Assessment of the Cataract Patients' Knowledge about Indicators of Intraocular Lenses Dislocation and Malposition

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Abstract

Background: One of the most common post-operative complications after cataract surgery is intraocular lens dislocation. A foldable artificial lens (IOL) is placed into the eye's capsular bag after the normal lens of the eye is removed during the surgery. **study's aim**: Assessment of the cataract patients' knowledge about indicators of intraocular lenses malposition and dislocation **Design**: The present study employed a descriptive design. **Setting:** Sohag University Hospital's ophthalmology departments **Sample:** Convenience sample of 200 patients during a period of six month. **Tools**: Two tools used for data collection, the first tool was a patient health assessment sheet, the second tool was patient's knowledge assessment sheet **Result**: 55% of the studied patients age ranged from 41-60 years old with Mean ± SD (41.99 ± 11.48), 56.5 % of them were male, 62% were married and 87 % of them had a screen time and 75.8 of those spent a time more than one hour, 77% of the included patients had unsatisfactory level of total knowledge and only 23% of them had satisfactory level of total knowledge about intraocular lenses dislocation and malposition. **Conclusion** Based on the current study's finding, it was determined that only twenty three percent of the patients under investigation had a good level of overall knowledge, while the majority had an inadequate level **Recommendations:** Implementing a patient educational program about intraocular lens malposition and dislocation.

Keywords: Cataract, Dislocation and Malposition, Indicators, Intraocular Lenses, Patients Knowledge

Introduction

One of the most effective ophthalmology treatments is cataract surgery with intraocular lens (IOL) implantation, which is still the best course of action after cataract extraction. However, in certain cases, a second treatment is required to get a well-positioned IOL because IOL implantation is not feasible during initial cataract extraction or because the IOL dislocates late **(Iranipour et al., 2024)** .

A variety of kinds of intraocular lenses are available based on whether the haptics and optical parts are composed of the same plastic fabric. The optical component and haptics of a multipiece IOL (often a three-piece IOL) are constructed from two or more distinct materials, while a one-piece IOL is manufactured from a single material in a single process (**Armonaite ,2023).**

According to a number of studies, eyes with end-in-the-bag IOL displacement exhibit higher intraocular pressure (IOP), which might be caused by the dislocation or be a sign of a final stage of PEX. Some authors have hypothesized that, in the presence of increasing IOL movement and iris chafing, eyes has a subluxated IOL–capsule complex would resemble a (UGH) condition with elevated IOP prior to operation (**Medin et al .,2024).**

Intraocular lens repositioning in conjunction with or without scleral fixing sutures (based on remaining capsular support) as well as IOL exchange are two possible treatment options for a displaced posterior chamber IOL (PC IOL). IOL relocation without scleral fixation suture is often the recommended method if capsular support is sufficient. Surgical correction is still difficult when there is insufficient capsular support in situations of IOL dislocation or aphakic eye (**Iranipour et al .,2024).**

The nurse should evaluate the patient's vision and motor skills. Urge the patient to visit an eye doctor at least once a year. Provide illumination that prevents glare on reading publications, wall surfaces, and other surfaces. encourages independence and helps the patient view larger text. Additionally, the patient's visual impairment puts them at risk for falls, thus patient safety measures to prevent falls are crucial. district nurses should keep evaluating the hazards of falls **(He et al.,2023).**

Study's significance

It is estimated that 1–2% of instances with simple cataract surgery result in intraocular lens (IOL) slippage or dislocation **(Lee et al.,2024)**. Dislocation is reported to occur between 0.2 and 2% of the time.

Furthermore, men have a greater chance than women to be impacted (**Riedl et al. ,2023).** Dislocation of the intraocular lens (IOL) is a late consequence of cataract surgery. Ten out of 800 individuals at-risk (1.2%) had dislocation surgery twenty years following cataract surgery **(Cha et al .,2023)** Therefore, this study was carried out to assess the patients' knowledge about indicators of intraocular lenses dislocation and malposition.

study's aim

The current study directed to assess cataract patients' knowledge about the indicators of intraocular lens malposition and dislocation.

