

Effect of Implementing Teaching Program on Knowledge and Practice of Nurses and Clinical Outcomes of Patients Post Cataract Surgery

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Abstract: Preoperative teaching has proven beneficial in decreasing postoperative complications and length of hospital stay as well as positively influencing recovery. Patients who are well prepared with detailed preoperative instruction deal more effectively with their surgery and are better prepared to manage their pain and engage in appropriate self-care activities. **aim of the study** To evaluate the effect of implementing preoperative teaching program on knowledge and practice of nurses and outcomes of patients' post cataract surgery. **Setting:** The study conducted in Ophthalmology Department and Outpatient Ophthalmology Clinics for follow up at Tanta University Hospital of Ophthalmology. **The sample consisted of all nurses working in the previously mentioned setting 30 nurses and a convenience sample of 40 adult patients scheduled for cataract surgery** Three tools were used to conduct the study **Tool (I) Structured Interview Questionnaire. Tool (II): Observational Checklist and Tool (III): Patient's Outcomes sheet**. the results revealed that There was statistical significance difference was found in relation to post-operative self-care practice of use of eye drops at $p \leq 0.05$ in relation to hand washing before and after using of eye drops ($p=0.009$) and there was statistical significance difference was found in relation to post-operative self-care practice of use of eye drops at $p \leq 0.05$ in relation to hand washing before and after using of eye drops ($p=0.009$). **Conclusion:** There was an improvement in nurses' knowledge and practice regarding preoperative teaching program about cataract surgery after implementing teaching program. **Recommendations** Ophthalmic nurses should receive periodic in-service training programs to improve, update, refreshing their knowledge and practice regarding cataract and eyes diseases. Also -Constructive supervision and follow up should be based on guidelines for application of standardized nursing procedure.

Key words: cataract, preoperative health education, patient's outcomes

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I. Introduction

The most common cause of vision loss Cataract, it usually occurs in people over age 40 years and is the principal cause of blindness in the world. According to the latest assessment, cataract is responsible for 51% of world blindness, and about 20 million people globally are blind due to cataracts. It is the cause of about 5% of blindness in the United States and nearly 60% of blindness in parts of Africa⁽¹⁻³⁾. In Egypt, the prevalence of low vision for all ages is 47.9% of the population aged 65 years, with cataract being the major cause of blindness (54.8%)⁽⁴⁾. In Tanta University Hospital of Ophthalmology 2016, about 700 patients had cataract surgery⁽⁵⁾.

Cataract is opacity of the lens. As cataracts develop, the normally transparent lens becomes cloudy, transmission of light to the retina is diminished, and the vision is impaired⁽⁶⁾. The incidence of cataract formation varies with a number of risk factors. It includes: age, female gender, sunlight exposure, myopia, steroid use, eye trauma, socio-economic status, ethnicity, smoking and alcohol and diabetes. Cataract formation is not inevitable with age. It is not unusual to find men and women in their 80s and 90s with relatively clear lenses who have had healthy lifestyle habits.^(7,8)

Surgery is the definitive treatment for cataracts, and it can be used when the visual impairment interferes with the individual's daily activity.⁽⁹⁾ On occasions, cataract surgery may be performed primarily to aid the management of other eye conditions, for instance to facilitate surveillance or treatment of diabetic retinopathy or to improve intraocular pressure control in primary angle closure glaucoma⁽¹⁰⁾.

Nurses are the key player and have a vital role in the management of patients. The role of the nurses starts from the preoperative period and extends to the postoperative period as well as discharge instructions. ⁽¹¹⁾. The nurses should assess the patient's basic needs and intervene to assist to meet these needs ⁽¹²⁾. Preoperative patient's teaching improves understanding, feeling of competence, comfort, assists with recovery and reduces postoperative complications ⁽¹³⁾.

Preoperative teaching is the major nursing activity to ensure that the client is prepared for surgery ⁽¹⁴⁾. The surgery is a family crisis that may lead to a long recovery, patient dysfunction, and even death ⁽¹⁵⁾. Preoperative teaching has proven beneficial in decreasing postoperative complications and length of stay as well as positively influencing recovery. Patients who are well prepared with detailed preoperative instruction deal more effectively with their surgery and are better prepared to manage their pain and engage in appropriate self-care activities ⁽¹⁶⁾. It is important to minimize postoperative complications, increase patient compliance and decrease patient anxiety ⁽¹⁷⁾.

