

Effectiveness of the Preoperative Educational Guidelines for Patients Undergoing Cataract Extraction Surgery and Intraocular Lens Implantation

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1. ABSTRACT

Background: cataract is the major cause of blindness of the population, and surgery is the only effective treatment. Risk reduction and the attainment of good outcomes depend in part on effective teaching of patient and patient compliance with a postoperative regimen of eye drops. **The study aimed to:** Evaluate the effectiveness of the preoperative educational guidelines for patients undergoing cataract extraction surgery and intraocular lens implantation. **Method:** Quasi-experimental (pre & post) research design was utilized to conduct this study. **Sample:** A purposive sample of 136 patients undergoing cataract extraction surgery was included in this study. **Tools:** Data were collected using two tools, Tool I: A structured interview questionnaire (pre & post): it included three parts; part (1) included demographic characteristics of the studied patients and part (2) included Health relevant data part (3) included patients' knowledge regarding cataract. Tool II: Pre/Post observation checklist for patients' Self-care practice. **Results:** Post implementing the guidelines; there were high statistical significant differences in patients' knowledge and postoperative self-care practice ($p < 0.001$).

Keywords: *Cataract surgery, Preoperative guidelines, Patients' knowledge, Self-care practice, Postoperative*

2. Introduction:

A cataract is a hazy region in the eye lens that progressively forms and impairs vision by obstructing the light's path to the retina. It is the primary cause of blindness in the population and the most prevalent cause of visual loss worldwide. According to the World Health Organization **World Health Organization, (2018)**. Cataracts affect millions of people worldwide and according to the World Health Organization, cataract accounts for 39% of visual impairment and 51% of blindness in which 90% of these people are from underdeveloped countries (**Imran, Li, Pei, Akhtar, Mahmood & Zhang, 2021**).

About 4.700 people with cataract disease were admitted to the hospital in 2017, according to statistics from the Ophthalmology Mansoura Hospital. Cataracts have a major detrimental effect on a person's functional capacities and emotional wellbeing. They are linked to depression and blindness and hinder patients' independence in caring for themselves and carrying out everyday tasks, which lowers their quality of life and productivity. (**Thomas, Sanders & Oliva, 2017**).

The only successful treatment, the most common ocular surgery, and one of the most prevalent surgical operations worldwide is cataract

surgery (**Lindstrom, Stewart Galloway, Grzybowski & Liegner, 2017**). The goal is to remove the clouded lens material while keeping some components, such the capsular bag, intact. It is advised that patients have thorough understanding of immediate postoperative self-care, as this will aid in preventing postoperative problems and aiding the patient in feeling better (**Shen et al., 2017**).

After cataract surgery, it is advised that patients take care of themselves by using strict aseptic technique when administering eye drops to reduce the risk of infections, catching complications early to reduce the risk of permanent vision loss, maintaining proper positioning to reduce the risk of edema at the operated site, and avoiding strenuous activities like coughing, sneezing, and running to avoid complications like virtual prolapsed lesion. (**Kamdi & Ankar, 2019**).

In order to prevent complications after surgery, the nurse plays a crucial role in educating patients about cataracts and appropriate care. Prior to surgery, you should go over postoperative instructions with the patient and your partner. Following surgery, instructions for self-care should cover eye care, medication, activity, food,

problems, and follow-up. The goal of the nursing recommendation is to improve the standard, effectiveness, and accessibility of care for cataract patients (**World health organization, 2015**).

If a patient undergoing cataract surgery is given insufficient or inadequate postoperative care information, several complications could arise at any time. For successful self-care and recuperation at home, it is crucial to make sure that patients' informational needs have been satisfied prior to hospital discharge (**Elgazar, Mohamed, Fayed & Mohamed, 2017**).

2.1 Significance of the study

Blindness caused by cataracts, which have been linked to sadness and a lower quality of life and productivity for those who are blind and those who care for them, can have a negative impact on communities (**Hong et al., 2015**). It not only impairs eyesight but also physically, socially, and psychologically affects people, making it difficult for them to carry out daily tasks. Patients struggle to provide for themselves independently and face major life dangers from unfavourable circumstances like collapsing (**Gülşen & Akansel, 2020**).

Cataract is a significant and increasing global as well as local problem. About 20 cataract surgeries are performed daily in the ophthalmic center at Mansoura Hospital. This may have an impact on patients' independence in self-care and performance of everyday tasks, resulting in a diminished quality of life. Most of the time, patients' families or other caregivers may not be aware of their loved one's sickness or the need for post-operative care. The difficulties lie in preventing or delaying problems from occurring and handling them as soon as they arise.

2.2 Aim of the study:

The aim of this study was to evaluate the effectiveness of the preoperative educational guidelines for patients undergoing cataract extraction surgery and intraocular lens implantation.

2.3 Research Hypotheses:

- Patient's knowledge regarding cataract will be improved after receiving the preoperative educational guidelines.
- Patient's self-care practice regarding cataract will be improved after receiving the preoperative educational guidelines.

3. Subject and Method

3.1 Research design and setting: A quasi-experimental research design (pre & post) was used

to conduct this study at ophthalmic center at Mansoura Hospital.

3.2 Study sample: A purposive sample of 136 undergoing cataract extraction surgery and intraocular lens implantation was included in this study.

