

Effect of Patient Centered Care on Anxiety and Quality of Sleep among Patients with Cataract Surgery

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Abstract: Patient centered care is a vital element of daily living and overall well-being of cataract patients. Cataract is the second cause of visual impairment and the first cause of blindness globally. **Study purpose:** to evaluate the effect of patient centered care on anxiety and quality of sleep among patients with cataract surgery. **Setting:** The study was conducted at the Ophthalmology Department in Menoufia University Hospital. **Method:** Design: Quasi experimental research design was used. Sample: A consecutive sample of 100 adult patients with cataract was selected for the current study. **Instruments:** Structured questionnaires assessing patient Socio-demographic data and medical data, anxiety questionnaire and pittsburg sleep quality index (PSQI). **Results:** Mean score of patient's anxiety pre intervention 97.28±5.40 and 97.52±6.57 among study and control group respectively. While, there were highly statistical significant difference post (1,2 &3) intervention with p value <0.001. Concerning mean score of patient's sleep quality index pre intervention 40.68±1.69 and 40.76±1.81 among study and control group respectively. While, there were highly statistical significant difference post (1,2 &3) intervention with p value <0.001. **Conclusion:** Patient centered care is effective method to enhance the clinical outcomes, improve sleep quality and reduce anxiety. **Recommendation:** Patient centered care should be carried out for cataract patients in ophthalmology setting to increase their knowledge about disease, meet their needs, improve sleep quality and reduce anxiety.

Key words: *Patient Centered Care, Cataract, Anxiety and Quality of Sleep.*

Introduction

Cataract is opacity of the eye lens which can lead to blurry vision or blindness whereas with age it grows progressively to be darker and denser preventing light from easily passing through the lens and contributing to low quality of life. It is a gradually

progressive disease and a significant cause of blindness around the world. A cataract is a clouding of the natural intraocular crystalline lens that focuses the light entering the eye onto the retina. (WHO, 2023).

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Globally, at least 2.2 billion people have a near or distance vision impairment. In Egypt, the prevalence of low vision for all ages is 47.9% of the population with cataract the major cause of blindness 54.8%. It has been approximately 1 million people blind and 3 million visually impaired. Nearly 60% of the visually impaired in Egypt have cataract. About 2000 cases are annually subjected for cataract related surgery at ophthalmology department in Shebin El Kom Menoufia University Hospital (World Health Organization, (2023) & A statistical record of Menoufia University Hospital of Ophthalmology, (2022).

There are different types of cataract. Nuclear cataracts form in the middle or center of the lens and cause the nucleus to become yellow or brown. Cortical cataracts are wedge-shaped and form around the edges of the nucleus. Posterior capsular cataracts form faster than the other two types and affect the back of the lens. Congenital cataracts, which are present at birth or form during a baby's first year. Secondary cataracts are caused by disease or medications such as glaucoma, diabetes and steroid medication (National Eye Institute, 2023).

Common symptoms of cataracts include blurry vision, trouble seeing at night, seeing colors as faded, increased sensitivity to glare of the sun or other bright lights, driving becomes more difficult, particularly at night, halos surrounding lights, double vision in the affected eye and a need for frequent changes in prescription glasses. Vision loss due to cataracts is usually very gradual as cataract cause vision to

worsen, making it especially difficult to see fine details clearly (National Eye Institution, 2023).

Treatment of cataracts, using eye drop or other treatments that claim don't remove cataract. If symptoms are not affecting the performing activities of daily living, just need stronger eyeglasses prescription, magnifying lenses, or sunglasses with an anti-glare coating (American Optometric Association, 2023).

Surgery is the only way to cure from cataract. The cataract surgery is one of the safest and successful surgical procedures performed today; surgery is recommended when cataract interfere with activities of daily living such as reading or driving. It is also performed when cataracts interfere with the treatment of other eye problems. More than 95% of surgeries are successful with fewer than 5% of cases experiencing complications such as inflammation, bleeding, infection and retinal detachment (Royal National Institute of Blind people, 2022).

