Effect of Post Cataract Surgery Discharge Instructions on Reducing Eye Infection among Elderly Patients

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Abstract

Background: Cataract is a common serious eye disease among older adults and considered the major cause of blindness globally. The rate and risk of cataract surgery complications is greater among elderly people. **Aim of the study:** to evaluate the effect of post cataract surgery discharge instructions on reducing eye infection among elderly patients. **Research design:** Quasi-experimental research design was utilized in the current study. **Subjects**: A purposive sample of one hundred elderly patients was involved in the current study. **Setting:** The current study was carried out at ophthalmology department at Minia University Hospital. **Tools of data collection:** Three tools were utilized to collect data, **First Tool:** A Structured interviewing questionnaire sheet, included two main parts: socio-demographic data and medical profile, **Second Tool:** self-care compliance scale, **Third Tool:** Post-operative assessment tool. **Results:** There were highly statistically significant differences between study and control groups regarding post cataract infection manifestations at the three observations post operatively. **Conclusion:** The study findings concluded that, application of post cataract discharge instructions reflected significant impact on patient's outcomes, in which study group had low incidence rate of eye infection compared to control group. **Recommendations:** A continuous education and training should be offered on a regular basis for elderly patients undergoing cataract surgery.

Keywords: Cataract surgery, Discharge Instructions, Eye Infection, Elderly Patients

Introduction

Cataract is a common serious eye disease, considered the major cause of blindness globally. It is called a "disease of aging" and considered the leading cause of reversible visual impairment worldwide, affecting 95 million people globally. **(Jin, et al., 2018).** In Egypt there were about 1 million cases of blindness and about 3 million cases visually impaired as a result of cataract. Nearly 60% of the visually impaired in Egypt have cataract. **(WHO, 2018)**

Cataract disease can lead to major negative effects on the quality of older people's lives as it closely associated with increased risk for falling, fair or poor health status, restricted activity, impaired driving ability, and significant emotional distress for the patient as well as family members. When cataract affects the older adult's safety or quality of life, cataract surgery is usually recommended. **(Boyd, 2018).**

The rate and risk of cataract surgery complications has significantly decreased with better technique, but it is greater among elderly as a result of diminished immunity response, poor nutrition as well as normal age related changes and presence of comorbidities. Endophthalmitis considered the most feared and serious complication of intraocular surgery that result in irreversible blindness. **(Deborah, 2018)**

Several studies highlighted that, the implementation of post-operative discharge instructions is the primary concern of the postoperative nursing care that gives positive results in decreasing the incidence of complications, and help patients to return to their activities of daily living (ADLs) within a shorter period of time **(Taha and Abd Elaziz, 2015).**

Significance of the study:

Endophthalmitis is a nightmare for surgeons, hospitals, and undoubtedly for the patients. Postoperative endophthalmitis is the most common form of endophthalmitis ,it represents approximately 70% of all cases , about 90% of postoperative endophthalmitis occurs after cataract surgery as the most common intraocular surgery specially among elderly people , it's occurrence can lead to irreversible blindness in the infected eye within hours or days of symptom onset as well as increase in health care cost**. (Durand, 2017)**

Several studies revealed that endophthalmitis considered the most common complication after cataract surgery. One of these studies was conducted in Ophthalmology Department at Assiut University hospital. In this study, the investigator found that thirty one cases of endophthalmitis were clinically diagnosed after cataract surgery and recommended that patient education and self-care management postoperatively is very important in order to reduce the incidence of eye infection and to improve patient outcome. **(Gharamah, et al., 2012)**

In addition to, another study which conducted by **(Khattab and Abdel Fattah, 2014)** in Cairo University, who founded a fifty patients were clinically diagnosed as post-operative endophthalmitis, mainly after cataract surgery, who attended the Research Institute of Ophthalmology. The results revealed that, the most common isolated microorganism was Pseudomonas aeruginosa (57%) followed by Staphylococcus aureus (43%).

Aim of the study

The aim of the current study was to evaluate the effect of post cataract surgery discharge instructions on reducing eye infection among elderly patients.

Research hypothesis

Implementations of post cataract surgery discharge instructions will be reduce eye infection among elderly patients.

Research Design:

The quasi-experimental research design was utilized in the current study.

