Empowering Patients with Cataract Undergoing Surgery through Audiovisual Nursing guidance: its Effect on Knowledge, Self-care Compliance and Eye Infection

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Abstract

Background: The interference with audiovisual based nursing instructions for cataract patients can enhance their knowledge, Self-Care Compliance and decrease eye Infection after surgery**. Aim of the study** :to evaluate the effect of Audiovisual nursing guidance on knowledge, self-care compliance and eye infection among patients with cataract undergoing surgery. **Design**: A quasi-experimental research design was used. **Study Sample**: A purposive sample of 60 patients who met the inclusion criteria were divided into two equal groups: 30 for the study group and 30 for the control group. **Setting**: Data collection was done in Ophthalmology department at Menoufia University and Ophthalmology Hospital at Shebin Elkom, Ministry of Health, Egypt. **Results**: Audiovisual nursing guidance enhanced the study group's level of knowledge than the control group post intervention, the study group's mean score for patients' self-care compliance was significantly higher than control group post intervention. Also, In terms of post-cataract eye infection symptoms following surgery, there were statistically significant differences between the study and control groups. **Conclusion**: Application of Audiovisual based nursing guidance about postoperative eye care can significantly enhance patients' knowledge as well as self-care compliance and decrease eye infection manifestations. **Recommendation:** A continuous Nursing education using Audiovisual based nursing guidance about postoperative eye care should be available to patients who have cataract surgery.

Keywords: Audiovisual, Cataract surgery, eye infection, knowledge, Self-Care Compliance**.**

Introduction

The World Health Organization (**WHO.2023**) reported that at least 2.2 billion people worldwide suffer from vision impairment, with cataracts and refractive errors being the main causes of blindness and vision impairment worldwide (**Grzybowski & Kanclerz, 2020)**. In regard to regional differences, it will be expected that low- and middle-income areas had four times the prevalence of distance vision impairment as compared to high-income areas (**Syabariyah et al., 2023**). The effects of cataracts include increased risk of dementia and vision loss, particularly in older adults **(Taha &Abd Elaziz ,2015**), raises the risk of traffic accidents and falls (**Flayeh & Khuder , 2017); Mahfouz, 2019)**, increases the likelihood of falls and traffic accidents which can eventually have a major effect on a person's quality of life **(Sharma et al., 2019**).

Cataract is a region of cloudiness in the eye's lens that reduces the visual acuity and quality (**Zuo et al., 2024**). Causes of cataract encompass genetic factors, radiation, Skin diseases as those such as eczema and atopic dermatitis might produce shield ulcer cataracts. Also smoking, alcohol, inadequate vitamin C, Hyperbaric oxygen therapy can have a number of adverse effects, and certain drugs, such as systemic, topical, or inhaled corticosteroids may raise the risk of cataract formation. Cataract

usually develops slowly over many years through four stages, no symptoms were noticed at first. Symptoms of cataract include blurred clouded/double vision, sensitivity to light (lights look too bright or glaring), frequently changing prescriptions for glasses or contact lenses and having trouble driving at night **(American College of Eye Surgeons, 2019)**

The concept of self-care describes the capacity to carry out activities of daily living (ADLs), including eating, washing, brushing one's teeth, and dressing in clean clothes **(Riegel et al., 2021).** Proper self-care and informed patients' knowledge play a critical role in promoting successful recovery and preventing complications after cataract surgery.The patients must adhere to prescribed eye drops, avoid rubbing eyes, protect the eyes from dust and bright light, and refrain from strenuous activities that could increase eye pressure (**Riegel et al., (2021**). Furthermore, increased patient awareness about symptoms that require immediate medical attention—such as severe pain, vision loss, or unusual discharge can lead to timely interventions and better outcomes **(**Kim & Kim, **2018**).

Eye infection (endophthalmitis) is one of the potential complications that can happen after the surgery. The other complications include blood clot, a temporary increase in pressure inside the eye, clouding of the cornea, reactivation of the herpes infection of the cornea, halos or a shadow effect (dysphotopsia), blurred vision and dryness of the eye. Two weeks after surgery avoid rubbing or touching the eye, avoid applying eye make -up or exposuring to dusty environments, and the pain may linger for 24 hours while taking a steroid drop to assist with inflammation reduction and an antibiotic drop to prevent infection. If it persists longer, an emergency room visit is required (**Fang et al., 2022**).

Cataract surgery is a quick operation, patients are not required to remain within the medical facility for an extended amount of time. Because postoperative monitoring must be done at home, it has thus become the patients' obligation. After leaving the clinic, many patients quickly forget the lessons that the nurses taught them. Elderly people are the majority of cataract patients. In older patients, the capacity to perceive and process information is diminished, as is the capacity to heal (**Syahputra et al., 2020**). Therefore, it is essential to increase patients' awareness and acceptance of information through interactive media and simple, memorable health education. The development of interactive video-based audiovisual materials regarding post-cataract surgical care is one attempt to address this problem. Patients who have had cataract surgery are shown this educational film as an additional educational resource (**Grzybowski & Kanclerz, 2020).**

Recently, technology advancements and innovations cause a change in the way information is provided in the medical field. According to **Moustafa et al. (2019),** there are some benefits to multimedia-based or "video-assisted" patient education over oral or written instruction. Numerous studies on patient education with video assistance have been released (**Zarifsanaiey et al., 2023**). The nurse plays a vital role in helping patients understand cataracts and how to treat them to prevent problems after surgery. According to **Kamat et al. (2018)**, Postoperative self-care guidelines lower healthcare expenses, enhance clinical results, and support postoperative health decision-making. According to **Elgazar et al. (2017),** the patient receives postoperative instructions that address eye care, medicine, exercise, food, issues, and follow-up.