3.3 Tools of data collection: Data was collected pre/post implementing the educational guidelines using two tools:-

Tool 1: Pre & Post-structured interview questionnaire: Following a thorough assessment of pertinent literature, the researcher created this tool in simple Arabic after receiving the opinions of specialists in the fields of ophthalmology and medical-surgical nursing. There were three sections:

- **Part 1: Socio-demographic data:** This part was used to address the personal data of the studied patients, which composed of (5) questions including age, sex, marital status, level of education, and occupation.
- **Part 2: Health relevant data:** This part included questions related to patient's health history; it composed of (7) questions including, date of diagnosis, co-morbidities, any previous hospitalization or operation history, smoking, and family history of cataract.
- **Part 3: Patients' knowledge regarding cataract:** This section evaluated the patients' cataract knowledge both before and after the guidelines' implementation. It included (15) questions covering 3 main areas: general knowledge about cataract, knowledge about risk factors, and knowledge about cataract treatment modalities.

With regard to the scoring system, the researcher used a model response to evaluate the patients' responses. The correct response received a score of one, while the incorrect response or "don't know" received a score of zero. The overall score was calculated by adding the scores from each area, and the number of items in each area then divided it. These scores were then transformed to a percent score, which was divided into the following: **Poor:** for this who had a score < 50%, **Fair:** for this who had a score 50-65%, **Good:** for this who had a score > 65% (**Elsayed & Mohammed, 2019**).

Tool II: Self-care practice checklist: The researcher developed this tool after thorough review of pertinent lecturers and after content validation by seeking the advice of experts in the fields of ophthalmology and medical-surgical

nursing to evaluate patients' actual postoperative self-care practises. It was used before and after the guidelines' implementation and contained 15 questions that addressed the following topics Eye drops

Regarding self-care practice and patient's self-administration of eye drops checklist each correct step was given 1 score and 0 for each mistaken step. Total scores for each checklist were calculated, translated to percentages, and then grouped into the following categories (**Elsayed & Mohammed, 2019**): A score of under 60 was considered unsatisfactory and scores over or equal 60% were considered satisfactory.

3.4 Validity:

The researcher designed tools of data collection after extensive reviewing of related lecturers, and then the content- validation of the tools was ascertained by a panel of five experts; two of them were assistant professors in the field of ophthalmology and three of them were assistant professors in the field of Medical-Surgical Nursing at Mansoura University who reviewed the tools for clarity, comprehensiveness, relevance, applicability, understanding, and simplicity for the implementation and some modifications were applied according to their opinions.

3.5 Reliability

The Cronbach's alpha value of the knowledge about cataract questionnaire was 0.885, of the Self-care practice checklist 0.893 and of the eye drop self-administration procedure was 0.904.

3.6 Pilot study

The sample of the pilot study included 14 patients (10%) who were randomly selected from 136 patients under the study to ascertain from tools' clarity, feasibility, and its applicability and in order to estimate the required time that the patients needed to fill them in and then the patients who shared in the pilot study were excluded from the main study sample, necessary modifications were made according to results of the pilot study.

3.7 Fieldwork:

The study was implemented through the following three phases and was conducted over a period of 5 months, which started from August 2021 to December 2021.

Preparatory phase:

- In this stage, the researcher developed tools required for data collection and statistical analysis after reviewing the related writings.

- Tools were reviewed by a jury of five experts in the field of ophthalmology and in the field of Medical Surgical Nursing department, of Mansoura University to test validity and reliability of the tools and all the necessary modifications were done accordingly.
- Based on internet searching and literature review for relevant information, the researcher developed the preoperative educational guidelines under supervisors' guidance for patients undergoing cataract extraction surgery and intraocular lens implantation in the form of a booklet.
- By the termination of this stage, a pilot study was passed out on 10% of participations (14) to test the plausibility of the study and appropriateness of the tools and the period requisite to finish for statistics collection.

Phase 2: implementation phase

- The researcher began this step by presenting herself to the study subjects who had been admitted to the hospital for cataract surgery and intraocular lens implantation, outlining the goals of the investigation, and obtaining their verbal agreement. The researcher emphasized the importance of active participation of the patients in the study and patients were assured that they have the right to withdraw at any time without embarrassment or effect on patient care and the information gathered would be used solely for the purpose of the research and handled with confidentiality. They took part in the study on voluntary basis.
- Each patients received a single, one-on-one interview in the ophthalmology department to complete a questionnaire assessing their awareness of the condition and their post-cataract surgery self-care routines (**Tool I & tool II**).
- Each interview took approximately from 15-20 minutes.
- Next, the researcher presented a copy of the booklet containing the preoperative educational guidelines to the studied patients and explained its content in an average time of 30-45 minutes for each patient.

Phase 3: evaluation phase

- The same tools (**Tool I & tool II**) that were used in the pre-test were utilised to evaluate the educational guidelines' impact on patients' knowledge and self-care behaviours immediately following the implementation of the preoperative educational guidelines.

- The researcher assessed the impact of the preoperative educational instructions on patients' knowledge and self-care behaviours by comparing the post-test findings with the pre-test results.

Administrative design and ethical considerations:

After explaining the purpose of the study to the head of the ophthalmology centre at Mansoura University Hospitals, the researcher was granted official clearance before collecting the data. All relevant ethical considerations were taken during this study including; obtaining an approval from the ethical committee of the Faculty of Nursing, Mansoura University to carry out this study, explaining the purpose of the study to each patient and obtaining an oral consent from each patient participated in the study. Also, maintaining the privacy and confidentiality of the studied patients during data collection. In addition, voluntary participation was given to them, as they had the right to refuse the participation or withdraw at any time they want from the study.

3.8 Statistical design

All statistical analyses were performed using SPSS for windows version 20.0 (SPSS, Chicago, IL). All continuous data were normally distributed and were expressed in mean \pm standard deviation (SD). Categorical data were expressed in number and percentage. Chi-square test was used for comparison of variables with categorical data. The reliability (internal consistency) test for the questionnaires used in the study was calculate. Statistical significance was set at $p < 0.05$.