Subjects:

A purposive sample of one hundred elderly patients was involved in the current study according to the inclusion criteria, they classified into two equal groups (n= 50) for a control group and (n= 50) for study group according to the determination of the sample size based upon the following sample calculation formula.

$$N = \frac{t2 \quad x \quad p\,(1\text{-}p)}{m2}$$

$$N = \frac{(1.96)2 \quad x \quad 0.07\,(1\text{-}\,0.07)}{0.052}$$

N = 100 elderly patients

Inclusion criteria:

1) Patients 60 years and older of both sex.
2) Patients who are undergoing cataract surgery for first time in preoperative period.

Exclusion criteria:

1) Patients who have unstable and uncontrollable chronic disease.
2) Unable to communicate.
3) Refuse to participate.
4) Patients missed during follow up period.

Setting:

The current study was carried out at ophthalmology department and follow up was done at the ophthalmology outpatient clinics at Minia University Hospital.

Study Duration:

Data collection for this study was carried out through six months, from the beginning of January 2018 till the end of June 2018.

Tools of data collection

The data of this study was collected by using three tools.

1. First Tool:

A Structured interviewing questionnaire sheet was developed by the researcher in order to collect the necessary data from the patients based on relevant literature. (**Taha and Abd Elaziz, 2015)**. It was collected by the researcher at the first interview and it covered two main parts :

Part (I): Sociodemographic data: that included (age, sex, marital status, income, education, residence, job, and smoking habit).

Part (II): Medical profile: that included **(**previous eye disease and past medical history).

2. Second Tool: (self-care compliance scale):

This scale was used to evaluate patient's self-care compliance post cataract surgery. Adopted from **(Cho and Rho, 2012).** It included 4 domains as the following**: 1st one** was eye drops included 4 items: -(washing hands before the eye drops, not let the tip of bottle touch the eye or eyelid, instilling eye drops as indicated frequency, instilling different eye drops at 5-minute intervals)**. 2nd one** was hygiene included 3 items: - (washing hair but did not wet operated eye, washing face but did not wet operated eye, having shower but did not wet operated eye). **3rd one** was protection of operation site included 6 items: (applying eye shields during the bedtimes, avoid rubbing or compressing the eye, avoid sleeping on the side of operation or lying on face, avoid facing flame, avoid watching T.V for 7 days after surgery, avoid exposure the eye to sun rays, dirt and dust).**4th domain** was daily life included 2 items : (visiting the clinic on the reservation date of follow up, restricting outdoor activities and strenuous exercise like soccer and swimming).

The score for each item ranged from (1to 3),not done take score (1) ,done sometimes take score (2) ,done always take score (3).Scoring system for this scale calculated by the sum of patient's response, it ranges from 15 to 45. When patient's assessments range from (15 to 23) this mean low self-compliance but when he/ she have scored (24 to 32) this means has moderate self-compliance, finally if it equal (33 and more) indicate higher self-compliance. This scale was applied three times on patients (study group) through three observations (1st day, 7th days and 30th days) post operatively.

3-Third Tool: Post-operative assessment tool

Third tool was used to assess incidence of eye infection post cataract surgery adopted from **(Taha and Abd Elaziz, 2015)**. It was applied three times on both study and control groups through the three observations (1st day, 7th days and 30th days) post operatively through 10 closed-end questions, it included sudden/severe pain, persistent headache, redness, discharge, blurring, photophobia, floaters, difficulty to see TV, bruising of the eye or eyelids and difficulty recognizing faces.

Tools validity

The tools and scale content validity was done to identify the degree to which the used tools measure what was supposed to be measured? Developed tools and scales were examined by a panel of five expert's opinion in the field of medical-surgical nursing specialty and ophthalmology.

Reliability of tools

Tools reliability was done to identify the extent of tools items were measurable with the study concept and its correlation with each other. The reliability of self-care compliance scale was Cronbach's α= 0.8.

Pilot Study

A pilot study was carried out on 10% (10 patients) of the total sample to test feasibility, objectivity, and applicability of the data collection tool& scale. The pilot study sample was excluded from the study sample.

Ethical Consideration

An official permission to conduct the study was obtained from the ethical committee of the faculty of nursing, dean of nursing faculty, Minia University Hospital director, research center afflicted to Egypt Ministry of Health and agreement from Egypt academic for research center and technology. Subject's participation in this study was voluntary who was informed about the purpose, procedure, benefits, nature of the study, follow up and his/her had the right to withdraw from the study at any time without any rationale. Oral consent was obtained from subjects, informed them that obtained data will not be included at any further researches without a second consent. Confidentiality and anonymity of each subject were ensured through coding of all data and protecting the obtained data.