Significance of the study

World-wide, The most frequent cause of visual impairment is cataracts. A person's independence in doing daily tasks like walking, reading, and driving may be hampered by visual impairment because of cataracts. In 2021, Tremblay et al. In 2025, approximately 100 million people worldwide—1.2–1.3% of the population—will have moderate to severe cataract-related visual impairment (**AlThani et al., 2025**). Crucially, there is a dearth of studies on the effectiveness of combining visual and auditory signals to enhance speech intelligibility in individuals with cataracts (**Hirst et al., 2020**).

In Egypt, Around 47.9% of Egyptians of all ages suffer from reduced eyesight, with cataracts accounting for 54.8% of cases, which

are thought to be the leading cause of blindness (**Mahmoud et al., 2023).**Patients with cataracts have approximately 2,000 procedures to remove white water at the Ophthalmology Hospitals of Shibin El Kom. Based on the data from **Abdullah et al. (2020**) and **Menoufia University Hospital of Ophthalmology (2018),** around 1200 cases at El Ramad Hospital have cataract-related surgery each year.

After cataract surgery, patients are usually provided corticosteroid eye drops, antibiotics, non-steroidal anti-inflammatory medications, each of which may be given at varying intervals. Nonetheless, it is common for patients to disregard their eye drop prescriptions, which can result in less than ideal results and possible side effects including irritation or infection. The level of patient noncompliance and related contributing factors have not been thoroughly studied. Drop instillation may be more difficult for patients who have had cataract surgery (**Matossian et al., 2020).**

Subjects and Methods

Aim of the Study: to evaluate the effect of Audiovisual Nursing Guidance on Knowledge, Self-care Compliance and Eye Infection among Patients with Cataract Undergoing Surgery.

Study Hypotheses

H1: Patients with cataract who receive audiovisual nursing guidance are expected to have higher knowledge mean score post intervention than pre-intervention compared to control group.

H2: Patients with cataract who receive audiovisual nursing guidance will have higher self-care compliance mean score post intervention than pre-intervention compared to control group.

H3: Patients with cataract who receive audiovisual nursing guidance will have lower eye infection mean score post intervention than pre-intervention compared to control group.

Research Design:

A quasi-experimental (case-control) research design was utilized to achieve the aim of the study.

Study Setting:

This study was conducted at the Menoufia University Hospital's ophthalmology department, and the follow-up was conducted in ophthalmology outpatient clinics in Shebin El Kom city, Menoufia Governorate, Egypt.

Study Subjects:

A purposive sample of sixty patients with cataract undergoing surgery were included in the current study according to the inclusion criteria . They were divided into two equal groups: a study group (n = 30) and a control group (n = 30). Cataract phases were used to match the two groups.

Sample size:

This study used the Epi website (Open Source Statistics for Public Health)* to determine the sample size needed to evaluate the effect of audiovisual nursing guidance intervention on knowledge, self-care compliance and eye infection among patients with cataract undergoing surgery, **with the following sample size equation:**

$$N= \frac{2(z1-\alpha+z1-\beta)2\ \sigma2\ \{1+(m-1)p\}}{md2}$$

1.Considering α type I error of 0.05,
2.β type II error of 0.20,
3. a test power of 0.8,
4. m = n1 =size of sample from population 1,
5. and d = 2 as the least significant difference,
6. z1= standard normal deviate for two-tailed test based on alpha level (relates to the confidence interval level),
7. p= percent of unexposed (control) with outcome, (improvement in knowledge, self-compliance, and eye infection among study group of cataract patients undergoing surgery). (Diggle, Heagerty, Liang & Zeger, (2013)and **(**Open Source Statistics for Public Health, 2022)*:

Based on the sample size measured, a total of 60 cataract patients undergoing surgery who agreed to participate in this study (30 for each group) were included in the study. Study group: compromised "30" cataract patients undergoing surgery who was given Audiovisual Nursing Guidance intervention, and the control group "30" who had the routine care. The application of Audiovisual Nursing Guidance intervention through internet, social media, reading books …..etc.

Inclusion criteria:

- Patients aged 50-70 years
- Patients of both sexes in preoperative stage for cataract surgery.
- Patients who have the ability to see and hear.
- Patients undergoing cataract surgery in one eye by phacoemulsification using local anesthesia or neuroleptics and had visual acuity of at least 0.08 in the non-cataract eye.
- Patients undergoing cataract surgery for the first time.
- Day care and hospitalized patients

Exclusion criteria:

- Mental retardation or mental illness.
- Critically ill and unconscious patient.
- Deaf and dumb patients
- Patient who did not comply with follow up.