4. Results

Table (1) Revealed that, the majority of the studied patients (63.2%) were in the fifth decade with a Mean \pm SD (49.9 \pm 7.9) and about two thirds (99.9%) were males. Concerning to marital status and the level of education more than two thirds (67.6%) of the studied patients were married and (43.4%) had secondary education. Regarding occupation (41.9%) of the studied patients were working in craft works while (36.0%) were employee.

Table (2) shows that (55.1%) of the studied patients were having cataract for about 13-18 months. Concerning previous hospitalization, (76.5%) of the studied patients were hospitalized before. Regarding chronic diseases (67.6%) of the studied patients were having diabetes and (23.5%) were having hypertension. In reference to smoking habits, (51.5%) were nonsmokers while (48.5%) were smokers. As regard to family history of

cataract, (55.1%) of the studied patients had family history of cataract and (57.4%) of the studied patients were wearing eye glasses and (42.6%) weren't wearing eye glasses.

Table 3. This table demonstrate that, the association between the patients' socio-demographic characteristics and their knowledge score pre & post implementation of the guidelines. It was found that, there was no statistical significant association between patients' age, sex, marital status and occupation ($p = 0.760\%$, 0.252% , 0.688% , 0.322% respectively) and their total knowledge score, while there was statistical significant association between patients' level of education and their total knowledge score ($p = 0.036\%$).

Table 4. This table demonstrate the association between the patients' socio-demographic characteristics and their Self-care practice checklist score pre & post implementation of the guidelines. It was found that, there was no statistical significant difference between patients' age, sex, marital status and occupation ($p = 0.682\%$, 0.092% , 0.298% , 0.068% respectively) and their Self-care practice checklist score, while there was statistical significant association between patients' level of education and their total Self-care practice checklist score ($p = 0.024$).

Table 5. This table demonstrate the association between the patients' socio-demographic characteristics and their score in the procedure of self-administration of eye drop pre & post implementation of the guidelines. It was found that, there was no statistical significant difference between patients' age, sex, marital status and occupation ($p = 0.318\%$, 0.112% , 0.213% , 0.362% respectively) and score in the procedure of self-administration of eye drop, while there was a high statistical significant association between patients' knowledge score in the procedure of self-administration of eye drop and their educational level ($p < 0.001\%$).

Table 6. This table demonstrate the association between the patients' knowledge score and both Self-care practice and their eye drop self-administration score pre & post implementation of the guidelines. It was found that, there was a high statistical significant association between patients' knowledge score with Self-care practice checklist and their eye drop self-administration procedure score pre & post implementation of the guidelines ($p < 0.001$).

5. Discussion

Worldwide cataracts are present and they are primary cause of vision loss and a serious worldwide health issue. It affects individuals in different daily life activities such as driving, undertaking work that requires fine detailing or recognition. Although cataract surgical health teaching program is an important component of ophthalmology, it requires building trusting relationships between patients and their families and health team members. This ensures that patients receive appropriate and high quality health teaching from the staff of the hospital to relieve patients' anxiety and dissatisfaction. It also improves visual acuity and controls post-operative complications (El-Khamisy, Ahmed & Abo El-Ata, 2019).

Regarding the demographic characteristics of the studied patients, the present study revealed that nearly two thirds of the studied patients were in the fifth decade. This result is in agreement with Naeem, et al., (2015) who mentioned that, with advanced age, the developing of cataract is increased and found that, the age of cataract patients in their study between 50 years and more. This finding may be due to the fact that the lens gradual loses water and increases in size and density by increased age.

In the current study, two thirds of the studied patients were male. This result occurs with those of Noaman et al., (2015); Pundareekaksha (2016) and Muthulakshmi & Venkatesh, (2019) who discovered that, more than half of the studied subjects in their study were male however it disagrees with Elgazar, Mohamed, Fayed & Mohamed, (2017) discovered that two thirds of the patients in their study were female. This outcome might be explained by the fact that the majority of the patients in the study worked in craft industries (farmers, mechanics and manual works).

In relation to marital status, the findings showed that nearly two thirds of the patients under study were married. This finding consistent with Mary, Fang & Kushalan (2015) and Samuel, Abdulkadir, Girma & Glagn, (2021) who found that the more than two thirds of their study sample were married. This result also agrees with Flayeh & Khuder (2017) who discovered that approximately 75% of the sample they studied was married. The fact that the majority of the study sample was in the fifth decade, could be the cause of this.

According to level of education, the results of the current investigation showed that more than

half of the patients were educated beyond the secondary level. This outcome is consistent with Mehuys et al., (2020) who discovered that the average education level of their study group was secondary. This result is not in line with the result of Taha & Abdel Aziz (2015) and Muthulakshmi & Venkatesh, (2019) who discovered that, three quarters of patients in their study are illiterate & El-Shamy, et al. (2017) who discovered that more than two thirds of the patients under study were illiterate.

As regard to occupation, the results of the current study revealed that more than forty percent of the studied patients were working in craft works. This for some extent agree with Samuel, Abdulkadir, Girma & Glagn, (2021) who mentioned that most of their study participants were farmers while it disagreed with Muthulakshmi & Venkatesh, (2019) who stated that more than 50% of their study sample was unemployed. In addition, it disagreed with Beth, et al., (2015) & Alanazi, et al., (2017) as they reported that, their study sample's unemployment rate exceeded 50%. This finding may be due to the fact that only thirty four percent of the studied patients in the current study were secondary education.

Concerning duration of cataract, more over half the individuals in the present study were having cataract for about 13-18 months. This agree with Mohamed, Mohammad & Abdel Rahman, (2018) who found that nearly half of patients in their study had cataract for more than 3 months. This is may be due to the fact that in the early stages of a cataract, vision is only minimally affected, unused lenses for glasses grant the most honed vision conceivable and when the cataracts start to interfere with adult's daily activities (ADL) and glasses cannot improve this vision, surgery is the single choice as stated by Charles et al., (2015).

