Original Article

Identifying Factors Affecting Anxiety Levels in the Patients Planned for Cataract Surgery: A Crossectional Study

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Abstract

Background: The cataract, which is defined as the opacification of the natural lens in the eye, is seen at more advanced ages. With the increase of the elderly population in the world, cataract has become a global problem. Cataract affects individuals physically, socially and psychologically. Cataract surgery is the only treatment. Both the hospitalization process and the operation can lead to psychological changes such as fear, anxiety, and anxiety for the patient.

Objective: In this study, it was aimed to investigate the anxiety levels and related factors in the patients planned for cataract surgery.

Method: This descriptive study was conducted with 211 patients admitted to a private eye clinic between October 2016 and March 2017 and received a cataract diagnosis. "State and Trait Anxiety Scale" was used to determine the level of anxiety in the patients and anxiety levels were compared according to socio-demographic and health/disease characteristics of the patients. T-test and one-way ANOVA test were used to compare the data in independent groups.

Findings: As a result of this study, the state anxiety scale scores were higher in retired patients, in patients without chronic diseases, and in patients reporting surgery-related anxiety. Continuity anxiety scale scores were higher in female patients, in patients over 60 years of age, in patients who had a longer duration of complaints than 5 years and more than 5 years, in patients reporting anxiety about the operation.

Conclusion: For the group of patients who are not accustomed to the hospital environment, especially for the first time, the patient should be actively rested with the opportunity to express their feelings and thoughts about the operation. Every education to be given to the patient can be informed about his / her age, chronic illnesses, physical facilities, and anxiety reduction.

Keywords: anxiety, cataracts, nursing, surgery

Introduction

Symptoms like blurry vision, faded colors, shadow over part of the vision, which are the initial signs of cataract, make life difficult for patients. Patients, who have difficulties meeting their daily needs due to cataract, may experience problems in carrying out their basic life activities like reading and writing, performing house chores and driving vehicles. Patients that are negatively affected as such are recommended to have surgery as the only treatment method of cataract (Jabbarvand et al., 2016; Griffin et al., 2016). In their study, Coleman et al. demonstrate that cataract increases particularly the risk of falling for old women (Coleman et al., 2004). Following this study, it is underlined that there is a relationship between vision loss and risk of fracture; and risk of fracture decreases as one's vision gets better.

Anxiety is an unpleasant state of fear and worrying, which is defined as the tension and affection felt by the individual as being under threat (Bormusov et al., 2013). Hospitalization process for patients, can provoke psychological

changes like fear, worrying and anxiety (El Jawahri et al., 2015). Alongside with hospital atmosphere being unfamiliar, fearful, worrying and complex for the patient; factors like having new people around, unknown devices, being hospitalized and surgical intervention decision make patients feel extreme anxiety (Honeyman, & Davison, 2016).

Surgical interventions are also a psychological source of stress rather than being a physiological source of stress alone. Alongside with the hope and expectation of patients to recover from the illness; they can psychologically cause them to worry of not being able to control their own body and life; failing to fulfill their responsibilities towards their family members; losing their body organs/tissues, and fear of death. This situation can lead to negativities during and after the surgery (Karadakovan & Eti Aslan, 2011).

A cataract operation is a day case surgery. Day case surgery patients are essentially healthy and spend a very short time at the hospital. Consequently, it changes expectations and roles of patients and nurses. The quality of care provided by nurses is significant for a successful day case surgery (Karadakovan & Eti Aslan, 2011). The study conducted by Wetsch et al. finds that the anxiety of day care surgery patients is high (Wetsch et al.,2009). Getting patients ready for the surgery, having them understand the operation to be done, and having them comply with pre-operative and post-operative rules help decrease the anxiety level. Auerbach et al. state that the anxiety level is constant during the hospital stay; however, state anxiety level increases more and more as the time for surgery approaches (Spielberger et al., 1973).