The aim of the study is:-

To evaluate the effect of implementing preoperative teaching program on knowledge and practice of nurses and outcomes of patients' post cataract surgery.

Significance of the study:-

Cataracts affect millions of people worldwide, and continue to be the major cause of blindness globally ⁽¹⁸⁾. Despite the widespread use of phacoemulsification in the developed world, roughly 20 million people are blind because of bilateral cataracts, primarily in the developing world ⁽¹⁹⁾. Cataracts have been correlated with depression, and blindness that can take a toll on communities in the form of decreased quality-of-life and productivity for the blind and their caretakers ⁽²⁰⁾. Cataracts have also been associated with higher mortality rates in the elderly ^(21, 22).

II. Materials and Method

Research design:The present study utilized quasi experimental research design.

Setting:The study conducted in Ophthalmology Department and Outpatient Ophthalmology Clinics for follow up at Tanta University Hospital of Ophthalmology. Ophthalmology department consist of two units, Female Unit and Male Unit. The capacity of two units included 42 beds.

Subjects:

The sample of this study consisted of:

- a) All nurses working in the previously mentioned setting who are caring for patients undergoing cataract surgery regardless of their years of experience, level of education and their ages. (The total number is 30 nurses).
- b) A convenience sample of 40 adult patients scheduled for cataract surgery based on statistical power analysis were selected Started from preoperative phase for data collection and evaluated immediately after the implementation of the preoperative teaching program.

Inclusion criteria:

- Adult patients of both sexes who were undergoing cataract surgery for the first time.
- Able to communicate verbally and non-verbally.
- Adult patients (21- 60 years).

The exclusion criteria:

Patients who were undergoing emergent ophthalmic surgery and Patients with a history of other eye disease (e.g. Retinal detachment, amblyopia).

Tools of data collection

Three tools were used to conduct the study to collect pertinent data related to the study purpose as follow:-

Tool (1) Structured Interview Questionnaire. This tool was developed by the researcher after reviewing the related literature .It consisted of two parts as follow:

Part one: a: Nurses' Socio-demographic data includesnurses' age, educational level, marital status, and years of experience and previous training about caring cataract surgery patient.

b: Patient bio Socio-demographic data includes patient's age, sex, marital status, educational level, occupation, and income, past medical history, date of admission, and date of discharge, questionnaire about functional impairment, and drug used.

Part two: Nurses' Knowledge Assessment Sheet : It was developed by the researcher base on literature reviews^(23, 24, 25,26,27,28) to assess nurses' knowledge related to patients post-operative cataract surgery. It consisted of 50 close ended questions covering 6 main areas: 1) Anatomy and physiology of the eye such as cornea, crystalline lens, eye layers, etc.; 2) Cataract disease such as definition, causes and risk factors, types, signs and symptoms, in addition to cataract surgery indications, and most common techniques; 3) Nursing care before cataract surgery such as mydriatic eye drops, mark the site of the operation, 4) Nursing care after cataract surgery such as proper position after surgery, eye care, 5) postoperative complications such as prevention of infection, signs and symptoms on increase IOP, etc.; 6) Pre-discharge instruction for patient regarding use of eye drops and ointment, wearing eye shield and protection of the eye, precautions to prevent infection, food regimen to reduce straining and constipation, exercise and avoiding heavy lifting, unusual symptoms, follow-up, etc.

Scoring system: Each correct and complete answer was given 2 score, while correct and incomplete answer was given 1 score, wrong and not answer was given zero score. The total scores ranged from 0 to 100. The total level of knowledge was categorized as: poor less than 60%, fair from 60 % to less than 75%, and good from 75% and more.

Tool (II): Observational Checklist: to assess the actual nursing care provided for patients undergoing cataract surgery. It was based on literature reviews^(29, 30, 31, 32,33). It includes instilling eye drops (16 steps); performing eye care (11 steps); applying ointment (15 steps); changing eye dressing (12 steps); practice of measures for Pre-discharge instruction (7 steps).