Research questions

The following research questions were intended to be addressed by the study:-

1. What is the level of patients' knowledge regarding to regarding indicators of intraocular lens malposition and dislocation?
2. Does a patient's knowledge correlate with their sociodemographic characteristics

Subjects and Methods

Research Design

The current study used a descriptive methodology to assess cataract patients' knowledge about intraocular lens malposition and dislocation signs.

Technical design

Setting

The study was done at Sohag University Hospital's ophthalmology department.

Sample

All available patients admitted to the ophthalmology departments of Sohag University Hospital over a six-month period were included in the convenience sample (n= 200).

Inclusion criteria

Adult patients (20-60 years old) from both sex (male and female) who were welling to participate in the study .

Exclusion criteria

- Patients who were unable to communicate.
- Refuse to participate.

Tools of data collection

Various data gathering tools were prepared in order to perform the current study.

Tool (I) :Patient health assessment sheet: This tool was done by **(Abo Bakr et al.,2023)** some questions were added and some delated by the researcher it includes three parts

Part I: Socio demographic characteristics for cataract patients with intraocular lenses: that included (patient information such as gender, marital status, age place of residence, educational attainment, the patient's living partner, employment, income, and pt code, do you spend any time on screens? If so, how much time do you spend and smoking?).

Part (II): Medical data :- Concerned with assessment of past medical history of cataract patients with intraocular lenses.

It asks about prior medical history, including whether you have any chronic illnesses and, if so, what they are. when was the illness identified? does a chronic illness cause any complications? if so, what is it? have you undergone surgery of any kind? prior hospital stay if so, how frequently have you been admitted to the hospital? do you have a family history of ocular cataracts? if so, who have you ever been to an eye clinic? do you suffer from any eye conditions? if so, could you please clarify if you have ever had cataracts? have you ever had cataract surgery before? Yes, coded as one no as two, etc. during data entry

Part (III): Medical data :- Concerned with assessment of present medical history of cataract patients with intraocular lenses,

It include questions about present medical history (what complaint made you consult a doctor? when complaint starts? how did the complaint begin? which eye had complaint? are there any symptoms associated with the main complaint? if yes, what is it? what type of treatment ? cause of complaint do you have any allergy to eye medication Yes, coded as one no as two, etc. during data entry)

Tool (II): Patient's knowledge Assessment Sheet .

Part (I) Assessment of patient knowledge about cataract

It includes 7 multiple choice questions about cataract, **(Abo Bakr et al.,2023)**

Part (II) Assessment of patient knowledge about intraocular lenses dislocation and malposition

It includes 10 multiple choice questions to examine patient's knowledge about intraocular lenses dislocation and malposition developed by the researcher following reviewing related literature (**American Academy of Ophthalmology ,2023).**

Scoring system

The total score ranged from 0 to 17, with a higher score suggesting a higher level of patient knowledge and vice versa. if the patient selects the correct answer, the score is 1, and if they select the incorrect answer, the score is 0.

The patient's overall knowledge score was divided into:

- Satisfactory knowledge from 60% to100%.
- Unsatisfactory knowledge low than 60%.

Tools Validity & Reliability

- **Validity:** was examined by three specialists in the fields of ophthalmology and medical-surgical nursing.
- **Reliability:** Tools of the study were tested for its internal consistency by Cronbach's Alpha.

Tools	Cronbach's Alpha
knowledge	0.879

Pilot Study

In order to ascertain the time needed to complete the research forms and to verify the practicality, objectivity, application, and clarity of the instruments, a pilot study was done on a 10% study sample of patients. The pilot research sample was either be included in the real study or omitted based on the necessary modifications.