Regarding to previous hospitalization the results of the current investigation showed that more than 75 percent of the patients were hospitalized before. This is consistent with Gülşen & Akansel, (2020) who mentioned that nearly two thirds of patients in their study were hospitalized before. The fact that the majority of the study patients had chronic diseases that require continuous follow up and some of them, especially diabetic patients, where having some problems in controlling blood sugar level, may explain this.

As regard to existence of chronic conditions, the results of the current investigation showed that more than two thirds of the studied patients were

having diabetes, less than one quarter were having hypertension and Over 50% of the individuals in the study had a history of cataracts. This is in line with **Mohamed, Mohammad & Abdel Rahman, (2018)** who pointed to that patients in their study had chronic illness, diabetes mellitus and hypertension and family history. This finding was also supported by preponderance of some previous studies as **Nath & Sharifi (2016)** who stated that diabetes mellitus has been identified as second most common significant predictor of cataract development i.e., about 4% of all cataract is attributed to diabetes in their study. This conclusion can be explained by the greater incidence of cataract in people with diabetes mellitus, either as a result of the disease itself, its treatment, or both.

As regard to family history of cataract, a family history of cataract was present in about two thirds of the participants in the study. This is in line with **Taha, (2021)** who discovered that 2/3 of research participants had a history of cataracts in their families. It might be the fact that cataracts frequently run in families.

Concerning awareness about cataract the result of the current study found that more than 2/3 of the patients in the study were aware about cataract (heard about cataract before). This finding is consistent with **Samuel, Abdulkadir, Girma & Glagn, (2021)** who found that all of their study respondents heard about cataract. In addition, **Mohammed, Alemu & Admassu, (2019)** who found that three quarters of individuals in their study had heard of the phrase cataract before. This might be because the majority of the study subjects had a history of cataract in their families.

The current study shown that, before to the implementation of the educational guidelines, the total knowledge score of more than two thirds of the studied patients was poor, but, following the implementation, the majority of the studied patients had a good total knowledge score of the educational guidelines. This could be described by the fact that, participants did not obtain sufficient knowledge from health care group and most of their information were from family and friends and only ten percent of the studied patients were highly educated.

This result agrees with **Akouwah, Abdul-Kabir, Abdul-Sadik & Forfoe, (2018)** who studied reported that more than two thirds of their study participants had low knowledge of cataract and only 4.40% of participants have extensive understanding of cataracts. Supporting this **Mohamed, Mohammad & Abdel Rahman, (2018)** who mentioned that when assessing

knowledge of patients undergoing cataract the highly percentage of their study participation had insufficient information of cataract

The current study demonstrates that, there is a highly significant difference between pre & post-implementation of the educational guidelines in patients' self-care practice regarding eye drops, hygiene, protection of the operation site, daily life activities and follow up. This is due to the fact that the developed booklet covered all items of post-operative self-care practice reinforced by illustrated images and researcher's explanation to every point and discussion with the patient. This result is in consistent with **Mahfouz, Mohamed, Abdelhalim & Mohamed, (2019)** who stated that the majority of their study group adhered to the postoperative self-care instructions. This is also supported by **Kamdi, Ankar, Narayane & Bhirange (2021)** who a substantial difference between pre-test and post-test knowledge scores.

The present investigation showed that there is a highly significant difference in patients' total score of self-care practice pre & post implementation the educational guidelines. This was supported by **Kamdi & Ankar, (2019)** who reported that in post-test fewer than 50% of the individuals in their research had a good level of knowledge and more than half of patients in their study had excellent knowledge regarding post-operative self-care among cataract patients in their study. This may be due to researcher's full explanation of all items of post-operative self-care practice to each patient in addition to the developed booklet.

The finding of the current study is not consistent with **El Shafaey & Basal, (2018)** who stated that the majority of the patients who were studied adhered to their own self-care practices regarding hygiene, protection of operation side and activity of daily living (ADL) and there was no statistical significance difference was found in 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 in their study.

Concerning patients' self-administration of eye drop the current study illustrated that, pre-implementation of the educational guidelines the results of nearly three quarters of the study patients were unsatisfactory while in post-implementation of the educational guidelines, the result was satisfactory in more than three quarters, showing a high significant difference patients self-administration of eye drop. This may be due to the fact that the researcher observed the studied

patients while self-administering of eye drop and corrects their mistakes and teaches them the proper technique to administer eye drops.

This result agrees with **Chaudhary et al., (2021)** who reported that all subjects' eye-drop administration in pre-test performance scores fell into the range of average to poor performance. Additionally, this outcome was reinforced by **Assil et al., (2021)** who reported that "according to their study, "Even patients who attempt to administer their postoperative anti-inflammatory drops frequently fail, with more than 92% of eye drop instillations failing for any of a variety of reasons, including missing the eye, instilling the incorrect amount of medication, or direct contact of the bottle tip with the ocular surface".

Concerning association between the patients' socio-demographic characteristics and their knowledge score pre & post implementation of the guidelines, the degree of education of the patients and their overall knowledge score were shown to be statistically significantly correlated, although there was no statistically significant association between the patients' age, sex, marital status, or occupation.

This is consistent with **Magliyah et al., (2015)** who found a significant relationship between the level of education and awareness of cataract as shown while the relationship between gender and cataract awareness was not significant in their study.

In relation to association between the patients' demographic characteristics and their score in the procedure of self-administration of eye drop pre & post implementation of the guidelines. It was found that, there was no statistical significant association between patients' age, sex, marital status and occupation while there was a high statistical significant association between patients' level of education and their knowledge score in the procedure of self-administration of eye drop.