Study Instruments: -

The following three instruments were used for collecting study data:

Instrument I: An interviewing questionnaire: It was developed by the researchers and encompassed three parts:

Part (1) Socio-demographic data: it included age, gender, marital status, level of education, occupation, income, residence, and smoking habits.

Part (2): Medical profile: it included past medical history, family history of cataract and duration of cataract.

Part (3): knowledge Assessment questionnaire for cataract: it was adopted from Syabariyah et al.,(2023) and modified by researchers in the current study after reviewing the related literatures. It included 39 questions in three domains:

A. General information about cataract as definitions, causes, signs and symptoms, and diagnostic criteria (4 items).

B. **Prevention and management of cataract** included the intervention to reduce symptoms before surgery, primary treatment method, time required for surgery, and complications of untreated cataract (4 items).

C. knowledge about self-care: It was developed by the researchers and included six parts:

a- **Prevention of eye injury and infection included** 6 questions related to position for sleep and rest, usage of eye shield, avoidance of rubbing eyes, wearing of sunglasses when going out, swimming not allowed and avoidance of pending forward during hair washing.

b- **Type of recommended diet** included 3 questions as eating vegetables and fruits, eating fish, meat and chicken or no restriction.

c- Technique of administration of eye drops and ointment. It included the following 12 questions: Eye treatments that have changed color should never be used. Prior to and following the surgery, wash your hands. Make sure there is enough light. To be sure the eye medication is the right one, read the label. Keep the tip of the medicine container away from your face and eyes. Avoid pressing on the eyeball and keep the lower lid down. Press gently on the cheekbone to secure the finger that is holding the lid in place. Apply ointments after administering eye drops. On the lower conjunctival sac, apply a 0.25–0.5 inch ointment ribbon. Apply light pressure to the inner canthus (punctual occlusion) close to the nose bridge for one or two minutes right after applying eye drops, while keeping the eyes closed. When extra eye drops fall onto the cheeks, gently pat the area with a clean tissue to absorb them. Hold off on applying another eye drop for five minutes and another ointment for ten minutes.

d- Knowledge related to hygiene Three questions were asked following cataract surgery, such as to always wash your hands before handling or cleaning your postoperative eye. Use a clean tissue to clean the postoperative eye. When bathing or showering, carefully shampoo your hair or ask for help. Wipe the closed eye in a single motion from the inner canthus outward.

e- Knowledge related to permitted and authorized activity contained five questions about maintaining a low level of activity (e.g., walking, reading, watching television). Only carry out the following tasks as instructed by the ophthalmologist: driving, having sex, or engaging in exceptionally demanding activities. Don't push, drag, or raise anything that weighs more than fifteen pounds. Steer clear of prolonged bending or stooping. Use caution when going up or down stairs.

Knowledge about follow up contained two questions on how to contact an ophthalmologist with queries or issues. Indicate the follow-up appointment time and date. And Determine where you can get support (friends, family, your faith community) and help (meals, transportation, etc.).

Scoring system: The questionnaire was 39 questions with each correct answer scored between zero for incorrect answer to one for correct answer, and a total score between 0 and 39. The total of these scores was subsequently converted into a percentage score. subsequently grouped as follows: Adequate knowledge was indicated by a score above 75, while inadequate knowledge was indicated by a score below 75

Instrument II: Self-care Compliance Scale (SCS):

This instrument was used to assess patients' compliance with self-care after cataract surgery and adopted from **Cho and Rho, (2012).** It included 4 domains as the following**: domain I:** was eye drops included 4 items: -(hands washing prior to eye drops, not put the tip of bottle on the eyelid or eye, instilling eye drops as prescribed, instilling different eye drops at 5-minute intervals)**. Domain II:** was hygiene comprised of three things: (showering without wetting the operated eye, washing face and hair without soaking the operated eye). **Domain III** consisted of six items for protecting the operation site: wearing eye shields at night, avoiding rubbing or squeezing the eye, sleeping on the side of the operation or on your face, avoiding flames, avoiding television for seven days following surgery, and protecting your eyes from dust, dirt, and sunlight. **Domain IV:** daily living consisted of two items: limiting outside activities and intense exercise, and going to the clinic on follow-up dates. Each item had a score between 1 and 3, with 1 denoting not done, 2 denoting seldom done, and 3 denoting always done. This scale's scoring method, which goes from 15 to 45, is determined by adding up the patient's responses. Patients with scores between 15 and 23 have poor self-compliance, those with scores between 24 and 32 have moderate self-compliance, and those with scores of 33 or more have better self-compliance. Using three regular observations on the first, seventh, and thirty days after surgery, this instrument was administered three times to the patients (study group)

.**Instrument III: Post-operative eye infection assessment Questionnaire**

This instrument, which was adopted from **Taha and Abd Elaziz (2015)**, was used to evaluate the incidence of ocular infections following cataract surgery. Through the three regular observations on the first, seventh, and thirty days, it was administered three times to the research and control groups. Following surgery, ten closed-ended questions were used to gauge symptoms such as abrupt or severe pain, frequent headache, blurriness, redness, discharge, photophobia, floaters, difficulty seeing TV, bruises on the eyes or eyelids, and difficulty recognizing faces.