Ethical Consideration

The first permission came from the Sohag University faculty of nursing's research ethics committee(no.212). The study was also conducted with formal authorization from hospital management. Every participant received information on the study's relevance and goal, and the fact that participation is entirely voluntary. they were free to leave the study at any moment and without incurring any fees. Additionally, by coding the data, all participants was guaranteed the confidentiality and anonymity of the information. Those who decided to take part were required to complete a permission.

Methods: This study was performed in the following phases:

Phase (1) preparatory and planning phase: In order to establish instruments for data collection, this phase involves a review of previous, current, national, and worldwide related literature as well as theoretical understanding of many areas of the research utilizing books, papers, the internet, journals, and magazines. After explaining the purpose of the investigation, the researcher requested both official and informal authorization from the department head to conduct the study.

Phase (2) Implementation phase: First, hospital authorities were informed of the purpose and nature of the study in order to gain their participation, and then they formally granted authorization to perform it. The study's data gathering began in early May 2024 and ran until the end of October 2024.In order to get the participation of the cataract patients, the researcher introduced himself, described the purpose of the study, its ramifications, and how to complete the study instruments. The subjects gave their informed permission. The patients were interviewed in a dedicated room in the Sohag University Hospital's ophthalmology department. Completing the study tools takes around fifteen to twenty minutes. Over the course of six months, data was gathered once a week from 9 a.m. to 2 p.m. about eight patients were completing the study tools every time. The assessment sheet was completed by the researcher from each cataract patients**.**

Statistical design

An IBM personal computer run the Statistical Package of Social Science (SPSS) version 22 was used to arrange, tabulate, and statistically examine the data once it had been acquired. Descriptive statistics, as mean, standard division, and percentage, used to show the data. The chi-square test used to compare the qualitative variables. Additionally, data is shown as pie and bar charts. If the p-value was less than 0.05, the difference was deemed statistically significant. If the p-value was less than 0.001, the difference was deemed highly statistically significant.

Results

Table (1) clarifies that 55% of the studied sample age ranged from 41-60 years old with Mean ± SD (41.99 ± 11.48), 56.5 % of them were male, 62% were married. Also, 58% of the studied patients live with their spouse and 87 % of them had a screen time and 75.8 of those spend a time more than one hour. Regarding their occupation 51.5 of them were farmer, 80% of the studied patient had enough income and 55% of them were smoker.

Figure (1) illustrates that 33% of the studied sample don't read and write, while 13% of them has secondary education.

Table (2) Illustrates that 81%, 67%, 62.5% of the studied patient had incorrect answer to " What are high risk group most exposed to cataract?"," What are the symptoms of cataract?", and " What are the causes and risk factors of cataract" respectively. While the two highest scores for correct answer (68.5%) regarding the question " What are the complications of cataract?", and (60.5%) is regarding the question " What is the meaning of cataract?".

Figure (2) demonstrates that just 23% of the patients of the study had a satisfactory level of overall knowledge about intraocular lens dislocation and malposition, while 77% of them had an Unsatisfactory level.

Table (3) Mentions that 88.5%, 86%, 80.5%, and 70% of the studied patient have incorrect answer to " What are the indicators of intraocular lenses dislocation?"," What are the methods of diagnosing intraocular lenses dislocation?", " What are the methods to prevent intraocular lenses dislocation?" and " What are the types of intraocular lenses dislocation?" respectively. While the highest scores for correct answer (76%) regarding the question " What is the meaning of intraocular lenses?".

Table (4) states that, the patients' employment, educational level, and the people they live with others had a high statistically significant correlation with their overall level of knowledge. Additionally, the patients' age and sex had a statistically significant relationship with their level of knowledge, but the residence, marital status, amount of time spent on screens, income, and smoking habit did not have a statistically significant relationship with the total knowledge level of its patients.

Results

Table (1) The percentage distribution of socio-demographic characteristics of the studied patients (n=200).