Patient's anxiety before surgery can lead to serious physiological and psychological reactions such as anxiety and fear. The nurses should assess the patient's preoperative anxiety, sleep quality, basic needs and assist to meet these needs. Patient centered care has proven beneficial in decreasing postoperative anxiety, complications and length of stay as well as positively influencing quality of sleep and recovery (Liu et al., 2020).

Sleep quality is essential for maintaining health. Cataract development interferes with the spectrum of light transmitted and

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reduces the amount of light reaching the retina, so replacement of clouded crystalline lenses with intraocular lenses, increases the capacity for light reception to the retina. Moreover cataract surgery has a greater capacity for light reception to the retina through increase melatonin secretion and improve sleep quality. Proper health education and teaching about effect of cataract and cataract surgery is important to improve subjective sleep quality (Chawla and Benbadis, 2022).

Significance of the study

Cataract is the most common cause of visual impairment around the world. It can significantly reduce patients' quality of life and one of the main ophthalmological public health problems in developed and developing countries and it is known as the main cause of blindness in many countries (Hashemi et al., 2020).

Cataract surgery is an efficient intervention to restore vision. Cataract surgery can also improve quality of life, time and social status, which ultimately has a positive impact on poverty alleviation. Approximately there are 10 million cataract operations are performed each year in the world (National Eye Institute, 2023).

Patient centered care is very important in preparing patients to take responsibility for operating instructions. The efficient process of information transfer is very important in the preparation of outpatient cataract surgery. Providing sufficient time for the education process is very important, because the preoperative expectations of cataract patients have

an important role in postoperative satisfaction. Patient centered care before cataract surgery can reduce anxiety, speed up return, and increase patient satisfaction, and reduce complications of surgery (Ahmed et al., 2021).

Purpose of the Study

The purpose of the current study: - To examine the effect of patient centered care on anxiety and quality of sleep among patients with cataract surgery.

Research Hypotheses:

- Patients who received patient centered care (study group) had lower score of anxiety than patients who didn't receive care (control group).
- Patients who received patient centered care (study group) exhibited improvement in sleep quality score than patients who didn't receive care (control group).

Methods:

Design: -

Quasi experimental research design was used.

Setting: -

The study was conducted at the ophthalmology Department in Menoufia University Hospital.

Sampling: -

A consecutive sample of 100 adult patients undergoing cataract surgery.

Inclusion criteria: -

- Patients aged <65years old in both sex.
- Alert and can communicate.

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Exclusion criteria: -

- Mental and cognitive impairment such as delirium and dementia because they may interfere with the patient's care and cannot communicate.
- Patient who previously attended training sessions related to cataract or with history of previous cataract surgery.

Instruments of the study:

Three instruments were used.

Instrument one: **Structured Interview Questionnaire**

This instrument was developed by the researcher; it covered the following parts:

- **Part one:** Patient Socio-demographic data: - It was used to assess patient's characteristics such as age, sex, level of education, occupation and marital status.... etc.
- **Part two:** Medical data: - It included information about past and present medical history such as duration of illness, taken medication, family history and previous surgery....etc.

Instrument two: **Anxiety Questionnaire**

It was adopted from Ramirez et al., (2017) to assess patients' anxiety pre and post cataract surgery. The questionnaire included 36 questions related to physiological anxiety pre and post cataract surgery such as patients anxious from the operation, becoming blind the anesthesia complications during the operation and the operation failing.....etc. The patient's responses

will classify using an 11-point Likert scale.

Scoring system: -

Response	Score
Low anxiety level	0-4
Moderate anxiety level	5-7
High anxiety level	8-10

Instrument three: Pittsburg Sleep Quality Index (PSQI):

Pittsburg sleep quality index was adopted from Osorio et al., (2006) to assess sleep quality preoperative and during follow up. This index included 19 questions in 7 components (subjective sleep quality sleep latency habitual sleep efficiency sleep duration sleep disturbances use of sleep medications and daytime dysfunction).

