter number 670/KEP/USU/2020 on November 24, 2020. All participant write and sign a consent to participate before attending this study. Data will not be shared to respect the privacy of the participant.

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