Procedure (Techniques for Data Collection):

The current study was conducted by preparing of different data collection tools, collection of study data was done through daily basis (3days per week) during morning or evening shift .Selected sample was admitted to ophthalmology department in preoperative period (day before surgery) patient who was scheduled for cataract surgery was informed by the investigator individually about purpose and nature of the study, then investigator obtained oral consent from those who accepted to participate in this study.

The investigator has started a collection of socio demographic data from control group firstly in three months by using the first tool preoperatively and follow up done by using the third tool three times post-operatively. While data collection from study group was started after finishing control group by using the first tool preoperatively, providing educational information and training practices for elderly patients undergoing cataract surgery, second tool, and third tool were used three times post-operatively.

Data collection for study sample was done in ophthalmology department first during their hospitalization (ranged from 1to 2days) then in outpatient clinic for follow-up. The total number of sessions for data collection & instruction session for the study group was 1-2 sessions. Session plane designed according span of attention and level of education of the elderly patients.

Educational brochure was prepared in Arabic language; it was formulated by investigator after reviewing related literature. **(Community Eye Health Journal, 2016), (Beth, et al., 2015).** It included:

- **Knowledge** about meaning, causes, risk factors, prevention, signs & symptoms, treatment, complication of eye cataract as well as home self-care after cataract surgery.
- **Practice** included: technique of eye drops administration and eye care.

Post cataract discharge instructions explained by investigator for patient and patient's family regarding use of eye drops, wearing eye shield, protection of the eye, precautions to prevent infection, unusual symptoms, follow–up as well as the investigator explained the steps and demonstrate application of instillation of eye drops technique and eye care, at the end of the session, a handout (photo brochure) was given to the patients or relatives including postoperative instructions.

Follow-up for all patients (study &control) started at 1st day 7th day and 30th day postoperatively through face to face interview to evaluate patients compliance with the given instructions (for the study group) and to assess signs and symptoms of eye infection (for both groups).Also, the investigator was encouraged patients for follow up visits through calling them at different time to ensure that, they are compline with the given instructions; patients not come at pre appointment follow up were excluded from the sample.

Statistical analysis of data:

Statistical analysis was done by using Statistical Package for the Social Science (SPSS 20.0). Quality control was done at the stages of coding and data entry. Data were presented by using descriptive statistics in the form of frequencies and percentage for qualitative variables, and mean & standard deviation (SD) for quantitative variable. Chi square was used to test the association between two qualitative variables and the sample size large. Fisher's exact test used to test the association between two qualitative variables and the sample size is small. Graphs were done for data visualization using Microsoft Excel. Correlation coefficient test was also used between two variables and statistical significance was considered at $p \leq 0.05$.

Results

Table (1): Distribution of the study and control group according to their socio-demographic data (n = 100)

Socio-Demographic data	Study group=50		Control group=50		Fisher / x^2	P – value
	No.	%	No.	%		
Sex						
Male	18	36.0	23	46.0	1.033	.309 NS
Female	32	64.0	27	54.0		
Marital status						
Married	25	50.0	32	64.0	4.835	0.089 NS
Divorced	0	.0	2	4.0		
Widow	25	50.0	16	32.0		
Age / Years						
60 to <65	25	50.0	21	42.0	.718	.698 NS
65 to 70	12	24.0	15	30.0		
70 and more	13	26.0	14	28.0		
Mean ± SD	63.8 ± 4.2		64.3 ± 4.2		t=1.315	.517
Residence						
Urban	1	2.0	4	8.0	1.895	.169 NS
Rural	49	98.0	46	92.0		
Education level						
Illiterate	35	70.0	41	82.0	8.724	.121 NS
Reads and write	7	14.0	9	18.0		
Primary	1	2.0	0	.0		
Secondary	4	8.0	0	.0		
University	2	4.0	0	.0		
Post graduate	1	2.0	0	.0		
Job						
Employ	2	4.0	1	2.0	2.833	.586 NS
Free work	1	2.0	3	6.0		
Farmer	3	6.0	5	10.0		
House wife	6	12.0	3	6.0		
Not work	38	76.0	38	76.0		
Smoking						

Socio-Demographic data	Study group=50		Control group=50		Fisher / x^2	P – value
	No.	%	No.	%		
Yes	9	18.0	9	18.0	.000	1.000
No	41	82.0	41	82.0		
Income level						
Sufficient	37	74.0	38	76.0	.053	.817
Not sufficient	13	26.0	12	24.0		

NS= not significant

Table (1) Showed that**,** females had the highest percentage 64% and 54% for the study and control group respectively. As regards marital status 50% and 64% were married for the study and control group respectively. In respect to the age, the mean age among study and control group was (63.8 ± 4.2 years and 64.3 ± 4.2 years) respectively. Concerning to residence; it was founded that 98 % and 92 %of study and control groups were lived in rural area respectively. As regarding to educational level; it was founded that, 70% and 82% of study and control group were illiterate respectively, while 76% of the study and control group not work.