Socio-demographic characteristics	No.	%
Age (years)		
- 20- 40 years	90	45
- 41-60 years	110	**55**
Mean ± SD **41.99 ± 11.48**		
Sex		
- Male	113	**56.5**
- Female	87	43.5
Marital status		
- Single	46	23
- Married	124	**62**
- Divorced	11	5.5
- Wildwood	19	9.5
With whom you live?		
- Spouse	116	**58**
- Your sons or daughter	22	11
- Alone	22	11
- Your parents	4	20
Do you have any screen time?		
- Yes	174	**87**
- No	26	13
- **If yes how much time you spend?**		
- Less than one hour	42	24.2
- More than one hour	132	**75.8**
Occupation		
- Farmer	103	**51.5**
- House wife	58	29
- Employee	23	11.5
- Don't work	16	8
Income		
- Enough	160	**80**
- Not enough	40	20
Do you smoke?		
- Yes	110	**55**
- No	90	45

Figure (1): distribution of educational levels among the studied patients (n=200).

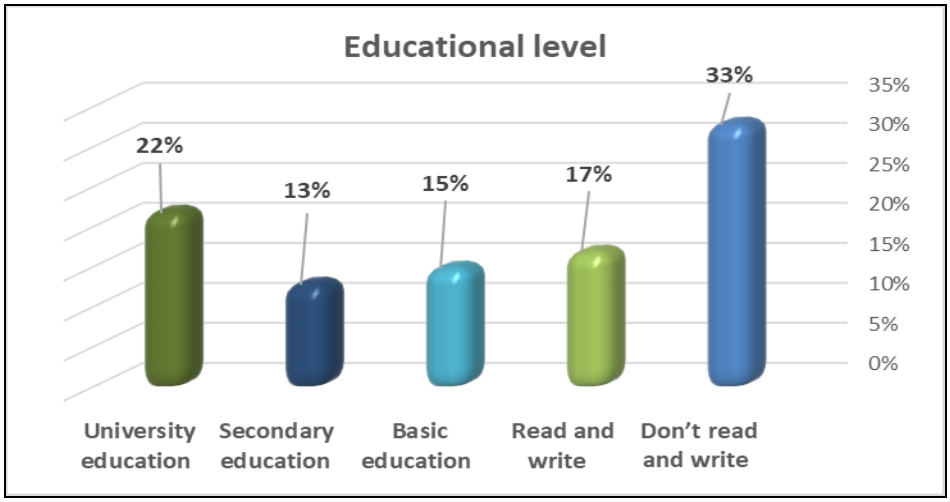

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Table (2) The percentage distribution of the studied patients' regarding to knowledge about cataract (n=200).

Patient knowledge about cataract	Correct		Incorrect	
	No	%	No	%
Meaning of cataract.	121	**60.5**	79	39.5
Causes and risk factors of cataract.	75	37.5	125	**62.5**
High risk group most exposed to cataract.	38	19	162	**81**
Symptoms of cataract.	66	33	134	**67**
Complications of cataract.	137	**68.5**	63	31.5
Methods to prevent cataract.	91	45.5	109	54.5
Methods for treatment of cataract.	88	44	112	56

Figure (2): levels of total knowledge among the studied patients (n=200).