Scoring system:

Seven component scores were derived. Each question was scored on 4 point ordinal scale that has arranged from 0 to 3 points in which 0 indicates no difficulty while 3 indicates sever difficulty. The total score in this questionnaire was ranged from 0 - 21and higher scores indicate poor quality of sleep.

Validity and Reliability

All instruments were tested for its content validity by 5 experts in the field of medical surgical nursing, ophthalmology specialist and modifications carried out accordingly.

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In order to determine the dependability of the created instruments, test retest method and a person correlation coefficient formula to ascertain reliability of instruments. Internal consistency was evaluated using cronbach alpha for all instruments. It was 0.85 alpha for instrument (I&II) structured interview questionnaire and anxiety questionnaire while 0.81 alpha for instrument (III) patients' sleep quality index.

A pilot study

A pilot study was carried out prior to data collection on 10% of the sample size (10 patients) to assess the constructed instruments for feasibility and applicability and the necessary modifications were carried out accordingly. The samples used were excluded from the actual study.

Ethical consideration

Approval was obtained from the Faculty of Nursing, Menoufia University, Ethical and Research Committee. A written consent was obtained from all patients for their acceptance to participate in the current study after explanation of the purpose of the study. Each patient was reassured that any information obtained would be confidential and would only be used for the study purpose. The researcher emphasized that participation in the study was entirely voluntary and anonymity of the patients were assured through coding of data. Patients were also informed that refusal to participate in the study wouldn't affect them.

Procedure

Data collection was collected over a period of 3 months extended from the beginning of June 2022 to the end of August 2022. Patients who agreed to participate in the study and fulfilled the inclusion and exclusion criteria were assigned randomly and were divided alternatively into two equal groups; control group (I) and study group (II) for collecting data. The researcher dealt with the control group (I) firstly then the study group (II) to avoid the contamination of results. The purpose of the study was explained to each subject of both study and control group.

The study applied through four consecutive phases namely: assessment, planning, implementation, and evaluation.

1) Assessment phases:

This session took about 20-30 minutes for each subject. It begins after developing of the instruments and getting the official permission. The researcher started to collect the data according to the inclusion criteria and acceptance of patients to participate in the study. Each subject of both groups was interviewed individually and assessed for socio-demographic data and medical data by using part one and two from instrument I. All subjects of both groups were assessed for anxiety by using instrument II. All subjects of both groups were assessed for sleep quality by using instrument III .

2) Planning phase:

Based on the gathered information and knowledge level of subjects gathered during assessment phase, a colored booklet supported with illustrative

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pictures and simple videos was prepared that included information about : Basic information about eye, physiology of eye in addition to cataract disease such as (definition, incidence, causes, risk factors, types, signs, symptoms, diagnostic evaluation, complication, management and prevention of cataract) was given for each subject of group II. The researcher then distributes the prepared booklet for every subject of group II (study group) or his/her accompanying person.

Nursing intervention: Focused on technique of extremity massage and sleep hygiene training program, moreover a video was prepared to teach subjects in study group about cataract disease and technique of massage which divided into 2 parts as follow. 1) The first practical part: Included checking feedback of received information about cataract and filling gap of missed knowledge that instructed before during theoretical session. 2) The second practical part: Included the technique of extremity massage. Immediately before the operation, the palms, backs of the hands, fingers and feet of the patients was massaged for 10 minutes in circular movements in addition to range of motion exercise to joint. After the massage, the comfort and anxiety levels of the patients were evaluated by using instrument III, also the researcher illustrated the instructions about good sleep hygiene.