This is consistent with **Magliyah et al., (2015)** who found a significant relationship between the level of education and awareness of cataract as shown while the relationship between gender and cataract awareness was not significant in their study while it disagreed with **Chaudhary et al., (2021)** who mentioned that there is no significant impact of sex, age, occupation, education and type of family on the difference between the scores of pre-test and post-test observation.

In relation to association between the patients' demographic characteristics and their score in the procedure of self-administration of eye drop pre & post implementation of the guidelines. It was found that, there was no statistical significant association between patients' age, sex, marital status and occupation while there was a high statistical significant association between patients' level of education and their knowledge score in the procedure of self-administration of eye drop. This disagreed with **Chaudhary et al., (2021)** who mentioned that there is no significant impact of sex, age, occupation, education and type of family on the difference between the scores of pre-test and post-test observation. More than two third of the patients in the current study had unsatisfactory levels of knowledge regarding daily activities following cataract surgery, according to the results. This finding is consistent with **Hegazy, et al. (2012)**, who reported that most patients had low levels of knowledge regarding permitted daily activities. These results may be caused by patients not receiving post-operative advice from the nurses or the ophthalmologist.

This finding is in agreement with **Kumar, Banagar, and Canda (2014)** who found that their patients had difficulty administering eye medications correctly. They observed patients' practises regarding the administration of eye medications and found that more than three-quarters of the studied patients are administering eye medications insufficiently. This might be because you skipped the presentation of how to administer eye medicines.

6. Conclusion:

The finding of the study concluded that:

- The preoperative educational guidelines were effective in improving patients' total knowledge regarding cataract
- Patients' self-care practices (eye drop administration, hygiene, protection of the operation site, daily life activities and follow up) post cataract surgery was improved after performing the preoperative educational guidelines.

7. Recommendations

Recommendation for the Patients:

1. All patients undergoing cataract surgery in the outpatient clinic and ophthalmology department should receive the developed booklet.
2. Nurses should provide preoperative care for all patients having cataract surgery, including

education about postoperative precautions and postoperative warning signs.

3. To help patients follow the recommendations and enhance patient outcomes, family members should be properly educated about the condition, postoperative eye care, safe administration of eye drugs, and prevention of cataract surgery problems.

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- World Health Organization. (2018).** Cataract disease. Available at: <http://www.who.int/blindness/causes/priority/en/index1.html>. **Table 1.** Distribution of socio-demographic characteristics of patients (n = 136)

Table 1. Distribution of socio-demographic characteristics of patients (n = 136)

| Patients' characteristics | N | % |
|---------------------------|-----------|------|
| Age (years) | | |
| 30 < 40 | 19 | 14.0 |
| 40 < 50 | 31 | 22.8 |
| 50 < 60 | 86 | 63.2 |
| Mean ±SD | 49.9 ±7.9 | |
| Sex | | |
| Male | 91 | 66.9 |
| Female | 45 | 33.1 |
| Marital status | | |
| Single | 15 | 11.0 |
| Married | 92 | 67.6 |
| Divorced | 14 | 10.3 |
| Widow | 15 | 11.0 |
| Level of education | | |
| Illiterate | 15 | 11.0 |
| Read and write | 48 | 35.3 |
| Secondary education | 59 | 43.4 |
| High education | 14 | 10.3 |
| Occupation | | |
| Employee | 49 | 36.0 |
| Manual work | 10 | 7.4 |
| Craft work | 57 | 41.9 |
| Not working | 20 | 14.7 |

Table 2. Distribution of the patients' health relevant data

| Health relevant data | N | % |
|-----------------------------------|-----|------|
| Duration of cataract | | |
| 7 – 12 months | 24 | 17.6 |
| 13 – 18 months | 75 | 55.1 |
| More than 18 months | 37 | 27.2 |
| Previous hospitalization | | |
| Yes | 32 | 23.5 |
| No | 104 | 76.5 |
| Chronic diseases | | |
| Diabetes | 92 | 67.6 |
| Hypertension | 32 | 23.5 |
| Heart disease | 12 | 8.8 |
| Smoking | | |
| Yes | 66 | 48.5 |
| No | 70 | 51.5 |
| Family history of cataract | | |
| Yes | 61 | 44.9 |
| No | 75 | 55.1 |
| Wear medical eye glasses | | |
| Yes | 78 | 57.4 |
| No | 58 | 42.6 |