Patients who are planned to undergo cataract surgery may experience loss of vision after surgery, fear of feeling pain and fear of not performing daily activities. Due to cataract young patients may not be able to fulfill the roles and responsibilities of the family. For elderly patients, the decrease in visual quality may affect the quality of life and daily activities. (Fraser et al., 2013). Gursoy et al. prove that waiting in the surgical room increases preoperative anxiety levels of patients (Gursoy et al., 2016). The fact that experiencing preoperative anxiety affects postoperative recovery period can be found in the literature. Bahrami et al. show that patients with increased preoperative anxiety levels have high blood pressure levels during the surgery (Bahrami et al., 2013). Gursoy et al. find that increasing anxiety levels may increase use of anesthetic substances (Gursoy et al., 2016). Alongside with prolonging the recovery period for patients, the given factors cause patients to delay their return to active life and neglect their self-care after the surgery (Choi & Park, 2013)

Nurses play a crucial role in decreasing the anxiety levels for patients to be operated. The nurse can eliminate patient's anxiety by carefully providing information and establishing a relationship with the patient based on trust. Some patients may hide their fear and anxiety. In such cases, each patient should be provided with general information regardless of their stress level. The length of hospital stay for patients planned for cataract surgery is short and the nurse-patient relationship is developed in the minimum time period. Nurses need to make use of their knowledge and skills on this issue in the best way in order for patients to be evaluated. Furthermore, nurses, who also evaluate patients from a psychosocial perspective, are critical in identifying in which ways support can be provided to those with an anxiety of life and future, as well as determining the role in their life. Before the surgery, nurses should help with psychological preparation of the patients, evaluating their anxiety levels, ensuring that they can openly state their emotions, encouraging them to ask their questions, and explaining them incoherent parts once and again. It is a God-given right for anyone to know anything about himself. Therefore, it is the duty of the nurse to inform and comfort the patient in the best way. A good nursing care is highly effective in decreasing the anxiety level experienced by the patient (Karadakovan & Eti Aslan, 2011).

In the literature review, it is found that there are studies examining difficulties of patients planned for cataract surgery and their caring requirements; yet, they are insufficient in conveying the anxiety level of these patients. In this study, it is aimed to investigate the anxiety levels and related factors in the patients planned for cataract surgery.

Methodology

The Study Design

This study, which is conducted to identify the anxiety level of patients planned for cataract

surgery, is descriptive-cross sectional.

Population and Sample of the Research

The population of the study is consisted of 211 patients admitted to a private eye clinic between October 2016 and March 2017, received a cataract diagnosis and planned for surgery. There are approximately 480 cataract surgeries operated in the hospital where the study is conducted.

Sample size calculation is performed to determine numbers of patients needed for this study. Based on the results of other studies on cataract in the literature, the minimum sample size needed for 95% confidence level, 5% margin of error, and 15% cataract prevalence is found to be 196. This study is conducted with 211 patients in total. Sample size calculation is performed on a computer with the program named EpiInfo.

Data Collection Tools

"State and Trait Anxiety Scale" was used to determine the level of anxiety in the patients. “Information Sheet” is used to diagnose general patient information.

Information Sheet

Patients will be asked, there are 7 questions about their socio-demographic characteristics (age, gender, marital status, educational status, profession, social security, economic status); 10 questions about their health/illness characteristics (smoking, present chronical illnesses, use of medication, previous surgical experiences, having information on cataract, source of information, going through cataract surgery before, having family members who had cataract surgery, the level of satisfaction with the information provided regarding cataract surgery, and the duration of the existence of cataract) and 1 question about their anxiety (experiencing anxiety due to the surgery). Questions are developed by the researcher in accordance with the literature. There are 18 questions in total on the sheet.

Spielberger State and Trait Anxiety Inventory

State and Trait Anxiety Inventory(STAI) is an evaluation survey developed for identifying and preventing anxiety for the youth over 14 years old and adults (Öner & Le Compte, 1998). It is developed by Spielberger et al. to determine "state" and "trait anxiety" levels separately. Validity and reliability test of the Turkish version is completed by Öner and Le Compte. The anxiety inventory, which is used for measuring the anxiety level of the patient, is consisted of 40 questions. The anxiety level increases as the inventory score increases (Öner & Le Compte, 1998).