3) Implementation phase:

The researcher interviewed each subject of study group individually at the waiting area at the Ophthalmology

Department in Menoufia University Hospital. The researcher conducted at least three teaching sessions or more for each subject according to his/ her level of understanding. Each session was conducted using lecture and discussion and during the final session demonstration and re-demonstration were added. The researcher distributed the prepared booklet for every subject of group II (study group) or his/her accompanying person before starting session I.

During the first session: Information about cataract: definition, types, risk factors, diagnosis and treatment. It took about 30-45 minutes according to patients' level of understanding. At the end of the session the researcher allowed subjects and their family members to ask questions and provide them with the answers. The second teaching session, at the beginning of second session, the researcher reinforced the received information; the researcher taught the subjects of the study group (II) how to perform extremity massage. Immediately before the operation, the palms, backs of the hands, fingers and feet of the patients was massaged for 10 minutes in circular movements in addition to range of motion exercise to joint.

Also during second session the instructions were given about sleep definition, stages, sleep disturbances, its causes, types and how to manage these sleep disturbances. At the end of the session the researcher allowed subjects to ask questions and provided them with the answers. It took about 45 -60 minutes according to subjects' level of understanding. During the third

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session: In this session the researcher refreshed and reinforced the previous information.

4) Evaluation phase:

The studied groups was evaluated at four time intervals (before operation, before discharge, one week and two week after operation) to highlight the effect of intervention. Both groups compared to assess effect of patient centered care on anxiety and quality of sleep among cataract patients surgery. During follow up period, the researcher reinforced the subjects of the study group II by phone.

Statistical analysis

Collected data were described using Mean and Standard Deviation (SD) for numerical data and frequency and percentage for categorical data. Pearson Chi-square test (χ^2) & Fisher's Exact Test, and Student t- test were used to compare changes in studied parameters throughout the study phases, as appropriate. The Spearman correlation, Kruskal-Wallis tests (non-parametric test) were used to assess the correlation between studied variables. Statistical significance was considered at $P < 0.05$. The data collected were tabulated & analyzed by SPSS (statistical package for the social science software) statistical package version 20 on IBM compatible computer (SPSS, Chicago, IL, USA).

Results:

Table (1): This table shows that the mean age of study and control group was (57.30 ± 5.11 and 58.16 ± 4.97 respectively). About two thirds of control group (64.0%) was males while the study group was equal (50% male

and 50% female). Concerning marital status, both study group and control group were married. Regarding level of education, about 44% of study group graduated from university school while about two third of control group (66.0%) graduated from the university. Regarding to occupation, half of study group (50% & 70 %) had administrative work in study and control group respectively. As regard residence, both groups were from rural areas. As regard monthly income, majority of both groups (90.0% - 94.0% respectively) have enough income and two third of study group were smokers while half of control were smokers. There were no statistical significant differences between both groups regarding all sociodemographic characteristics with P value > 0.05 .

Table (2): This table reveals that; both the studied groups have cataract in the past medical history. About two third of study group (60.0%) have diabetes mellitus in past medical history while all the control group have diabetes mellitus in past medical history. Regarding past surgical history, majority of study group (60%) have previous cataract surgeries while no one in control group have previous surgeries. Regarding to family history, majority of both groups have cataract (80% & 100%) and refractive error (80% & 100%) respectively in addition to both groups have family history of diabetes mellitus and hypertension. Regarding source of information related to cataract both groups know information from doctor while two third of study group know information from relative and friend, while

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minority of study group (20%) know from magazine and media. No one of both group attending any training sessions related to cataract.

Table (3): Illustrates comparison of patient's total score of anxiety among studied groups (pre - post intervention). This table shows that there were no statistical significant difference between study group and control group pre intervention and the mean score of patient's anxiety pre intervention 97.28 ± 5.40 and 97.52 ± 6.57 among study and control group respectively, While, there were highly statistical significant difference post (1,2 &3) intervention with p value <0.001 . Regarding mean score of patient's anxiety (post 1 intervention) were 91.66 ± 6.78 and 97.52 ± 6.57 among study and control group respectively, Regarding mean score of patient's anxiety (post 2 intervention) were 82.52 ± 9.26 and 94.92 ± 6.99 among study and control group respectively with highly statistical significant difference between them

with people value <0.001 , Regarding mean score of patient's anxiety (post 3 intervention) were 62.80 ± 11.98 while 89.40 ± 9.46 among study and control group respectively.