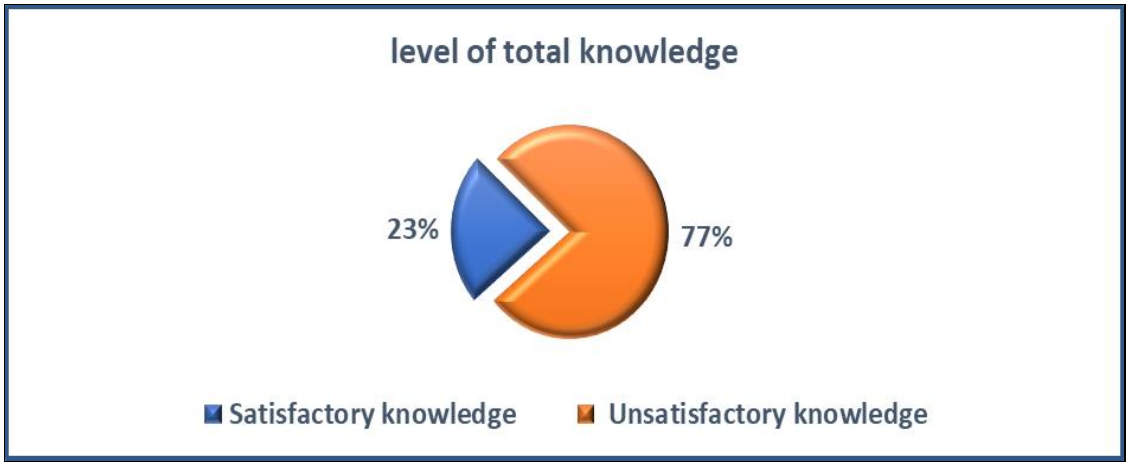

Table (3) The percentage distribution of the studied patients' regarding to knowledge about intraocular lenses dislocation and malposition(n=200)

Patient knowledge about intraocular lenses dislocation and malposition	Correct		Incorrect	
	No	%	No	%
Meaning of intraocular lenses.	152	**76**	48	24
Meaning of intraocular lenses dislocation.	128	64	72	36
Types of intraocular lenses dislocation.	60	30	140	**70**
Causes and risk factors of intraocular lenses dislocation.	77	38.5	123	61.5
High risk group most exposed to intraocular lenses dislocation.	68	34	132	66
Indicators of intraocular lenses dislocation.	23	11.5	117	**88.5**
Methods of diagnosing intraocular lenses dislocation.	28	14	172	**86**
Complications of intraocular lenses dislocation.	67	33.5	133	66.5
Methods to prevent intraocular lenses dislocation.	39	19.5	161	**80.5**
Methods for treatment of intraocular lenses dislocation.	103	51.5	97	48.5

Table (4) The link between patients' socio-demographic variables and overall knowledge level (n=200)

Socio-Demographic data	Studied patients' total knowledge level				X2	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Age:-						
20- 40 years	28	14.0	62	31	6.079	**.014***
41-60 years	18	9	92	46		
Sex:-						
Male	19	9.5	94	47.0	5.613	**. 018***
Female	27	13.5	60	30		
Residence						
Urban	24	12	64	32	1.84	.392
Rural	22	11	90	45		
Marital status						
Single	14	7	32	16	6.112	.106
Married	30	15	94	47		
Divorced	1	.5	10	5		
Widow	1	.5	18	9		
Educational level:-						
Don't read and write	9	4.5	57	28.5	36.933	**.000****
read and write	3	1.5	31	15.5		
Basic education	3	1.5	27	13.5		
Secondary education	6	3	19	9.5		
University education and more	25	12.5	20	10		
With whom you live?						
Spouse	30	15	86	43	12.25	**.000****
Your sons or daughter	1	.5	21	10.5		
Alone	1	.5	21	10.5		
Your parents	14	7	26	13		
Do you have any screen time?						
Yes	42	21	132	66	1.181	.277
No	4	2	22	11		
If yes how much time you spend?						
Less than one hour	4	2.3	38	21.6	.829	.362
More than one hour	34	19.5	98	56.6		
Occupation						
Farmer	12	6	91	45.5	31.296	**.000****
House wife	14	7	44	22		
Employee	15	7.5	8	4		
Don't work	5	2.5	11	5.5		
Income						
Enough	41	20.5	119	59.5	3.113	.078
Not enough	5	2.5	35	17.5		
Do you smoke?						
Yes	17	8.5	84	42	4.384	.054
No	29	14.5	70	35		

(*) Statistically significant at p<0.05. (**) highly statistically significant at p<0.01. **(**Chi -square test **)**

Discussion

According to the age of cataract patients, the recent study revealed that, the age of studied individuals is between 20-65. more than half of them their age between 41-60 This result in disagreement with **(Khowaja et al., 2024)** who conducted a study of 615 cataract patients with mean age: 66.6 years.