Instrument validity: The extent to which the instruments being utilized measure what is intended what was to be measured was determined by conducting a content validity test. Five experts in the fields of ophthalmology, medical-surgical technique, and community nursing evaluated the developed tools and scales.

Instrument Reliability: A test-retest design was used to measure the reliability of

study tools, with assessments spaced out by two weeks. We then used Cronbach's α to calculate the correlation coefficient between the two scores for each instrument. Self-care compliance scale reliability was 8.3, and Cronbach's α= 8 for cataract knowledge assessment items. For the post-operative ocular infection assessment questionnaire, the final score was 8.1. The instruments are reliable in determining the goals of the study, according to these estimates.

Pilot Study

A pilot study was conducted on 10% of the sample (n=6 cataract patients undergoing surgery) to evaluate the viability, impartiality, and suitability of the data collection instrument and scale. The sample used for the study did not include the pilot trial.

Ethical Consideration

The Faculty of nursing's ethical research committee granted formal approval for carrying out the study, **with reference number (960).**The participation in this study was voluntary who was informed about the purpose, procedure, benefits, nature of the study, follow up and his/her had the right to withdraw from the study at any time without any rationale. A written consent was taken from patients, informed them that obtained data will not be included at any further research without a second consent. Privacy of each patient was ensured through coding of all data and protecting the gained data.

Procedure for Data Collection:

In order to perform the current study, various data collection tools were prepared, and daily morning shifts were used to collect study data. During the preoperative period (the day before surgery), a chosen sample was permitted to participate the ophthalmology department. The researcher personally explained the goal and nature of the study to each patient scheduled for cataract surgery, and then obtained written consent from all participants. The first tool was used to collect sociodemographic data from the control group within a month. Knowledge regarding cataracts was evaluated prior to surgery, and the third and fourth tools were used three times after surgery to conduct follow-up. Following the completion of the control group, data collection from the study group began using the first and second instruments to evaluate patient knowledge prior to surgery. Following the provision and distribution of educational videos about cataract surgery knowledge and postoperative self-care techniques, the patient's knowledge is assessed on the first postoperative day. Instruments three and four are then used three times postoperatively on the first, seventh, and thirty days. Data was collected for the study sample in the ophthalmology department during the patients' hospital stay, which lasted between one and two days, and subsequently at the outpatient clinic for follow-up. One to two sessions were allotted for the study group's data gathering and guidance. The study patients' educational level and attention span were taken into consideration when designing the session plan.Educational videos were sent to the patients through WhatsApp in Arabic language by the researcher and included:

- The definition, risk factors, causes, symptoms, prevention, treatment, complications, and at-home self-care following cataract surgery are all understood.
- The Practice consisted of: method for applying eye drops and taking care of your eyes.

Guidelines regarding the application of eye drops by patients and their families, wear eye shields, and take measures against infection and strange symptoms after cataract surgery.

All patients (study and control) were followed up with via in-person interviews after surgery to see whether they were following the instructions (for the study group) and to look for signs and symptoms of an eye infection (for both groups). Additionally, patients who did not follow up were removed from the trial. The researcher also urged patients to adhere to self-care and follow-up visits by phoning them every day to make sure they were following the instructions.

Statistical analysis

An (Open Source Statistics for Public Health)*: *Epi website was used to gather, tabulate, and statistically analyze the data (Open Source Statistics for Public Health, 2022).

Qualitative data were displayed as numbers and percentages, while quantitative data were displayed as mean, standard deviation (SD), and range. The relationship between related qualitative variables has been studied using the Mc Nemar and Marginal Homogeneity Test.Two related quantitative variables that were not normally distributed were examined for associations using the Wilcoxon test. The relationship between two quantitative variables that are not regularly distributed was examined using Spearman's correlation. A statistically significant P value was defined as one that was less than 0.05.

Results

Table (1) shows distribution of the studied patients wit cataract according to their characteristics. Among study group, more than half of them (53.3%) aged between 60 to 70 years, while among the control group, 60% of them were between 60- 70 years with mean age 62.7 ± 2.3 years among control group, and 61.8± 3.5 Y among study group, and the difference was not significant statistically (t= 1.85, p=0.06 NS). Also, among control group, approximately three quarters of studied cataract patients (73.3%) were males and 26.7% were females. In addition, among study group, approximately 70% of studied cataract patients (66.7%) were males and 33.3% were females , however, the difference was not significant statistically (p=0.57). According to their education, approximately half of control group had basic education, and 40% of study group had secondary education, Nevertheless statistically, the difference was not significant (p=0.12). For occupation, income, residence, and smoking, similar patterns were seen (p>0.05).

Table 2: illustrates the medical profile of studied cataract patients (study and control group). The table shows that more than half of the study group lasted less than one year for a period of cloudiness of eyes. Two thirds (66.7%) of study group had family history of cataract. In relation to chronic diseases more than half of a study group 53.3% and one third (33.3%) complained of hypertension and diabetes mellitus respectively.