Data Analysis

Descriptive data is presented with the appropriate value of either average standard deviation (±) or number or percentage (%). Kolmogrov-Smirnov tests are used to analyze the distribution of data. T-test and one-way ANOVA test are used to analyze continuous data. Post-hoc analyses and Tukey's paired comparison test is used to find the source of statistical significance in multispan cell tables in which ANOVA test is used. For all statistical analyses, the p-value is taken as less than 0.05 ($p<0.05$) for statistical significance. IBM © SPSS 20 program is used to analyze the data.

Ethical Consideration

The ethics committee approval numbered IRB No. 37387824-302.08.01-60, which was required to conduct this study, was obtained from Maltepe University Ethics Committee on 26.06.2016.

Results

This study is completed with 211 patients in total, which was consisted of 102 females and 109 males. When sociodemographic characteristics of the working group is analyzed, it is observed that 60,7% of the patients (n=128) is over 60 years old, 75,4% of them (n=159) is married, 37,9% of them (n=80) is high school graduate, 42,7% of them (n=90) is retired, 82% of them (n=173) have social security, 71.1% of them (n=150) have a balance of income and expenses, and 42.2% of them (n=89) is smoking (Table 1).

When their health and sickness characteristics are examined, it is found that 57,8% of the patients that participated in this study (n=122) stated that they had a chronical illness, 56,4% of them (n=119) stated that they were constantly on medication, 98,1% of them (n=207) stated that they were provided with information on cataract, and 87% of them (n=180) stated that the source of information was doctor; plus, 74,9% of them (n=158) stated that they had adequate

information about the surgery. It is noted that among patients who participated in this study, 63% (n=133) did not have a previous cataract operation, 53,1 % (n=112) had a family member who had a cataract operation. 64,9% of the patients (n=137) had previous surgical experience; those experiencing anxiety related to surgery constituted 72,0% of all patients (n=152) (Table 2).

Table 1: Socio-Demographic Characteristics of Patients

Distribution of socio-demographic characteristics		n	%
Age	40 years old and below	11	5.2
	41-60 years old	72	34.1
	61 years old and older	128	60.7
Education level	Primary school	50	23.7
	Secondary school	19	9.0
	High school	80	37.9
	University	62	29.4
Occupation	Officer	35	16.6
	Worker	13	6.2
	Not Working	73	34.6
	Retired	90	42.7
Social assurance type	Social security	173	82.0
	Private health insurance	23	10.9
	Paid inspection	15	7.1
Income status	Less than the expense of income	22	10.4
	Equal to income	150	71.1
	More than income	39	18.5
Smoking status	Yes	89	42.2
	No	122	57.8

Table 2: Health-Disease Characteristics of Patients

Distribution of health-disease characteristics		n	%
Presence of a chronic disease	Yes	122	57.8
	No	89	42.2
Sufficiency of information about surgery	Sufficient	158	74.9
	İnsufficient	12	5.7
	Partially	41	19.4
Presence of previous cataract surgery	Yes	78	37.0
	No	133	63.0
Duration of cataract complaint	0-6 month	14	6.6
	6 month- 1 year	45	21.3
	1-5 year	87	41.2
	Longer than 5 years	65	30.8
Operational anxiety	Yes	152	72.0
	No	59	28.0

When STAI-state inventory scores are examined according to variables of the study; it is found that there is a statistically significant relationship between inventory scores according to age groups and occupational groups. According to post-hoc analyses, it is seen that inventory scores are higher for patients over 60 years old compared to younger patients group (p: **0,038**). In post-hoc analyses, it is established that statistical significance for occupational groups is related to the retired group. It is identified that inventory scores are lower in retired patients compared to civil servants and unemployed patient groups (p: 0,001) (Table 3). There is no statistically significant difference between inventory scores and gender, marital status, educational status, type of social security, income status, and smoking (p>0.05)

In this study, it is found that state inventory scores are higher in patients with no chronical illness compared to those with a chronical illness (p: 0.036). Inventory scores for patients who stated that they have anxiety related to surgery are found to be higher compared to those with no anxiety related to surgery (p<0.001) (Table 3). There is no statistically significant difference between inventory score and type of chronical illness, constant use of medication, having information about cataract, source of information about cataract, level of satisfaction with the information provided regarding cataract surgery, going through cataract surgery before, having family members who had cataract surgery, duration of the existence of cataract, and previous surgical experience (p>0.05).