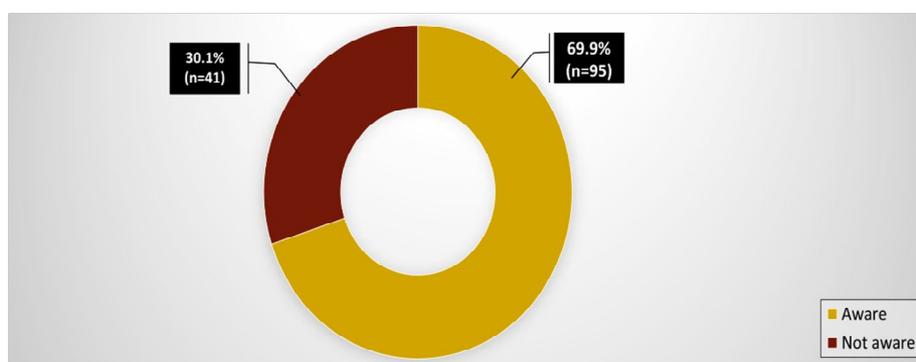


Figure 1. Distribution of patient's awareness (hearing about) of cataract

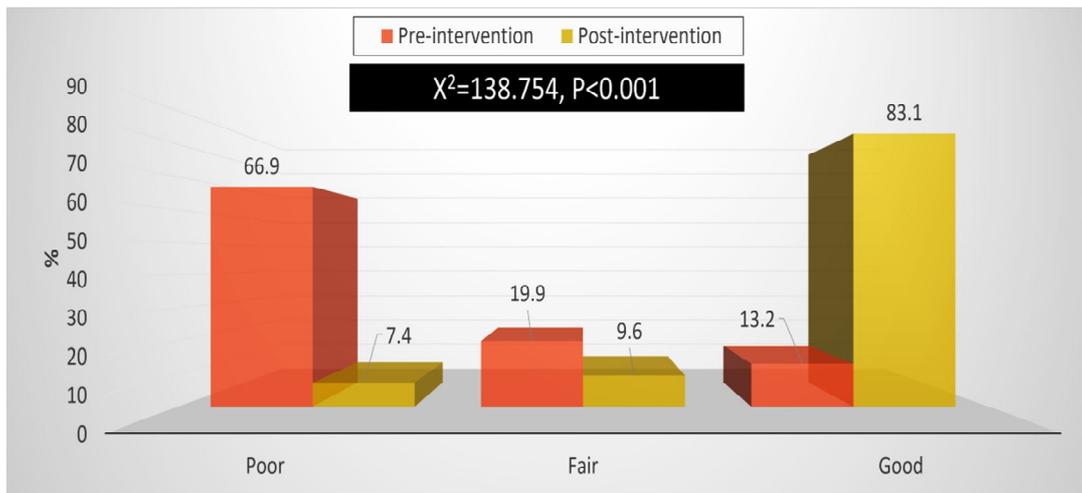


Figure 2. Distribution of knowledge score between pre and post intervention

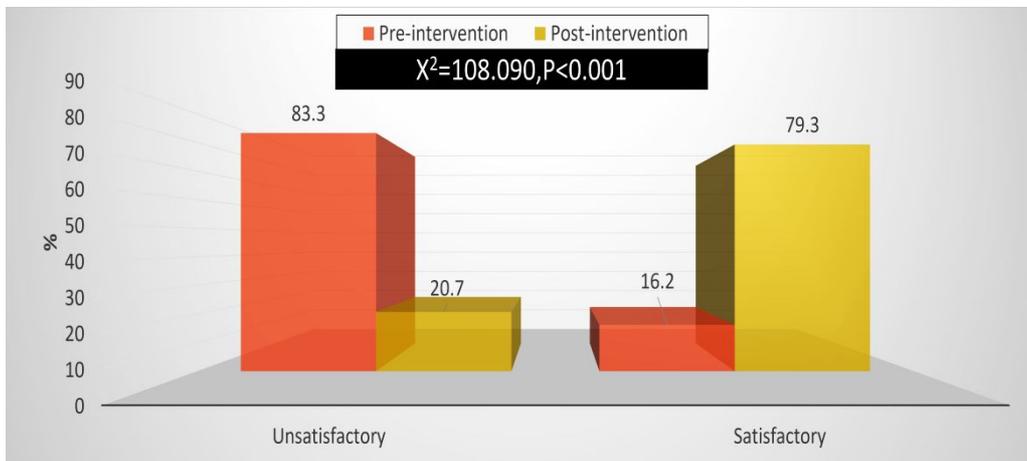


Figure 3. Distribution of practice checklist score between pre and post intervention

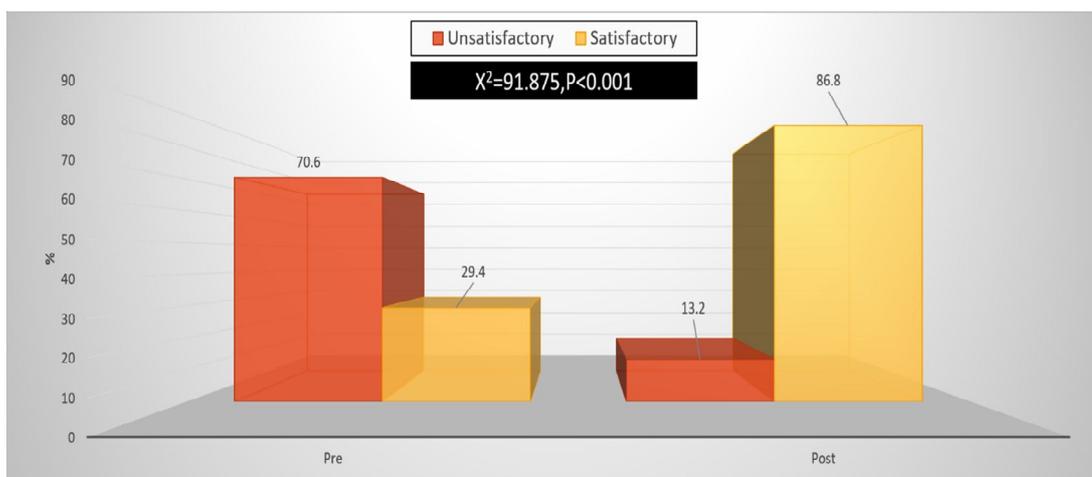


Figure 4. Distribution of eye drop self-administration procedure score between pre and post intervention