Figure (1): Patient's total score of sleep quality among the studied groups (pre and post-intervention). This figure reveals that patient's total score of sleep quality pre intervention were 40.68 and 40.76 for study and control groups respectively. While scores of patient's sleep quality post 1 intervention was 32.76 for study group compared to 40.68 for control group, while post 2 intervention was 22.12 for study group compared to 40.46 for control group and post 3 intervention was 9.18.8 for study group compared to 40.22 for control group.

Figure (2): Correlation between total sleep quality score and patient's anxiety score among study group and control group. This figure reveals that there was positive correlation between total sleep quality score and total anxiety score among studied groups.

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Table 1: Distribution of the studied groups regarding socio-demographic characteristics

Demographic characteristics	Studied groups				χ^2	P value
	Study group (n=50)		Control group (n=50)			
	NO.	%	NO.	%		
Age (years): Mean±SD Range	57.30 ± 5.11 49.0 – 65.0		58.16± 4.97 49.0– 65.0		t- test = 0.85	0.39 NS
Gender: Male Female	25 25	50.0 50.0	32 18	64.0 36.0	1.99	0.15 NS
Residence: Rural	50	100.0	50	100.0	NA	NA
Marital status: Married	50	100.0	50	100.0	NA	NA
Occupation: Manual work Administrative work Housewife	5 25 20	10.0 50.0 40.0	2 35 13	4.0 70.0 26.0	4.43	0.10 NS
Education level: Illiterate Read & write Secondary University	8 6 14 22	16.0 12.0 28.0 44.0	2 6 9 33	4.0 12.0 18.0 66.0	6.88	0.07 NS
Smoking: Yes No	18 32	36.0 64.0	25 25	50.0 50.0	1.99	0.15 NS
If yes, type of smoking: Cigarette	18	100.0	25	100.0	NA	NA
If cigarettes, how many packages /day? Package or less 2-3 package	15 3	83.3 16.7	20 5	80.0 20.0	0.07	1.0* NS
Monthly income: Enough Not enough	45 5	90.0 10.0	47 3	94.0 6.0	0.54	0.71* NS

χ^2 = Pearson Chi-Square test

t= student t- test

NS: not significant (P value > 0.05)

*Fisher`s Exact test

NA: not applicable

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Table 2: Distribution of the studied groups regarding patient medical data

Patient medical data	Studied groups				χ^2	P value
	Study group (n=50)		Control group (n=50)			
	NO.	%	NO.	%		
Past medical history						
Cataract: Yes	50	100.0	50	100.0	NA	NA
Glaucoma: No	50	100.0	50	100.0	NA	NA
Refractive error: Yes	10	20.0	50	100.0	66.66	<0.001 HS
No	40	80.0	0	0.0		
Diabetes Mellitus: Yes	30	60.0	50	100.0	25.0	<0.001 HS
No	20	40.0	0	0.0		
Hypertension: No	50	100.0	50	100.0	NA	NA
a. Past surgical history						
Cataract: Yes	30	60.0	0	0.0	42.85	<0.001 HS
No	20	40.0	50	100.0		
Glaucoma: No	50	100.0	50	100.0	NA	NA
Refractive error: No	50	100.0	50	100.0	NA	NA
b. Family history						
Cataract: Yes	40	80.0	50	100.0	11.11	0.001 HS
No	10	20.0	0	0.0		
Refractive error: Yes	40	80.0	50	100.0	11.11	0.001 HS
No	10	20.0	0	0.0		
Diabetes Mellitus: Yes	50	100.0	50	100.0	NA	NA
Hypertension: Yes	50	100.0	50	100.0	NA	NA
c. Source of information related to cataract						
Doctor, Ophthalmologist.	50		50		11.11	0.003 S
Family member, relative, friend suffering from it.	40		50			
TV, magazines, or other media.	10		0			
Attending any training sessions related to cataract or cataract surgery? Yes	0	0	0	0	NA	NA
No	50	100.0	50	100.0		