Table 3: Comparison of STAI-State Scores According to Socio-Demographic, Health-Disease Characteristics of Patients Planned for Cataract Operation

STAI- State Scores		$\bar{x}$±SD	P
Group general		52.00 ± 9.75	
Age	40 age and below	55.09 ± 8.55	**0,038** †
	41-60 age	53.94 ± 9.48	
	61 age and older	50.63 ± 9.81	
Occupation	Officer	54.74 ± 7.48	**0.001** †
	Workers	47.46 ± 11.20	
	Not working	54.62 ± 9.24	
	Retired	49.46 ± 9.94	
Presence of a chronic disease	Yes	50.80± 10.18	**0.036** ‡
	No	53.64± 8.92	
Operational anxiety	Yes	55.16± 7.72	**<0.001** ‡
	No	43.85± 9.75	

$\bar{x}$: Mean. SS: standard deviation . † One way ANOVA test, ‡ Independent samples T test.

When STAI-state inventory scores are analyzed on the basis of variables of the study, it is noticed that there is a statistically significant relationship between inventory scores according to gender. It is seen that inventory scores of female patients are higher than male patients (p: 0.043) (Table 4). There is no statistically significant difference between inventory scores and age, marital status, educational status, occupational groups, type of social security, income status, and smoking (p>0.05).

There is a statistically significant relationship between the duration of the existence of cataract and continuity inventory scores. According to post-hoc analyses, inventory scores are lower in patients who had complaints about 0-6 months compared to those who had complaints for 1-5 years and more than 5 years (p: 0.023). It is determined that inventory scores of patients with anxiety related to surgery is higher than those with no anxiety related to surgery (p: 0.006) (Table 4). There is no statistically significant difference between inventory scores and

existence of chronical illness, type of chronical illness, existence of constant use of medication, having information about cataract, source of information about cataract, level of satisfaction with the information provided regarding cataract surgery, going through cataract surgery before, having family members who had cataract surgery, and previous surgical experience ($p>0.05$).

Table 4: Comparison of STAI-Trait Scores According to Socio-Demographic and Health-Disease Characteristics of Patients Planned for Cataract Operation

STAI-Trait scores		□±SS	P†
Group general		47.47± 6.11	
Gender	Female	48.35± 6.19	**0.043**
	Male	46.65± 5.94	
Presence of a chronic disease	Yes	50.80± 10.18	**0.036**
	No	53.64± 8.92	
Operational anxiety	Yes	55.16± 7.72	**<0.001**
	No	43.85± 9.75	

x̄: Mean. SS: standard deviation . † Independent samples T test.

Discussion

Development of cataract is affected by many risk factors. Age is one of these factors. Opacification of the lens increases due to aging and adaptation properties of the lens decreases. Hence, it gets difficult to map the light on the retina and adapt. According to a study conducted in the US on causes and prevalence of vision problems in adults, it is reported that vision impairment or low-vision affects 1 in every 28 Americans over 60 years old. Congdon et al. present that approximately 20,5 million Americans over 60 years old (17,2%) have the cataract in both eyes (Congdon et al., 2004). In this study, numbers of patients, who are over 60 years old, planned for cataract surgery is 128 and they constitute 60,7% of the working group.

In this study, it is found that the ratio of males planned for cataract surgery (51,7%) is higher than the ratio of females planned for cataract surgery (48,3). According to WHO's report on the use of cataract surgical services (2009), the rate of having cataract surgery is higher for males compared to females.