Scoring system: Two scores for each step that was done correctly, one score for incomplete done step and zero for step that was not done. Total level of practice score was categorized as: less than 60% of total score was considered poor, from 60% to less than 75% was considered fair, and from 75% and more was considered good.

Tool (III): Patient's Outcomes sheet: It consisted of two parts to assess patient outcomes include:

Part one: Cataract Complications: It was adapted from Khatib⁽³⁴⁾ and used to assess presence or absence of signs and symptoms of postoperative complications such as endophthalmitis, elevated intraocular pressure, cystoid macular edema, hemorrhage, wound leakage, retinal detachment, and opacification of posterior capsule, iris prolapse, corneal edema, lens decentration, and vision loss.

Scoring system (one score) was given for presence of postoperative complications and (zero) for absence of postoperative complications.

Part two: Questionnaire of self-care practice It was adopted from Rho & Cho (2012)⁽³⁵⁾ and modified by the researcher to evaluate patient postoperative self-care practice. It comprised (4) main items such as eye drop, hygiene, protection of operation site for patients and daily life. Each item will be listed. It was carried out in 1st day postoperative for follow up in the outpatient clinic for about half an hour to evaluate patient postoperative self-care practices such as eye drop, hygiene, protection of operation site for patients and daily life, also in this visit patient checked by the physician using the slit lamp examination to assess presence or absence of postoperative complications and notifying the researcher the result. The above mentioned activities were done on the first day, first week, and first month postoperative.

Scoring system: Two scores was given for done self-care practice; (one score) for incomplete done self-care practice and (zero) for not done self-care practice. Total level of patient's outcome less than 60% of total score was considered as poor, from 60% to less than 75% was considered as fair, and from 75% and more was considered good.

2- Method

1-Administrative process:- Official Permission to carry out the study was obtained from the responsible authority of Ophthalmology Department and Collage of Nursing, Tanta University before conducting this study

2- The Nurse's Patient's informed consents were obtained after explaining the purpose of the study and confidentiality was preserved. An ethical consideration for the privacy and confidentiality of the data was assured and the patient had the right to refuse participation or withdrawn from the study at any time.

3- Validity of the tools: All tools were tested for content validity by nine jury of experts in the field of Medical-Surgical nursing, critical care nursing at the Faculty of Nursing, and Ophthalmology field professors and accordingly needed modifications were done.

4- A pilot study: It was conducted before the actual study on five nurses and five patients undergoing cataract surgery after taking their oral approval in order to test the clarity, feasibility and applicability of the different items of the determinant tools. Modifications and some additional terms were done by the researcher before the main study, according to the experience gained from the pilot study.

5- Reliability: Reliability of tool (III) Part two: was tested by using Alpha Crombachs factor and the result =0.950.

6- Data collection: -Data were collected over a period of 7 months, started from July 2016 to January 2017.

- Each patient was interviewed two times, first in Ophthalmic Department to fulfill the questions concerned with Socio-demographic data, while second time in Outpatient clinic to fulfill the question concerned with presence or absence of signs and symptoms of postoperative complications and evaluate patient postoperative self-care practice with three time intervals: immediately post-operative, after one week and after one month post-surgery. Each nurse was individually interviewed to fulfill the sheet questions. Each interview lasted for about 30-45 minutes to complete the tools. Each nurse was observed in 2 shifts at the morning shift, and the afternoon shift for three times. The time needed to complete the checklist varies ranged from 30-45 minutes depending upon the time of the procedure inside the department.

7- Teaching program was conducted on four phases as follows:

A-Assessment Phase:

i) For Nurses:-Two tools were used in this study:-

Tool I Nurses' knowledge related to patients post-operative cataract surgery on two phases: First phase (pre implementation teaching program) and Second phase (post immediately teaching program).

Tool II- It was used to observe nurses practice two times by the same manner on two phases.

ii) For Patients:-The researcher used Tool (1) Part one at the time of patient's admission for collection of patient's data and assess the patients who was met the inclusion criteria and was included in the study.