With regard to the gender of cataract patients, the recent study revealed that more than half of studied patient were male and more than half of studied patient were married and live with their spouse. This outcome was corroborated by **(Samuel et al .,2021**), who demonstrated that more than half of respondents were male. with the majority of respondents were married

This outcome was further corroborated by **(Abo Bakr et al .,2023)**who found that, Majority of studied individuals were male ,married and live with their spouse This result conflicted with **(Jones et al., 2014*)*** whose conducted a published study included fifty seven eyes of fifty three patients (forty one of them were women, twelve of them were men) males less than one quarter are female

Concerning the residency of cataract patients, the current study demonstrated that more than half of the studied patients live in rural, while less than half of them in urban. This result was in agreement with (**Nirmalan et al ., 2003)** who carried out a published research study in India and discovered that the vast majority of the patients under examination reside in rural areas.

In terms of educational attainment, the present study indicates that almost one third of the studied patients don't read and write, This result contradicted the findings of **(Ye et al.,2020)**, who discovered that half of the individuals had completed secondary school.

The researcher's point of view is the high level of education the high level of knowledge that is supported by (**Lee et al., 2021)**, Compared to patients with less education, individuals with more education (or who had attended high school or college) understood the symptoms of IOL dislocation better.

As regards to screen time spent , the present study revealed that go majority of studied patients had a screen time and more than three quarter of those spent a time more than one hour. This finding was confirmed by **(Sano et al.,2024)**, who discovered that the class with the maximum screen usage had the highest risk ratios for cataracts. the researcher point of view is this result may be indicate that there is relation among screen time and cataract and lenses dislocation.

The current study's findings on monthly income showed that, go majority of the studied patient their monthly income was enough. These findings go counter to a research by **(Fikrie et al.,2021)** that found that over half of the group had insufficient monthly income.

When it came to the knowledge of cataract patients, the current study made it clear that over two-thirds of the patients gave incorrect answers regarding the symptoms of cataracts, and over half of the sample gave incorrect answers regarding the causes, risk factors, prevention, and treatment of cataracts. Also, go majority of them had incorrect answer about group of high risk.

This finding was corroborated by a research by **(Abo Bakr et al.,2023)** which found that vast majority of studied sample had unsatisfactory information about cataract .this finding was in disagree with **(Alimaw et al.,2019)** who found that among the participants, more than half of them had good knowledge about cataract

According to the present study, more than three-quarters of the patients with cataracts had unsatisfactory total knowledge scores, and only more than one-fifth of them had satisfactory total knowledge regarding intraocular lens dislocation and malposition.

The researcher point of view is this result may be related to lack of health information related to intraocular lenses dislocation and malposition given to the patient during and before post operative follow up this outcome is further supported by a research by**(Garabet et al.,2023),** which discovered that a lack of patient instruction on IOL dislocation is the cause of the poor knowledge.

This study's findings indicate that there was a high significant statistical relation among the total knowledge level of the patients under investigation and their occupation, educational attainment, and the people they live with. Additionally, there was a statistically significant relationship among the patients' age and sex and their degree of knowledge; the researcher believes that this is because of the patients' educational background.

Conclusions

Based on the current study's findings and responses to the study questions, it was indicated that the majority of the patients under study had inadequate overall knowledge of intraocular lens dislocation and malposition, with just twenty-three percent having satisfactory overall knowledge.

Recommendations

Given the results of the present investigation, the following suggestions were made.

- Regular visual function examinations are necessary for the early identification and timely treatment of any problems.

- Putting in place a patient educational initiative about intraocular lens malposition and dislocation.
- More studies with a larger sample size and in different settings are required.

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