Table 3. Association between the soico-demographic characteristics and knowledge score

| Items | Pre | | | | | | Post | | | | | |
|---------------------------|-----------------------|------|-------------|---------|-------------|------|------------------------|------|-------------|----------|--------------|------|
| | Poor (n=91) | | Fair (n=27) | | Good (n=18) | | Poor (n=10) | | Fair (n=13) | | Good (n=113) | |
| | N | % | n | % | N | % | N | % | N | % | n | % |
| Age | | | | | | | | | | | | |
| 30 < 40 | 14 | 15.4 | 4 | 14.8 | 1 | 5.6 | 1 | 10.0 | 2 | 15.4 | 16 | 14.2 |
| 40 < 50 | 21 | 23.1 | 4 | 14.8 | 6 | 33.3 | 4 | 40.0 | 3 | 23.1 | 24 | 21.2 |
| 50 ≤ 60 | 56 | 61.5 | 19 | 70.4 | 11 | 61.1 | 5 | 50.0 | 8 | 61.5 | 73 | 64.6 |
| Chi-Square | X ² =2.963 | | | P=0.564 | | | X ² =1.870 | | | P=0.760 | | |
| Sex | | | | | | | | | | | | |
| Male | 60 | 65.9 | 18 | 66.7 | 13 | 72.2 | 5 | 50.0 | 7 | 53.8 | 79 | 69.9 |
| Female | 31 | 34.1 | 9 | 33.3 | 5 | 27.8 | 5 | 50.0 | 6 | 46.2 | 34 | 30.1 |
| Chi-Square | X ² =0.269 | | | P=0.874 | | | X ² =2.753 | | | P=0.252 | | |
| Marital status | | | | | | | | | | | | |
| Single | 10 | 11.0 | 2 | 7.4 | 3 | 16.7 | 0 | 0.0 | 2 | 15.4 | 13 | 11.5 |
| Married | 65 | 71.4 | 16 | 59.3 | 11 | 61.1 | 7 | 70.0 | 9 | 69.2 | 76 | 67.3 |
| Divorced | 6 | 6.6 | 5 | 18.5 | 3 | 16.7 | 1 | 10.0 | 2 | 15.4 | 11 | 9.7 |
| Widow | 10 | 11.0 | 4 | 14.8 | 1 | 5.6 | 2 | 20.0 | 0 | 0.0 | 13 | 11.5 |
| Chi-Square | X ² =5.962 | | | P=0.428 | | | X ² =3.914 | | | P=0.688 | | |
| Level of education | | | | | | | | | | | | |
| Illiterate | 9 | 9.9 | 4 | 14.8 | 2 | 11.1 | 0 | 0.0 | 0 | 0.0 | 15 | 13.3 |
| Read and write | 31 | 34.1 | 8 | 29.6 | 9 | 50.0 | 5 | 50.0 | 9 | 69.2 | 34 | 30.1 |
| Secondary education | 45 | 49.5 | 10 | 37.0 | 4 | 22.2 | 3 | 30.0 | 2 | 15.4 | 54 | 47.8 |
| High education | 6 | 6.6 | 5 | 18.5 | 3 | 16.7 | 2 | 20.0 | 2 | 15.4 | 10 | 8.8 |
| Chi-Square | X ² =8.421 | | | P=0.209 | | | X ² =13.514 | | | P=0.036* | | |
| Occupation | | | | | | | | | | | | |
| Employee | 34 | 37.4 | 9 | 33.3 | 6 | 33.3 | 5 | 50.0 | 3 | 23.1 | 41 | 36.3 |
| Manual work | 7 | 7.7 | 1 | 3.7 | 2 | 11.1 | 0 | 0.0 | 2 | 15.4 | 8 | 7.1 |
| Craft work | 37 | 40.7 | 12 | 44.4 | 8 | 44.4 | 2 | 20.0 | 5 | 38.5 | 50 | 44.2 |
| Not working | 13 | 14.3 | 5 | 18.5 | 2 | 11.1 | 3 | 30.0 | 3 | 23.1 | 14 | 12.4 |
| Chi-Square | X ² =1.524 | | | P=0.958 | | | X ² =6.988 | | | P=0.322 | | |

Table 4. Association between the socio-demographic characteristics and Self-care practice checklist score

| Items | Pre | | | | Post | | | |
|---------------------------|------------------------|------|---------------------|------|-----------------------|------|----------------------|------|
| | Unsatisfactory (n=114) | | Satisfactory (n=22) | | Unsatisfactory (n=28) | | Satisfactory (n=108) | |
| | n | % | N | % | N | % | n | % |
| Age | | | | | | | | |
| 30 < 40 | 16 | 14.0 | 3 | 13.6 | 5 | 17.9 | 14 | 13.0 |
| 40 < 50 | 26 | 22.8 | 5 | 22.7 | 5 | 17.9 | 26 | 24.1 |
| 50 ≤ 60 | 72 | 63.2 | 14 | 63.6 | 18 | 64.3 | 68 | 63.0 |
| Chi-Square | X ² =0.003 | | P=0.999 | | X ² =0.764 | | P=0.682 | |
| Sex | | | | | | | | |
| Male | 76 | 66.7 | 15 | 68.2 | 15 | 53.6 | 76 | 70.4 |
| Female | 38 | 33.3 | 7 | 31.8 | 13 | 46.4 | 32 | 29.6 |
| Chi-Square | X ² =0.019 | | P=0.890 | | X ² =2.834 | | P=0.092 | |
| Marital status | | | | | | | | |
| Single | 14 | 12.3 | 1 | 4.5 | 1 | 3.6 | 14 | 13.0 |
| Married | 73 | 64.0 | 19 | 86.4 | 20 | 71.4 | 72 | 66.7 |
| Divorced | 13 | 11.4 | 1 | 4.5 | 2 | 7.1 | 12 | 11.1 |
| Widow | 14 | 12.3 | 1 | 4.5 | 5 | 17.9 | 10 | 9.3 |
| Chi-Square | X ² =4.203 | | P=0.240 | | X ² =3.683 | | P=0.298 | |
| Level of education | | | | | | | | |
| Illiterate | 14 | 12.3 | 1 | 4.5 | 3 | 10.7 | 12 | 11.1 |
| Read and write | 42 | 36.8 | 6 | 27.3 | 16 | 57.1 | 32 | 29.6 |
| Secondary education | 49 | 43.0 | 10 | 45.5 | 9 | 32.1 | 50 | 46.3 |
| High education | 9 | 7.9 | 5 | 22.7 | 0 | 0.0 | 14 | 13.0 |
| Chi-Square | X ² =5.446 | | P=0.142 | | X ² =9.428 | | P=0.024* | |
| Occupation | | | | | | | | |
| Employee | 37 | 32.5 | 12 | 54.5 | 13 | 46.4 | 36 | 33.3 |
| Manual work | 9 | 7.9 | 1 | 4.5 | 4 | 14.3 | 6 | 5.6 |
| Craft work | 52 | 45.6 | 5 | 22.7 | 6 | 21.4 | 51 | 47.2 |
| Not working | 16 | 14.0 | 4 | 18.2 | 5 | 17.9 | 15 | 13.9 |
| Chi-Square | | | | | | | | |