χ^2 = Pearson Chi-Square test

HS: Highly significant (P value < 0.001)

S= Significant

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Table 3 Comparison of patient’s total score of anxiety among the studied groups (pre and post-intervention)

Total score of patient’s anxiety	Studied groups		Students` t test	P value
	Study group (n=50)	Control group (n=50)		
	Mean±SD Range	Mean±SD Range		
Pre-intervention	97.28±5.40 78.0 –105.0	97.52±6.57 74.0 –105.0	t= 0.19	0.84 NS
Post 1- intervention	91.66±6.78 78.0 –103.0	97.52±6.57 74.0 –105.0	t= 4.38	<0.001 HS
Post 2- intervention	82.52±9.26 65.0 –96.0	94.92±6.99 73.0 –103.0	t= 7.55	<0.001 HS
Post 3- intervention	62.80±11.98 47.0 –92.0	89.40±9.46 70.0 –103.0	t= 12.31	<0.001 HS
Repeated measured ANOVA	242.42	62.72		
P value	<0.001 HS	<0.001 HS		
Post-hoc test	P1= <0.001 HS P2= <0.001 HS P3= <0.001 HS P4= <0.001 HS P5= <0.001 HS P6= <0.001 HS	P1= NA P2= <0.001 HS P3= <0.001 HS P4= <0.001 HS P5= 0.01 S P6= <0.001 HS		

P1: Comparison pre-intervention vs. Post- intervention (1)

P2: Comparison pre-intervention vs. Post- intervention (2)

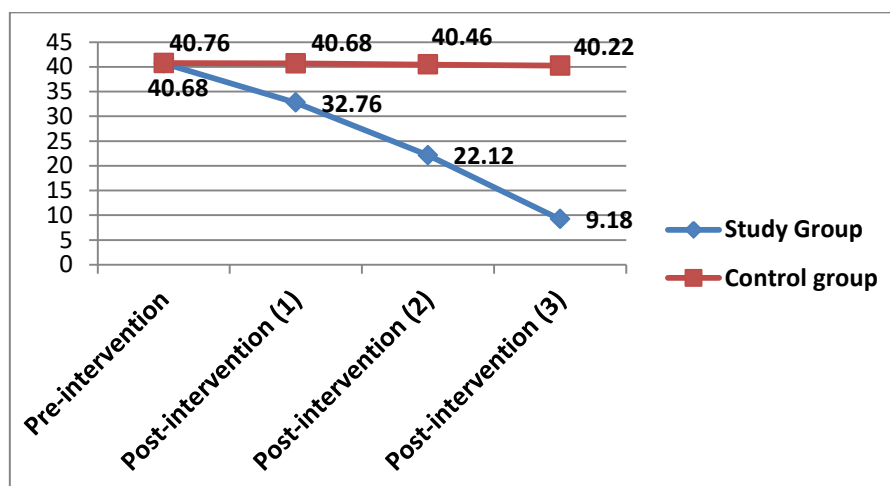
P3: Comparison pre-intervention vs. Post- intervention (3)

P4: Comparison Post- intervention (1) vs. Post- intervention (2)

P5: Comparison Post- intervention (1) vs. Post- intervention (3)