Table 3: represents knowledge levels of cataract patients undergoing surgery. The table showed that, there were a highly significant relation (X^2 =17.8, P<0.0001) between study group and control regarding self-care after cataract surgery knowledge where the majority of study group (86/7%) had satisfactory knowledge levels of total recommended diet. Concerning to knowledge Levels of total Eye drops/ointment and Knowledge related to hygiene, the table showed that, there were a significant relation (X^2 = 4.3, P<0.03 and X^2=4.3, , P<0.03) respectively between study group and control where the majority of study group (66.7% and 60%) respectively had satisfactory knowledge levels. Finally, regarding levels of total general cataract knowledge, Knowledge related to permitted and authorized activity and knowledge Levels of total follow up, the table showed that there was no any significant relation between study and control group. Likewise, levels of grand total knowledge that there was no any significant relation between study and control group (P<0.01).

Figure (1) illustrates the total knowledge levels among the study group after cataract surgery pre and post intervention .The majority of study group had satisfactory knowledge level (77.3) post intervention compared pre intervention (71.3). A high significant difference was noticed between pre and post intervention.

Table (4) represents the patient self-care compliance scale surgery pre and post nursing guidance intervention. The table shows that, there was a statistically significant difference between all subscales of self-care compliance scale about cataract pre and post intervention that included total self-care about eye drops, total self-care about regime ,total certificate about the protection of the operation and sign total certificate about daily life .

Figure (2): shows self-care compliance scale score after cataract surgery by one day, one week, and one month among studied patients. The figure revealed that there was an improvement (25.3 ± 1.7) in self-management score after one day of cataract surgery compared to (18.1 ± 2.2) among control group. It also revealed that there was an improvement (27.3 ± 1.9) in self-management

score after one week of cataract surgery compared to (18.1 ± 2.2) among control group. Likewise revealed that there was an improvement (30.4 ± 1.8) in self-management score after one month of cataract surgery compared to (18.1 ± 2.2) among control group.

Table (5): shows Signs of eye infection after cataract surgery among studied patients after cataract surgery by one day, one week, and one month among studied patients. The table revealed that there was a lessening (5.5 ± 1.2) in self-management score after one day of cataract surgery compared to (5.5 ± 1.3) among control group. It also revealed that there was an lessening (4.6 ± 0.96) in self-management score after one week of cataract surgery compared to (6.5 ± 0.82) among control group. Likewise revealed that there was a lessening (3.7 ± 0.78) in self-management score after one month of cataract surgery compared to (5.2 ± 0.55) among control group.

Table (6): elucidates the correlation between the total knowledge score and the total self-care compliance of the patients in the study following cataract surgery. According to the results, there was a positive association between the patients' overall knowledge score and their total self-care compliance before and after the intervention (r=0.821, P<.000).

Table (1): Distribution of Studied cataract patients according to their Socio demographic characteristics (N = 60)

Socio--demographic characteristics	Control group.		Study group.		X^2/ LR
	N	%	N	%	
Age (Years)					X^2 =0.27, P=0.60 NS
50 - 59 Years	12	40	14	46.7	
60 – 70 Years	18	60	16	53.3	
Mean ± SD	62.7 ± 2.3 Y		61.8± 3.5 Y		t= 1.85, p=0.06 NS
Gender: Male	22	73.3	20	66.7	X^2=0.32, p=0.57 NS
Female	8	26.7	10	33.3	
Social status : Married	30	100	30	100	NA
Education: Illiterate	4	13.3	10	33.3	X^2 =4.2, P=0.12 NS
Basic education	14	46.7	8	26.7	
Secondary education	12	40	12	40	
Occupation: Free Business	8	26.7	8	26.7	X^2=1.62, P=0.65 NS
Retired	10	33.3	6	20	
House wife	8	26.7	10	33.3	
Farmer	4	13.3	6	20	
Income Enough					X^2=0.27, P=0.60 NS
Not enough	18	60	16	53.3	
	12	40	14	46.7	
Smoking: Yes	16	53.3	10	33.3	X^2=2.4, p=0.12 NS
No	14	46.7	20	66.7	
Total	**30**	**100**	**30**	**100**	

Table (2): Medical data profile of studied cataract patients undergoing surgery (N=60)

Medical data profile	Control group		Study group		X/ LR
	N	%	N	%	
Period of cloudiness of eye					X^2 =2.85, P=0.09 NS
< one year	24	80	18	60	
≥ one year	6	20	12	40	
Family history of cataract: No					X^2=0.0, p=1.0 NS
Yes	20	66.7	20	66.7	
	10	33.3	10	33.3	
Hypertension : No/don't know	14	46.7	16	53.3	X^2=0.27, p=0.61 NS
Yes	16	53.3	14	46.7	
Diabetes Mellitus No	14	46.7	10	33.3	X^2 =1.11, P=0.29, NS
Yes	16	53.3	20	66.7	
Total	**30**	**100**	**30**	**100**	