B-Planning Phase: A Proposed Teaching program for nurses about caring for patients post cataract surgery was designed based on determining needs, baseline measures, relevant literature and researches. In order to be implemented, using various methods include handout, power point, the doll and real material (e.g. one eye dropper, tissue paper), and a booklet containing diagrams and pictures which were designed by the researcher in Arabic Language and given to the nurses as a guideline to get a clear picture of all aspects related to cataract. It covered nurses' knowledge regarding cataract, cataract surgery, and nursing care of patients after cataract surgery, pre-discharge instructions for patients, and follow-up for postoperative cataract patients.

C- Implementation Phase: Teaching program for nurses about caring for patients post cataract surgery implemented through 3 sessions. The duration of each session was two hours /day for three days. The sessions were given to five groups (6) nurses in each group. In each session, the group of nurses that was contained 6 nurses divided into "sub group" 3 in each one. The duration of total session was one hour for each sub group as follows. The second hour was given by in the same manner to the other subgroup. The teaching/training methods were: discussions, as well as demonstration and re-demonstration. The teaching media were: illustrative pictures, PowerPoint presentation, doll, and handouts. Sessions took 45-60 minutes. The teaching were designed and presented in Arabic language. At the beginning of the first session, an orientation to the health guideline and its purpose was presented. Each session started by a summary of what had been taught in the previous session and the objectives of the new one, taking into consideration the use of simple language to suit the level of nurses. The researcher used motivation and reinforcement during the educational sessions to enhance learning. The booklet and power point were prepared by the researcher based on literature review. The booklets was distributed to the studied nurses at the end of sessions as a copy to use it.

The content of each session will be divided as follows:-

Session 1: It focused on program orientation and title expectation, an overview of simple anatomy of the eye and basic information about cataract (Definition, types, causes and clinical manifestations).

Session 2: It contained the preoperative preparation and postoperative care.

Session 3: It included the complications of the surgery and discharge instructions about [activities of daily living (ADL), medication, exercises, diet and reporting unusual signs and symptoms and time of follow – up].

D- Evaluation Phase: 1) For Nurses: Tool 1 and tool II was used before and after implementation of preoperative teaching program and finally a comparison was done between the results of both pre and posttest immediately to evaluate effect of preoperative teaching program on nurses' knowledge and practice.

II) For Patients: Tool III part one and part two was used to evaluate (postoperative complications and postoperative self-care practice) as an impact on nurses' knowledge and practice. It was used immediately post-operative, one week and after three weeks at outpatient clinics after surgery because this the time of complete healing.

Statistical analysis: The collected data were organized, tabulated and statistically analyzed using SPSS version 19 (Statistical Package for Social Studies) created by IBM, Illinois, Chicago, USA. For numerical values the range mean and standard deviations were calculated. The differences between total knowledge score before and after intervention were used using Wilcoxon signed ranks test and the data were not following the normal distribution. Differences of mean values between mean values before, after and after one month were tested using Friedman chi square test. The correlation between two variables was calculated using Pearson's correlation coefficient. The level of significant was adopted at $p < 0.05$.

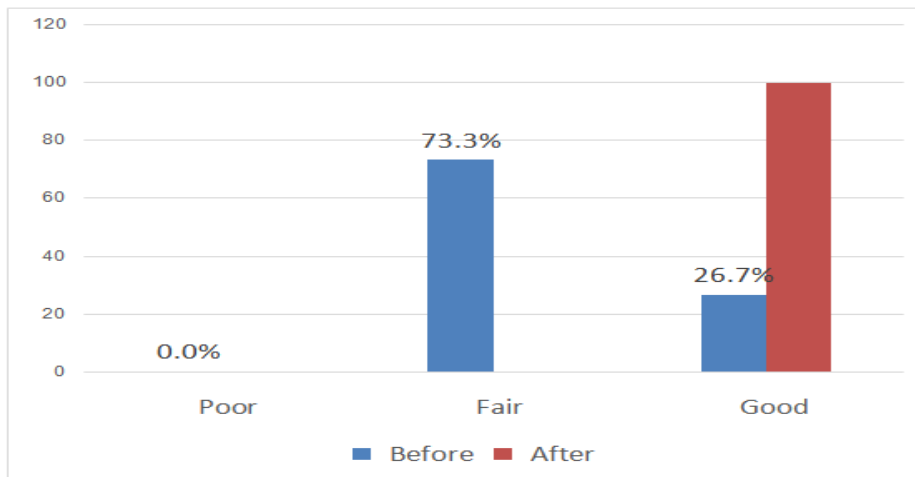
III. Results

Table (1): Distribution of Socio-demographic characteristics of studied nurses (n=30).