In this study, patients who have a chronical illness constitute 57,8% of the working group. It is known that increased inflammatory cytokines and inflammation markers have a role in chronical illnesses. In fact, Klein et al. (Klein et al., 2006) and Yoo et al. (Yoo et al., 2016) present that cytokines such as TNF a and IL-6, Ig E, and, implicitly, chronical illnesses are related to cataract. Moreover, studies conducted by Lee et al. (Lee et al., 2015) and Park et al. (Park & Lee, 2015) demonstrate that the risk of developing cataract is high for patients with chronical illnesses. In this study, it is found that the ratio of patients who have cataract for 1-5 years (41,2%) is higher than those who have cataract for shorter or longer period. It is known that vision function of patients gradually deteriorates as transparency of lens decreases. The vision loss of patients at the moment of diagnosis may not be as advanced to initially plan for a surgery. Vision loss of patients may be increasing even more as lens opacifies over time. Here, having surgery as the only treatment method for cataract and having increasing loss of vision over time may lead patients to agree with the surgical treatment that they did not initially think of.

It is a fact that all surgical patients experience fear, worry and anxiety regarding surgery before the operation. In this study, the ratio of patients who have anxiety regarding the operation is 72,0% among patients planned for cataract surgery. The research conducted by Fraser et al. proves that fear of going blind is the mostly stated anxiety factor for not having cataract

surgery (Fraser et al., 2013). It can be argued that patients' thinking of having difficulties performing daily activities, having pain, having loss of vision, having difficulties in terms of chronical problems for patients with chronical illnesses; having fear and worry about early discharge after the surgery, having post-surgery care in case of having no companion; and presuming of feeling pain during the surgery can affect feeling anxiety related to cataract surgery.

In this study, it is found that there is a statistically significant relationship between age and state anxiety levels. It is discovered that anxiety inventory score for patients who are 61 years old and older is lower than those who are younger than 40 years old and between 41-60 years old. Similarly, White et al. also analyzed fear and anxiety related to cataract surgery in elderly individuals. In the specified research, it is underlined that only one-third of the patients experienced fear and anxiety (White et al., 2015). Observing lower anxiety levels with advancing ages in the results of our study show similarity with this study. Observing lower anxiety levels in elder patients may be related to being accustomed to the hospital environment as they apply to hospitals due to their chronical illnesses. Having the first hospital experience may be increasing the anxiety level of younger patients.

In this study, it is found that there is a statistically significant relationship between trait anxiety level and gender. It is discovered that trait inventory scores of female patients are higher than male patients. There are studies in the literature which claims that anxiety level is higher for females compared to males (Fathi et al., 2014; Mavridou et al., 2013). Fathi et al. examined factors affecting pre-operative anxiety; and argued that female gender is one of the factors increasing anxiety (Fathi et al., 2014). Observing higher anxiety levels for females may be related to women being more comfortable than men in expressing their anxiety. In addition, the role of women as the caregiver in the family and not being able to fulfill this role, even temporarily, after the surgery, being separated from their family may cause higher anxiety levels.

In this study, it is discovered that there is a statistically significant relationship between anxiety levels based on occupational groups and state anxiety levels. The anxiety levels of retired patients are lower than unemployed patients and civil servants. Although there is no research examining the anxiety levels of patients who had cataract surgery based on their occupation, similarities are observed in patients who had day case surgery like the cataract. Koivula et al. show that anxiety levels of patients who are employed are higher than those who are retired (Koivula et al., 2002). In this study, it is found that anxiety levels are lower for individuals who are over 60 years old. Considering that retired patients are also in that group, it can be argued that is an expected result.