Table (3): Patients' Total Knowledge about self-care after cataract surgery pre and post Nursing guidance intervention (n=60)

Total Knowledge about Cataract	Pre-nursing guidance		Post-nursing guidance		X^2	p-value
	Study group	Control group	Study group	Control group		
	%	%	%	%		
I - Total knowledge about the meaning of cataract: (8 Qs.)					34.375	.000**
Unsatisfactory Kn (0 -4)	70	80	20	70		
Satisfactory Kn. (5 -8)	30	20	80	30		
2- Knowledge about prevention and management of cataract :(6 Qs.)					23.587	.000**
II-a. Prevention of eye injury and infection						
Unsatisfactory Kn. (0 – 3)	75	85	15	80		
Satisfactory Kn. (4 – 6)	25	15	85	20		
3-knowledge about self-care cataract					20.914	.000**
Unsatisfactory Kn. (0 – 3)	70	75	20	70		
Satisfactory Kn. (4 – 6)	30	25	80	30		
4- knowledge about the prevention of eye injury and infection:					14.470	.000**
Unsatisfactory Kn. (0 – 3)	90	80	20	70		
Satisfactory Kn. (4 – 6)	10	20	80	30		
II-b. Knowledge levels of total type of recommended diet: (3 Qs.)					20.703	.000**
Unsatisfactory Kn. (0 – 2) Satisfactory Kn. (3)	60	70	15	60		
	40	30	85	40		
II-c. Knowledge Levels of total technique of administration of eye drops & ointment: (12 Qs.) Unsatisfactory Kn.(0-6) Satisfactory Kn.(7 – 12)					15.205	.000**
	85	90	15	80		
	15	10	85	20		
II-d. Knowledge related hygiene :(3Qs.					13.195	.000**
Unsatisfactory Kn.(0-2)	70	85	15	75		
Satisfactory Kn.(3)	30	15	85	25		
II-e. Knowledge related to permitted and authorized activity :(5 Qs.)					22.294	.000**
Unsatisfactory Kn.(0-2)	85	80	25	70		
Satisfactory Kn.(3 -5)	15	20	75	30		
II-f. Knowledge levels of total follow-up:(2Qs.)					24.224	.000**
Unsatisfactory Kn.(0-1)	70	85	20	75		
Satisfactory Kn .(2)	30	15	80	25		
Mean ± SD of total Knowledge	**35.1 ± 4.1**		**38.7 ± 6.2**		29.273	.000**

NA=Not Applicable as no statistics are computed because Groups of grand total Knowledge is a constant.

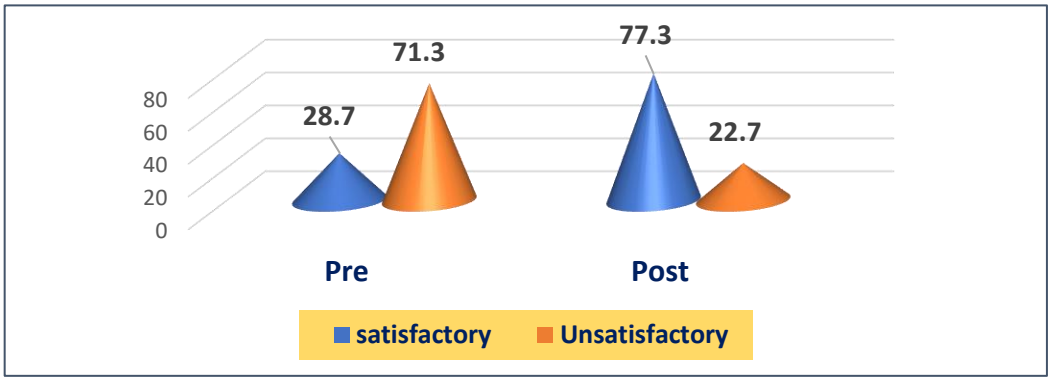

Figure (1): Total knowledge levels among study group after cataract surgery pre and post intervention

Table (4): Patients' total self-care compliance scale post cataract surgery pre- and post-Nursing guidance intervention (n=60)

Total self-care compliance scale about Cataract	Pre-nursing guidance		Post-nursing guidance		X^2	p-value
	Study group	Control group	Study group	Control group		
	%	%	%	%		
1-Total self-care about eye drops					44.180	.000**
Moderate self- compliance	60	70	20	60		
Higher self- compliance	40	30	80	40		
2- Total self-care about hygiene					43.493	.000**
Moderate self- compliance	75	80	30	75		
Higher self- compliance	25	20	70	25		
3- Total self-care about the protection of the operation site					41.714	.000**
Moderate self- compliance	70	75	20	70		
Higher self- compliance	30	25	80	30		
4-Total self-care about daily life					34.380	.000**
Moderate self- compliance	65	70	30	60		
Higher self- compliance	35	30	70	40		
Mean ± SD of total Self-care	**41.8 ± 5.3**		**44.1 ± 5.2**		44.276	.000**