Characteristics	Number (n=30)	%
Age in years:		
20-	5	16.7
30-	2	6.7
40-	13	43.3
50-	10	33.3
Range	23-55	
Mean±SD	42.73±10.12	
Educational level		
Diploma in nursing	23	76.7
Technical health institute	6	20.0
Bachelor degree	1	3.3
Years of experience in ophthalmology:		
1-5	4	13.3
More than 5	26	86.7
Previous training:		
None	30	100.0

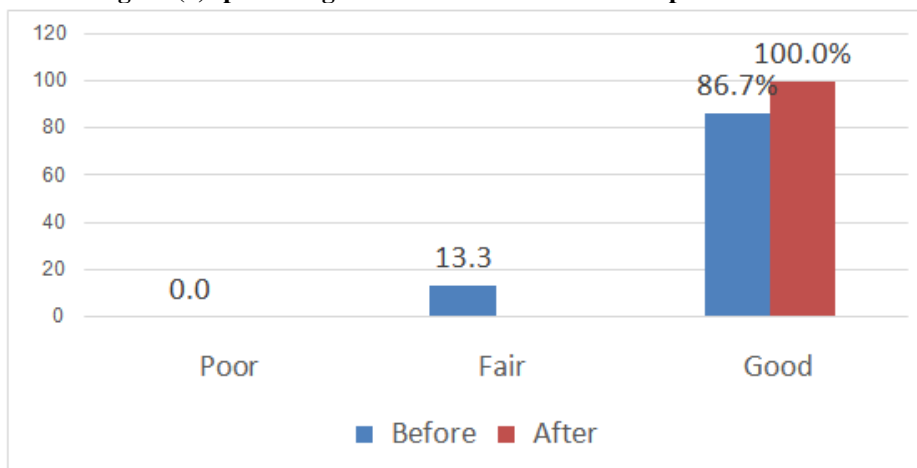
Table (1): Distribution of Socio-demographic characteristics of studied nurses. This table reveals that less than half (43.3%) of the studied nurses were in age more than 40 years and ranged between 23-55 years with Mean± SD42.73±10.12. In relation to educational level, more than three quarters of the studied nurses(76.7%) hadDiploma in nursingAs regard to years of experience in ophthalmic department, the result revealed that majority of the studied nurses (86.7%)had experience more than 5 years. It was found that all studied nurses (100%) did not have any previous training course related to cataract.

Figure (1): percentage distribution of overall total nurses' knowledge score



This figure (1) presented overall total nurses' knowledge score. It was found that, the score of nearly three quarters (73.3%) of the studied nurses were fair pre implementation of teaching program while the score of them (100%) was good immediately post- implementation of teaching program.

Figure (2): percentage distribution of overall total practice score :



This figure (2) presented overall total practice score of the studied nurses pre and immediately post-implementation of teaching program. It was found that, the score of majority (86.7%) of the studied nurses were good pre implementation of teaching program while the score of them (100%) was good immediately post-implementation of teaching program.

Table (2): Relationship between total practice score and nurses' educational level, and years of experience

Variables	Total practice score before	Total practice score after	Z	P
Educational level:				
Diploma in nursing	85.52±5.40	97.99±1.65	4.201	0.001*
Technical health institute/bachelor	81.95±3.80	96.32±1.99	2.384	0.017*
Z	0.540	1.977		
P	0.589	0.048*		
Years of experience:				
1-5	82.76±2.41	96.84±0.61	1.826	0.068
>5	82.32±5.33	97.71±1.95	4.461	0.001*
Z	0.214	1.230		
P	0.831	0.219		

*Significant

Table (2): Relationship between total practice score and nurses’ educational level, and years of experience

The table illustrated relationship between total practice score, nurses’ educational level, and years of experience and previous training It was found that: there was statistical significance difference.