Table 5. Association between the socio-demographic characteristics and eye drop self-administration procedure score

| | Pre | | | | Post | | | |
|---------------------------|-----------------------|------|---------------------|------|------------------------|------|----------------------|------|
| | Unsatisfactory (n=96) | | Satisfactory (n=40) | | Unsatisfactory (n=18) | | Satisfactory (n=118) | |
| | n | % | N | % | n | % | N | % |
| Age | | | | | | | | |
| 30 < 40 | 16 | 16.7 | 3 | 7.5 | 4 | 22.2 | 15 | 12.7 |
| 40 < 50 | 24 | 25.0 | 7 | 17.5 | 2 | 11.1 | 29 | 24.6 |
| 50 ≤ 60 | 56 | 58.3 | 30 | 75.0 | 12 | 66.7 | 74 | 62.7 |
| Chi-Square | X ² =3.635 | | P=0.162 | | X ² =2.292 | | P=0.318 | |
| Sex | | | | | | | | |
| Male | 65 | 67.7 | 26 | 65.0 | 15 | 83.3 | 76 | 64.4 |
| Female | 31 | 32.3 | 14 | 35.0 | 3 | 16.7 | 42 | 35.6 |
| Chi-Square | X ² =0.094 | | P=0.760 | | X ² =2.527 | | P=0.112 | |
| Marital status | | | | | | | | |
| Single | 12 | 12.5 | 3 | 7.5 | 4 | 22.2 | 11 | 9.3 |
| Married | 60 | 62.5 | 32 | 80.0 | 12 | 66.7 | 80 | 67.8 |
| Divorced | 13 | 13.5 | 1 | 2.5 | 0 | 0.0 | 14 | 11.9 |
| Widow | 11 | 11.5 | 4 | 10.0 | 2 | 11.1 | 13 | 11.0 |
| Chi-Square | X ² =5.317 | | P=0.150 | | X ² =4.495 | | P=0.213 | |
| Level of education | | | | | | | | |
| Illiterate | 11 | 11.5 | 4 | 10.0 | 4 | 22.2 | 11 | 9.3 |
| Read and write | 36 | 37.5 | 12 | 30.0 | 14 | 77.8 | 34 | 28.8 |
| Secondary education | 42 | 43.8 | 17 | 42.5 | 0 | 0.0 | 59 | 50.0 |
| High education | 7 | 7.3 | 7 | 17.5 | 0 | 0.0 | 14 | 11.9 |
| Chi-Square | X ² =3.373 | | P=0.338 | | X ² =24.101 | | P<0.001** | |
| Occupation | | | | | | | | |
| Employee | 37 | 38.5 | 12 | 30.0 | 4 | 22.2 | 45 | 38.1 |
| Manual work | 8 | 8.3 | 2 | 5.0 | 1 | 5.6 | 9 | 7.6 |
| Craft work | 40 | 41.7 | 17 | 42.5 | 11 | 61.1 | 46 | 39.0 |
| Not working | 11 | 11.5 | 9 | 22.5 | 2 | 11.1 | 18 | 15.3 |
| Chi-Square | X ² =3.344 | | P=0.342 | | X ² =3.196 | | P=0.362 | |

Table 6. Association between the knowledge score and both Self-care practice and eye drop self-administration score

| | Pre | | | | | | Post | | | | | |
|-------------------------------------|-----------------------|------|-------------|------|-------------------------|------|-------------|-------|-------------|------|--------------|------|
| | Poor (n=91) | | Fair (n=27) | | Good (n=18) | | Poor (n=10) | | Fair (n=13) | | Good (n=113) | |
| | N | % | N | % | N | % | n | % | N | % | n | % |
| Self-care practice | | | | | | | | | | | | |
| Unsatisfactory | 76 | 83.5 | 23 | 85.2 | 15 | 83.3 | 5 | 50.0 | 7 | 53.8 | 16 | 14.2 |
| Satisfactory | 15 | 16.5 | 4 | 14.8 | 3 | 16.7 | 5 | 50.0 | 6 | 46.2 | 97 | 85.8 |
| Chi-Square | X ² =0.046 | | P=0.977 | | X ² =16.943 | | P<0.001** | | | | | |
| Eye drop self-administration | | | | | | | | | | | | |
| Unsatisfactory | 67 | 73.6 | 19 | 70.4 | 10 | 55.6 | 0 | 0.0 | 10 | 76.9 | 8 | 7.1 |
| Satisfactory | 24 | 26.4 | 8 | 29.6 | 8 | 44.4 | 10 | 100.0 | 3 | 23.1 | 105 | 92.9 |
| Chi-Square | X ² =2.364 | | P=0.307 | | X ² = 51.172 | | P<0.001** | | | | | |