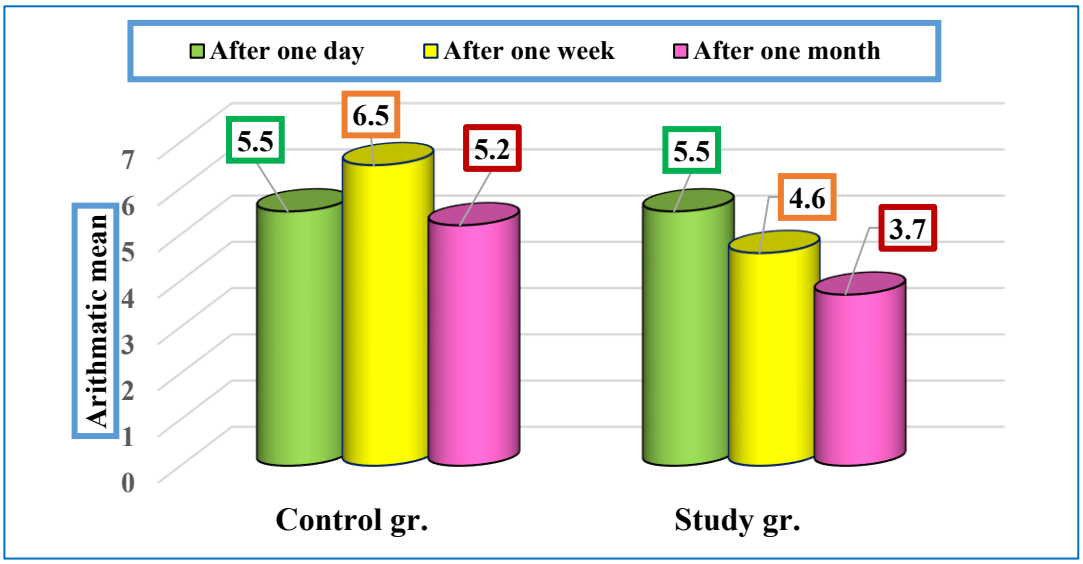

Fig 2: Arithmetic mean of total score of signs of infection after one day, one week, and one month among studied groups(N=60)

Table (5): Self-care Compliance Scale score after cataract surgery by one day, one week, and one month among studied patients (N=60)

Self-management score after surgery	tudied groups				test	- value
	ontrol Gr.		tudy Gr.			
	Mean ± SD		Mean ± SD			
1- **Self-management score after one day of cataract surgery**	**18.1 ± 2.2**		**25.3 ± 1.7**		13.7	<0.0001 HS
2- **Self-management score after one Week of cataract surgery.**	**18.1 ± 2.2**		**27.3 ± 1.9**		17.2	<0.0001 HS
3- **Self-management score after one month of cataract surgery**	**18.1 ± 2.2**		**30.4 ± 1.8**		23.6	<0.0001 HS
Total	**30**	**100**	**30**	**100**		

Table (6): Correlation between total knowledge score and total self-care compliance among studied patients after cataract surgery

Correlation		Total self-care compliance	
		Pre-nursing guidance intervention	Post-nursing guidance intervention
Total knowledge scores	**r**	**.009**	**.821**
	p	**.878**	**.000****

Discussion

The only practical way to prevent blindness in cataract patients at this time is to improve visual acuity by taking out the cloudy lens and replacing it with an artificial one. However, the effectiveness of cataract surgery is significantly influenced by the care given after the procedure. Healthcare professionals must give patients with sufficient information on post-cataract surgical care in order to guarantee the effectiveness of the procedure (**Grzybowski & Kanclerz, 2020**). Thus, the purpose of this study was to examine how well post-cataract surgical care education improved patients' post-operative knowledge, self-management, and infection control.

Pertaining to socio-demographic of the studied patients, the this study finding revealed that more than half of the study group and the control group aged between 60 to 70 years. Also, about half of the control group and the study group had basic education and secondary education respectively. The current study finding came in agreement with the study finding conducted in Indonesia by **Syabariyah et al., (2023)** who examined "Audio-visual media effectiveness in post-cataract surgery care education in National Eye Center Cicendo Hospital" revealed that the majority of participants were between the ages of 56 and 65, had completed high school, were retired, and had received a cataract diagnosis within the last one to five years.

Furthermore, findings of the study agreed with a study titled "Effect of Discharge Instructions Following Cataract Surgery on Reducing Eye Infections Among Elderly Patients." that was carried out in Egypt by Mahfouz, Mohamed, Abdel-halim, and Mohamed (2019). The study's mean age was 63.8 ± 4.2 years, while the control group's was 64.3 ± 4.2 years.

More than half of the study's results group had a family history of ocular cloudiness and had been suffering from it for less than a year, according to the medical data of the individuals under investigation. Furthermore, almost of the study group, two-thirds have diabetes mellitus, and roughly half have hypertension itself. **Mahfouz et al. (2019)**

found that half of the study group had chronic conditions, with hypertension and diabetes mellitus being the most common. These findings were consistent with the current study.