In relation to educational level, total practice score of the studied nurses pre implementation of teaching program were higher for nurses with Diploma in nursing than nurses with Technical health institute/bachelor nursing (85.52±5.40, 81.95±3.80) respectively, while total practice score of the studied nurses enhanced immediately post- implementation of teaching program to become (97.99±1.65, 96.32±1.99) in nurses with Diploma in nursing and Technical health institute/bachelor nursing respectively .

As regard to years of experience, total practice score of the studied nurses pre implementation of teaching program were lower for nurses with experience more than 5 years than nurses with experience less than 5 years (82.32±5.33, 82.76±2.41) respectively, while total practice score of the studied nurses enhanced immediately post- implementation of teaching program to become 96.84±0.61, 97.71±1.95) respectively.

Table (3): Distribution of studied patients by post-operative self care practice of hygiene and protection of operation site:

Variables	Percentages of respondents									X ²	P
	After one day			After one week			After one month				
	Not done	Incomplete	Complete	Not done	Incomplete	Complete	Not done	Incomplete	Complete		
Wear eye shield when showering	100	0	0	100	0	0	100.0	0	2.5	0.000	0.236
Avoid water or soap in the eye.	0	0	100	0	0	100	0	0	100	0.000	1.000
Avoid eye make-up	0	0	100	3.2	0	96.8	3.2	3.2	93.6	2.00	0.368
Maintain supine position or the other side during the bedtime?	0	0	100	0	0	100	0	0	100	0.000	1.000
Apply eye shields during the bedtime	100	0	0	100	0	0	100	0	0	0.000	1.000
Refrain compression the eye or any behavior that might impact the eye.	5	5	90	2.5	2.5	95	5	5	90	2.00	0.368
Visit the clinic on the reservation date	0	0	100	0	0	100	0	0	100	0.000	1.000
Gradually increase daily physical activities	0	0	100	0	0	100	0	0	100	0.000	1.000
Avoid bending for long time	0	0	100	0	2.5	97.5	0	5	95	3.000	0.223
Avoid constipation	2.5	0	97.5	2.5	0	97.5	2.5	0	97.5	0.000	1.000

*Significant

Table (3): Distribution of studied patients by post-operative self care practice of hygiene and protection of operation site:

This table illustrated post-operative self-care practice of hygiene and protection of operation site. It showed that, all (100%) of the studied patients did not wear eye shield when showering and during sleep in the first day or after week, and after one month.

Regarding avoiding eye make-up, minority (3.2%) of the studied patients was not done after one week and one month postoperative.

Majority of studied patients perform self-care practices of hygiene and protection of operation site as avoid compression the eye, avoid bending for long period, and avoiding constipation. There was no statistical significance difference was found post-operative self care practice of hygiene , protection of operation site, and daily activity in relation to time after one postoperative day, one week, and one month.

Table (4) Distribution of studied patients by post-operative cataract complications

Cataract complications	After one day		After one week		After one month		X ²	P
	N	%	N	%	N	%		
Endophthalmitis	0	0.0	0	0.0	0	0.0	0.000	1.000
Elevated intraocular pressure	1	2.5	0	0.0	0	0.0	2.000	0.368
Cystoids macular edema	0	0.0	0	0.0	0	0.0	0.000	1.000
Hemorrhage	0	0.0	0	0.0	0	0.0	0.000	1.000
Wound leakage	0	0.0	0	0.0	0	0.0	0.000	1.000
Opacification of posterior capsule	0	0.0	0	0.0	0	0.0	0.000	1.000
Iris prolapse	1	2.5	0	0.0	0	0.0	2.000	0.368
Corneal edema	2	5.0	0	0.0	0	0.0	2.000	0.368
Lens decentration	0	0.0	0	0.0	0	0.0	0.000	1.000
Vision loss	0	0.0	0	0.0	0	0.0	0.000	1.000

Table (4): Distribution of studied patients by post-operative cataract complications

This table illustrated postoperative cataract complications. It showed that, minority (5.0%) of studied patients had corneal edema, (2.5%) of them had elevated intraocular pressure and iris prolapse after one postoperative day.