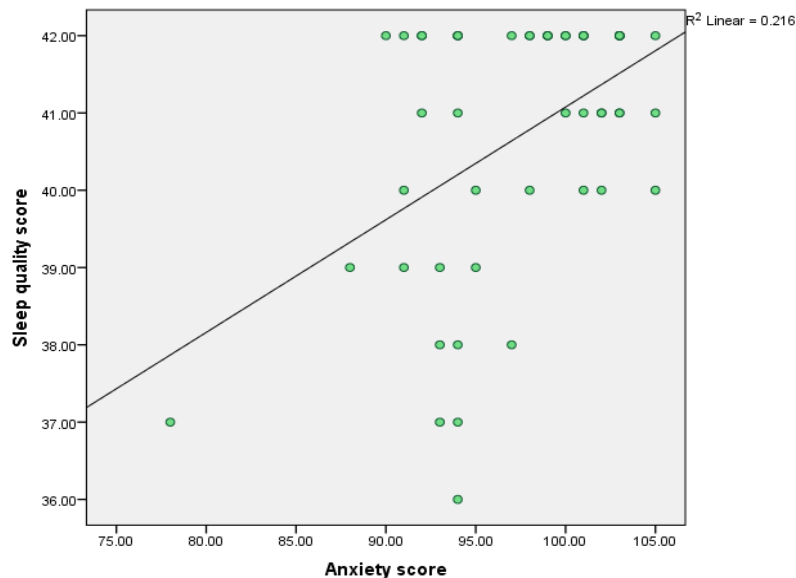
P6: Comparison Post- intervention (2) vs. Post- intervention (3)

Figure (1): Patient’s total score of sleep quality among the studied groups (pre and post-intervention)



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Figure (2): Correlation between total sleep quality score and patient's anxiety score among study group and control group.



Discussion

Cataract surgery considered one of the most common cost-effective and successful surgical procedures that is performed worldwide. Only few studies demonstrated the effectiveness of patient centered care on patients undergoing cataract surgery. In this respect, the main concern of the present study was to examine effect of patient centered care on anxiety and quality of among patients with cataract surgery.

Sociodemographic characteristics of the studied sample: Regarding to age, the present study showed that, the age of the studied groups were ranged between (49-65 years old) and the mean age of the study group was 57.30 ± 5.11 and control group was 58.16 ± 4.97 . This finding was consistent with the study done (Ahn, et al, 2019) who stated that the mean age of studied groups was 62.6 ± 10.7 years.

Also this finding was in line with (Chawla & Benbadis, 2022) who reported that the age of most of the studied sample was ranged between ranged between 23-65 years old. On the other hand the current study finding was disagree with (Chen, et al. 2018) who reported that the majority of patients with respect to their age were less than 25 years old and also disagreed with (El-Mowafi, 2019) who showed that around one half of patients were aged between 20 to 30 years old. Regarding to sex, the present study revealed that, approximately two third of control group (64.0%) was males while the study group was equal (50% male and 50% female) this agreed with (Abdelazeem, 2021) who reported that more than half of control group were males. Moreover) Jullia & Kelly, 2019) who reported that two thirds of control group were males and that was

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harmonized with (Mansour, et al., 2019) who found that the majority of control group were males. Also (El-Mowafi, 2019) who showed that most control subjects were males while about half of study group were female. Regarding to marital status, the present study revealed that all the study subjects were married. This finding was matched with their age group and was supported by (Taha & Abd Elaziz, 2018) who reported that the majority of their studied subjects were married. This finding is contradicted with (El-Mowafi, 2019) who showed that most of subjects were single. This contraindication may be related to the difference of age group between both studies.

Regarding to educational level, the present study found more than one third 44% of study group graduated from university while about two third of control group (66.0%) graduated from the university, the current study finding was in line with (Guerrier, et al., 2021) who found that around half of the study group was holding bachelor degree. Also agreed with (Oh, et al. 2019) who showed that more than one third of study group graduated from the university. On the other hand the results in contrast with (Lee, et al. 2018 & El-Mowafi, 2019) they reported that more than three quarters of the studied patients had higher education and around one half of the sample had diploma while only 10% were bachelor degree.