In this study, it is revealed that there is a statistically significant relationship between state anxiety level and the existence of the chronical illness. It is seen that the anxiety inventory scores are higher for patients with a chronical illness compared to those with no chronical illness. In their research analyzing anxiety and depression in patients hospitalized in internal and surgical clinics, Bahar and Tasdemir state that anxiety patients with chronical illnesses experience higher anxiety levels compared to patients with acute illnesses (Bahar & Tasdemir, 2008). There may be several reasons for having different results. First, in our study, when ages of patients with no chronical illness are compared, it is seen that they are significantly younger. Thus, younger ages of patients with chronical illnesses may cause higher anxiety levels. In fact, in this study, when anxiety levels are analyzed based on age, it is observed that anxiety level is higher in younger patients. Another possible reason may be observing lower anxiety levels in patients with chronical illnesses as related to being accustomed to the hospital environment as they apply to hospitals due to their chronical illnesses. Lack of long-term hospitalization environment in the hospital where the study is conducted, whereas the existence of long-term hospitalization environment in internal and surgical clinics, may explain the differences in anxiety levels.

In this study, it is found that there is a statistically significant relationship between trait anxiety level and duration of the illness. It is observed that patients who have cataract for more than 5 years have higher anxiety inventory scores compared to those who have cataract for less than 6 months and those who have cataract for 6 months-1 years. In their research, Nakao et al. present that there is a relationship between

duration of the illness and mental health problems in a group of patients (Nakao et al., 2016). They report that increasing duration of illness is related to increased anxiety levels. The research conducted by Uchmanowicz et al. underlines that there is a statistically significant relationship between increasing duration of illness and increased anxiety levels (Uchmanowicz et al., 2016). Also, Esteghamat et al. examine anxiety levels in surgical and non-surgical patients; and identify a statistically significant relationship between prolonged duration of illness and increased the level of anxiety for both groups (Esteghamat et al., 2014). Moreover, it is denoted that the anxiety level is higher in patients planned for surgical operation. Findings in our study regarding the duration of the illness are similar to the findings in the literature. This may be a consequence of having vision problems affecting daily life and increasing the anxiety level. Another possible reason for this situation can be patients' postponing the operation as they are afraid of the surgery. As blurry vision increases in the vision problem, the level of anxiety increases as well. Hence, the longest the duration of illness for a patient, the highest the level of anxiety is.

In this study, it is found that there is a statistically significant relationship between state and trait anxiety level and expressing the feeling of anxiety. It is observed that state anxiety inventory scores are higher in patients who express their feeling of anxiety compared to those who do not. It is seen that trait anxiety inventory scores are higher in patients who express their feeling of anxiety compared to those who do not. These results are also supportive of the purpose of this study. In their research, Bassett et al. examine the anxiety levels of patients according to pre-operative and post-operative time periods (Bassett et al., 2007). They identify that the anxiety levels decrease in post-operative time periods, although they are found to be very high in the pre-operative period. Similarly, Cilingir et al. also analyze the anxiety level of 230 patients that also include those with eye surgery; and state that patients have higher anxiety levels during the pre-operative time period compared to other periods (Cilingir & Bayraktar, 2011).

Conclusion

At the end of this study, it is found that age, the existence of chronical illnesses and duration of having cataract have an impact on the anxiety levels of patients. For improve health and decrease the anxiety levels, health professionals should approach to the patient planned for cataract surgery as a whole from a bio-psychosocial perspective; a comprehensive (patient-oriented) nursing care system should be established to decrease pre-operative anxiety level. The group of patients, who are not accustomed to the hospital environment due to not having an existing chronical illness and will particularly have cataract surgery for the first time, should be actively listened by providing them with the opportunity to express their feelings and thoughts regarding the surgery. Patients should be given simple and understandable information; and they should be provided with psychological support after eliminating the lack of information by making an explanation on the diagnosis, treatment, and prognosis of the illness. Any education to be provided to them should be designed based on age, chronical illnesses, and physical potentials of the patients. Since postponing cataract operation may prolong the surgical process, the anxiety level can be decreased by providing information to patients about the possibility of increasing duration of stay in the operating room. Showing videos and other visual materials to inform patients can help with decreasing their anxiety levels. Additionally, teaching exercises to patients based on their individual abilities, like relaxation exercises, breathing exercises etc. through complimentary nursing care can help with decreasing their anxiety levels.

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