There is no statistical significance difference between cataract complications in relation to time after one postoperative day, one week, and one month.

IV. Discussion

Cataract surgery considers one of the most common cost-effective and successful surgical procedures that is performed worldwide. With a globally aging population, the number of cataract surgeries performed is expected to rise, requiring healthcare providers and institutions to develop more cost-effective and efficient methods of caring for these patients^(36, 37).

The present study tested the hypothesis that the implementation of teaching program will lead to statistically significant improvements in nurses' related knowledge and practice, and this would lead to better patients' outcomes post cataract surgery. The findings generally led to acceptance of this hypothesis that shown improvements in nurses' knowledge and practice with consequent improvement in self-care practice of cataract surgery patients.

The current study revealed that, the majority of the studied nurses had fair level of knowledge score. These results may be related to not attending any training program for nurses to improve and update nurses' knowledge. The finding is in agreement with **Taha et.al, (2015)**⁽³⁸⁾ and **Belal, (2004)**⁽³⁹⁾ who reported that nurses' knowledge of the anatomy and physiology of the eye was unsatisfactory.

The implementation of the teaching program led to significant improvements in nurses' knowledge. This result was supported by **Lewis et.al, (2011)**⁽⁴⁰⁾ who reported that it is necessary for the ophthalmic nurse to have a detailed knowledge of structure and function of the eye. The enhancement in nurses' knowledge score due to active involvement of nurses in session and frequent review of knowledge and nurses in the present study were interested in education and have an active role during implementation program. Moreover, this justification goes in line with **(Mafwiri et .al, 2014)**⁽⁴¹⁾ who mentioned that after implementation of educational program, nurses had significantly showed much higher mean knowledge score than the score before the implementation of educational program related eye care that demonstrated in a study in Tanzania.

More than half of the studied nurses had fair level of knowledge score. These results may be related to that nurses did not receive specific direct education about cataract and may be due to not found continuous education related cataract.

the implementation of the teaching program led to significant improvements in nurses' knowledge. This result was supported by **Kearney et. al ,(2006)**⁽⁴²⁾ recommended that nurses need to be aware of eye disease and conditions in older adults which should be standardized within their work environment through the use of protocols to ensure safety and therapeutic outcomes. This may be due to the nurses must be knowledgeable and be aware of the warning symptoms that causes complication after the surgery. The enhancement in nurses' knowledge score due to content of program based on nurses' needs, its clarity and simplicity, using of audiovisual aids and the availability of teacher in the field for more clarification, and frequent repetition to fix the knowledge.

Regarding Post-operative eye care pre implementation of teaching program, majority of the studied nurses had good level of practice score this result disagrees **Ahmed, (2007)**⁽⁴³⁾ in a study at Zagazig University Hospital reported that more than three quarters of the nurses performed eye care incorrectly. This result may be due to lack of nurses' knowledge regarding importance of eye care following cataract surgery and long period of experience.

The implementation of the teaching program led to significant improvements in nurses' practice. This may go back to several reasons, such as helping the nurse to remember how to care for eye and administering of eye medication by giving them the colored booklet; better communication with them and explaining how to perform eye care and how to instill eyedrops. And frequent demonstration. This is supported by **Jensen et.al, (2015)**⁽³⁰⁾, **Nettina et.al, (2014)**⁽³³⁾, **Taylor et.al, (2015)**⁽²⁹⁾, who stated understanding of the technique of eye care as hand washing before and after touching the eye, prepare equipment, wear gloves, assume comfortable position, position the light source to allow maximum observation of patient, place disposable towel around the patient, Moisten cotton swab in prescribed solution, clean postoperative eye with a clean tissue, wipe the closed eye with a single gesture from the inner canthus outward, clean your eyelid edges at least twice a day with a moist clean face cloth while avoiding pressure on the upper eye lid, dry patient eye lids, close the eye with tape, dispose the equipment safely, wash hands after contact, monitor & report any abnormal finding.