The findings of the this study showed that in the study group the majority had a good level of knowledge regarding self-care following cataract surgery with regard to the recommended diet, application of eye ointments and drops, and cleanliness ($p<0.01$). The study results by **Syabariyah et al. (2023)** in Indonesia that looked at "the effectiveness of audio-visual media in post-cataract surgery care education" supported these findings. They found that all of the participants had a good level of general knowledge about post-cataract surgery care, including how to make sterile cotton after an intervention, how to apply eye drops, and how to wash their hands.

Additionally, the study's results consistent with those of a study in Iraq by **Flayeh & Khuder (2017),** whose study "Effectiveness of An Instructional Program on Adult Cataract Patients' Knowledge Concerning Prevent Post-Operative Complications" indicated there was a statistically significant improvement in the study group's posttest knowledge score compared to the control group ($p<0.001$). Moreover, the findings of this study was consistent with those of a study called "Knowledge Regarding Post-Operative Self-Care Activities of Cataract Patients" conducted in India by **Sharma et al. (2019),** which indicated that the majority of cataract patients knew only a moderate amount about post-operative self-care activities.

Regarding signs of infection after cataract surgery, the current study finding revealed that there was statistical improvement regarding sign of infection after one week of cataract surgery and after one month ($p<0.0001$). this study was consistent with the result of the study conducted in Egypt by **Taha & Abd Elaziz ,(2015)** who studied "Effect of Nursing Intervention Guidelines on Nurses' Role, Patients' Needs and Visual Problems Post Cataract Surgery" reported that following the intervention, there was the median number of visual impairments decreased from 3.0 to 2.0, and improvement was statistically significant ($p<0.001$).

likewise the study's results consistant with those of a study carried out in Egypt by **Mahfouz et al., (2019)** who studied "effect of Post Cataract Surgery Discharge Instructions on Reducing Eye Infection among Elderly Patients" showed that on the first day following surgery, one-third of the study group showed no symptoms of infection, while just 6% of the control group did the same. Additionally, compared to less than one-third of the control group, around two-thirds of the trial group had no symptoms of infection on the seventh day following surgery. While, the majority of the study group showed no symptoms of infection in the fourth week after surgery, but over half of the control group showed no symptoms, with a statistically significant difference ($p<0.001$).

Moreover, the study findings were consistent with the study findings conducted in United states of America by **Moustafa et al., (2019)** who studied "Optimization of cataract surgery follow-up: A standard set of questions can predict unexpected management changes at postoperative week one" showed that one week following surgery, there was a significant decrease in the number of patients reporting pain, redness, dissatisfaction with their eyesight, vision loss, and a lack of knowledge about postoperative eye drops.

Regarding the patients' self-management following surgery, this finding concluded that self-management mean score after cataract surgery by one day, one week and one month was improved from 25.3 ± 1.7 to 27.3 ± 1.9 to 30.4 ± 1.8 respectively and there was statistically significant improvement ($p<0.0001$). This finding was consistent with the study finding conducted in Egypt by **Mahfouz et al., (2019)** who studied "effect of Post Cataract Surgery Discharge Instructions on Reducing Eye Infection among Elderly Patients" demonstrated that the majority of the study group followed the post-operative self-care guidelines more closely than the control group ($p<0.001$.(

Also, the study finding was consistent with the study findings conducted in India by **Sharma et al., (2019)** who studied "Knowledge Regarding Post-Operative Self Care Activities of Cataract Patients" showed that there was

statistical improvement in post-operative self-care activities after intervention($p<0.001$).

Moreover, the current study finding was consistent with the study findings conducted in Iran by **Zarifsanaiey et al., (2023).** Who studied "Video-based versus educational booklet training on self-care performance of patients with cataract" showed that there was statistical improvement in dimension of self-management score after intervention related to post-operative self-care behaviours, prevention and management of cataract, general information about cataracts ($P <0.001$).

The current study's findings demonstrated a statistically significant difference (r=.281) between the overall knowledge score and the total self-care compliance of the patients who underwent cataract surgery. This result was in line with **Taha & Ebrahem, (2022)** who concluded that, audio-visual guidance significantly improved patient knowledge and compliance, confirming a strong positive correlation .Moreover, Studies indicated that a moderate to strong positive correlation (often $r = 0.4–0.7$) between knowledge and compliance. Educated patients are more likely to adhere to medication schedules, hygiene measures, and follow-up visits, reducing the risk of complications like endophthalmitis **(Srisuk &Intakuntee, 2020)**.The study reported a strong positive association with statistical significance ($r = 0.273$, $p <.000$).

Conclusion:

Application of Audiovisual based nursing guidance intervention for patients with cataract undergoing surgery can significantly enhance patient's mean score of knowledge as well as self-care compliance and decrease the mean score of eye infection manifestations after three months intervention duration.

Recommendations:

Based on the study findings, the following recommendations are proposed:

1. Integrating video-based instructions in patient education to increase understanding and compliance with self-care.

2. Patients having cataract surgery should regularly have access to ongoing video-based instruction and training on proper eye hygiene.

3.Mass media utilization based technology should be applied more effectively to improve patient's awareness and their caregiver about post-operative cataract care including nature of the disease, methods of prevention and management.

4.To validate these results and produce more trustworthy data, larger sample sizes are needed in future research.

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