Regarding to occupation, the present study showed that half of study group and more than two thirds of control group had administrative work. This

result supported by (Guerrier et al, 2021) who concluded that the rate of jobness is high among cataract patients. The present study revealed that the most common chronic disease among studied subjects of both groups was diabetes mellitus. This finding is consistent with Ho et al, (2019) who mentioned that DM was highest among cataract patients and about half of both groups of the study complain of chronic diseases.

Regarding family history, the current study found that majority of both groups have cataract, refractive error, diabetes mellitus and hypertension. On the same line; Dunaief, (2020) revealed that, majority of both groups had past family history of eye diseases. Also; this result consistent with the reports of a high prevalence of a positive family history of eye disease among individuals with cataract National eye Institution, (2023). And the finding of Ho et al., (2019) they revealed that family history of DM was highest among cataract and about half of both groups of the study complain of chronic diseases. From researchers' point of view this discrepancy may be due to different setting and availability of resources to diagnose cases of cataract.

The first hypothesis was accepted according to the present study which revealed that patients who received patient centered care (study group) had lower score of anxiety than patients who didn't receive care (control group). Concerning this result; (Liu et al., 2020) stated that patients undergoing cataract surgery often experience fear and anxiety not only

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during but also before and after the operation, and during post-operative visits. On the same line; (Obuchowska & Konopinska, 2021) reported that preoperative education, counseling and manual massage immediately before surgery were used in order to decrease fear of surgery itself, fright of pain and loss of vision so increase in the patients' sense of satisfaction and quality of life.

From the same view, a study done by (Keramati, et al., 2019) cited that Fear and anxiety are the dominant and most frequently reported negative feelings related to cataract surgery. Patients stress before surgery can lead to serious physiological and psychological reactions such as anxiety and fear. Also the second hypothesis was accepted as the current study stated that patients who received patient centered care (study group) exhibited improvement in sleep quality score than patients who didn't receive care (control group). In the present study, sleep quality obtained by individual sleep's scores measured by Pittsburg sleep quality index and the results shows that there were no statistical significant differences between study group and control group pre intervention. While, there were highly statistical significant difference post (1, 2 &3) intervention with p value <0.001.

The current study showed that the total score of subjective sleep quality, sleep latency, sleep duration, sleep disturbances, sleep efficiency and daytime dysfunction were significantly improved after sleep hygiene training program except for the use of sleep

medications. None of the current patients used sleeping pills and they were scored as "0" in the area of using sleep medications. These findings were in accordance with (Nishi et al., 2020) who studied the effect of sleep hygiene training program for patients with cataract and stated that there was no statistical significant differences between study group and control group pre intervention. While, there were highly statistical significant difference post intervention.

On the same line; (Obuchowska & Konopinska, 2021) studied effects of cognitive behavioral therapy on insomnia among cataract patients and reported that the total score of all components of sleep parameters were significantly lower among treatment group compared with their control. Regarding correlation between patients' anxiety and sleep quality the result of the present study showed that there was statistical significant difference between patient's sleep quality score and patient's anxiety score (pre intervention. This finding agreed with (Xu et al., 2022) who reported that, there was statistically significance difference between patient's sleep quality score and patient's anxiety score pre intervention. From the researcher point of view, it can be concluded that the patient centered care significantly improve quality of sleep, clinical outcomes and reduce patient's anxiety.

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Conclusion:

Based on the findings of the current study, it can be concluded that patients who received patient centered care (study group) had lower scores of anxiety and exhibited improvement in sleep quality scores than patients who didn't receive care (control group).

Recommendations:

An educational nursing intervention should be developed for patients about cataract and the importance of proper self-care practice for cataract patients to improve their knowledge. A simple booklet includes the most important instructional points regarding cataract should be given to all patients. A regular checkup program for cataract should be available every year in the governmental hospitals with cheap price so that cataract can be treated early. This study can be replicated on a large sample size and with long term follow up can help in generalizing the results.

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