Regarding correlation of age in years of the studied nurses with total knowledge, the present study demonstrated that, there was no statistical significance difference between nurse's age in relation to nurse's knowledge. This result agrees with **Salah, (2001)**⁽⁴⁴⁾ in Ain Shams University who revealed that there was no statistical significance between nurse's age in relation to nurse's knowledge. This may be due to that, nurses' age was identified as a negative predictor of their knowledge score, which means that the younger age nurses get higher benefits from the guidelines compared with older ones. This might be explained by the fact that younger age nurses are more eager to learn and can acquire knowledge easier.

Regarding Correlation between total knowledge and practice score, the present study found that there was no statistical significance difference between total nurse's level of knowledge and their practice regarding postoperative cataract patients. In the same line, **Chan, (2002)**⁽⁴⁵⁾ who found in her study about "Nurses Knowledge and Compliance with Universal Precaution on Acute Care Ophthalmic Hospitals" no statistical significance difference relation between total nurse's level of knowledge and their practice. This result may be due to that absence of in-service training program required for update nurses' knowledge, lack of guidance and supervision from the head nurse, and absence of booklet being able to affect their practice. On the country, this result disagrees **Ahmed, (2007)**⁽⁴³⁾ was found highly significant relation between total nurse's level of knowledge and their practice.

Regarding relationship between total knowledge score and years of experience, the present study demonstrated that, there was statistical significance difference between total nurse's knowledge scores and years of experience. This result disagrees with **Salah, (2001)**⁽⁴⁴⁾ in Ain Shams University who revealed that there was no statistical significance between nurse's knowledge in relation to years of experience. This may be explained that there was an improvement in level of nurses' knowledge with increase years of experience.

Regarding relationship between total practice score and level of education, there was statistical significance difference between nurses' practice and their level of education. This finding disagrees with **Ibrahim, (2011)**⁽⁴⁶⁾ who reported that there was no significant relation between nurses' practice and their level of education in Zagazig University. This result may be due to that nurses who had more education and less years of experience, they were associated with higher practice rate.

Regarding post-operative self care practice of use of eye drops. It was found that, majority of studied patients had completed done in hand washing before & after procedure, while after one week and one month postoperative, their practice decrease. This is may be due to improved vision by the patient so they deny hand washing.

Regarding post-operative self care practice of hygiene and protection of operation site. It showed that, all of the studied patients did not Wear eye shield when showering and during sleep one day, one week, one month Postoperative activity restrictions vary per physician. Some physicians recommend protective shielding on the day of surgery and in the evenings for the first week. Some clinicians are beginning to challenge the routine use of postoperative shields for protection after uncomplicated modern cataract surgery⁽⁴⁷⁾. This is maybe due to the nurses do not tell him the important of wearing eye shield and hospital policy.

Moreover, according the present study, the majority of the studied patients had compliance with self-care practice regarding hygiene, protection of operation side and activity of daily living (ADL) in all visits (1st postoperative day, 1st week, 1st month postoperatively). This in the line with **Rho et.al, (2012)**⁽³⁵⁾ higher score on the postoperative self care compliance questionnaire especially regarding care of hygiene, protection of operation side, activity of daily living (ADL) and eye drop administration.

Cataract surgery results need a multidisplinary effort which includes perfect surgery, good nursing care and finally awareness of patient by postoperative precaution to be followed. It can be concluded that the teaching program significantly improves nurses' knowledge and practice about cataract with a sustained improvement in clinical outcomes and reduce complication.

V. Conclusion

Based on the findings of the present study, it can be concluded that:

There was an improvement in nurses' knowledge and practice regarding preoperative teaching program about cataract surgery after implementing teaching program. It was observed that, the overall total knowledge score of three quarters of the studied nurses regarding cataract were fair before implementing teaching program while immediately after implementing teaching program, all of them obtained good scores. The total score for more than four fifths of the studied nurses were good before implementation of teaching program while immediately after implementing teaching program, all of them obtained good scores.

VI. Recommendations

Up on the completion of this study, it can be recommended that:

A simple illustrated booklet includes the most important instructional points regarding cataract surgery that should be given to all patients, care givers and family members. Ophthalmic nurses should receive periodic in-service training programs to improve, update, refreshing their knowledge and practice regarding cataract. Replication of the study on a large sample size and with long term follow up can help in generalized the results

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