As regarding to smoking habit, 82% weren't smoke for both groups. Related to income level, it sufficient, more than 70% for both study and control group. Lastly, there were no significant differences between study and control groups regarding socio demographic characteristics

Table (2): Distribution of the study and control group regarding to their medical profile (n = 100)

Medical data	Study group (n= 50)		Control group (n= 50)		Fisher / x^2	P – value
	No.	%	No.	%		
have any chronic disease						
Yes	25	50.0	27	54.0	.160	.689 NS
No	25	50.0	23	46.0		
If yes						
Diabetes mellitus	5	20.0	2	8.0	3.957	.06 NS
Hypertension	10	40.0	16	77.8	.023	.879 NS
Liver disease	0	.0	2	7.4	1.926	.165 NS
Cardiovascular	0	.0	2	7.4	1.926	.165 NS
Diabetes mellitus & Cardiovascular	3	12.0	0	.0	.315	.575 NS
Musculoskeletal	0	.0	1	3.7	.944	.331 NS
Respiratory disease	1	4.0	0	.0	1.101	. 294 NS
hypertension & Cancer	0	.0	1	3.7	.944	.z\331 NS
Diabetes mellitus & hypertension	6	24.0	3	12.0	1.895	.1zxc69 NS
Eye disease						
Yes	8	16.0	15	30.0	2.767	.096 NS
No	42	84.0	35	70.0		
If yes						
Eye allergies	4	50.0	7	46.7	.171	.679 NS
Eye inflammation	2	25.0	5	33.3	.014	.907 NS
Eye allergies& inflammation	2	25.0	3	20.0	.718	.698 NS

NS= No Significant difference

Table (2) illustrated that 50% of the study and control groups had chronic diseases .Percentage of hypertension (HTN) was 40% and 77.8% for the study and control groups respectively, followed by diabetes mellitus (DM). Respect to presence of eye disease, it was founded that 16% and30% of the study and control group had previous eye disease. Lastly, there were no significant differences between study and control groups regarding medical profile.

Table (3): Percentage distribution of the study group regarding to self- care compliance scale (n= 50)

Self- care compliance scale	1st day			7th day			30th day		
	Sometimes (2)	Always(3)	Never (1)	sometimes	Always	never	sometimes	always	never
	%	%	%	%	%	%	%	%	%
A-Eye drops									
1-Washing my hands before the eye drops	4.0	96.0	.0	.0	100.0	.0	.0	100.0	.0
2-Not let the tip of bottle touch the eye or eyelid	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
3-Instilling eye drops as indicated frequency	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
4-Instilling different eye drops at 5-minute intervals	4.0	96.0	.0	.0	100.0	.0	.0	100.0	.0
B-Hygiene									
1-Washing hair but did not wet in operated eye.	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
2-Having shower but did not wet in operated eye	0	100.0	.0	.0	100.0	.0	.0	100.0	.0
3-washing face but did not wet in operated eye	0	100.0	0	0	100.0	0	0	100.0	0
C-Protection of operation site									
1-Applying eye shields during the bedtimes	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
2-Avoid rubbing or compressing the eye	6.0	94.0	.0	.0	100.0	.0	.0	100.0	.0
3-Avoid sleeping on the side of operation or lying on your face	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
4-Avoid watching T.V for 7 days after surgery	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0

Self- care compliance scale	1st day			7th day			30th day		
	Sometimes (2)	Always(3)	Never (1)	sometimes	Always	never	sometimes	always	never
	%	%	%	%	%	%	%	%	%
5-Avoid exposure the eye to sun rays without eye glass	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
6-Avoid exposure to dirt, flame and dust.	2.0	98.0	.0	.0	100.0	.0	.0	100.0	.0
C-Daily life									
1-Visiting the clinic on the selected date for follow up (2nd – 7th and after one month)	4.0	96.0	.0	.0	100.0	.0	.0	100.0	.0
2-Restricting outdoor activities and strenuous exercise	4.0	96.0	0	0	100.0	0	0	100.0	0

Table (3) displayed that; more than 90% the study group were compline with the self-care instruction post operatively.

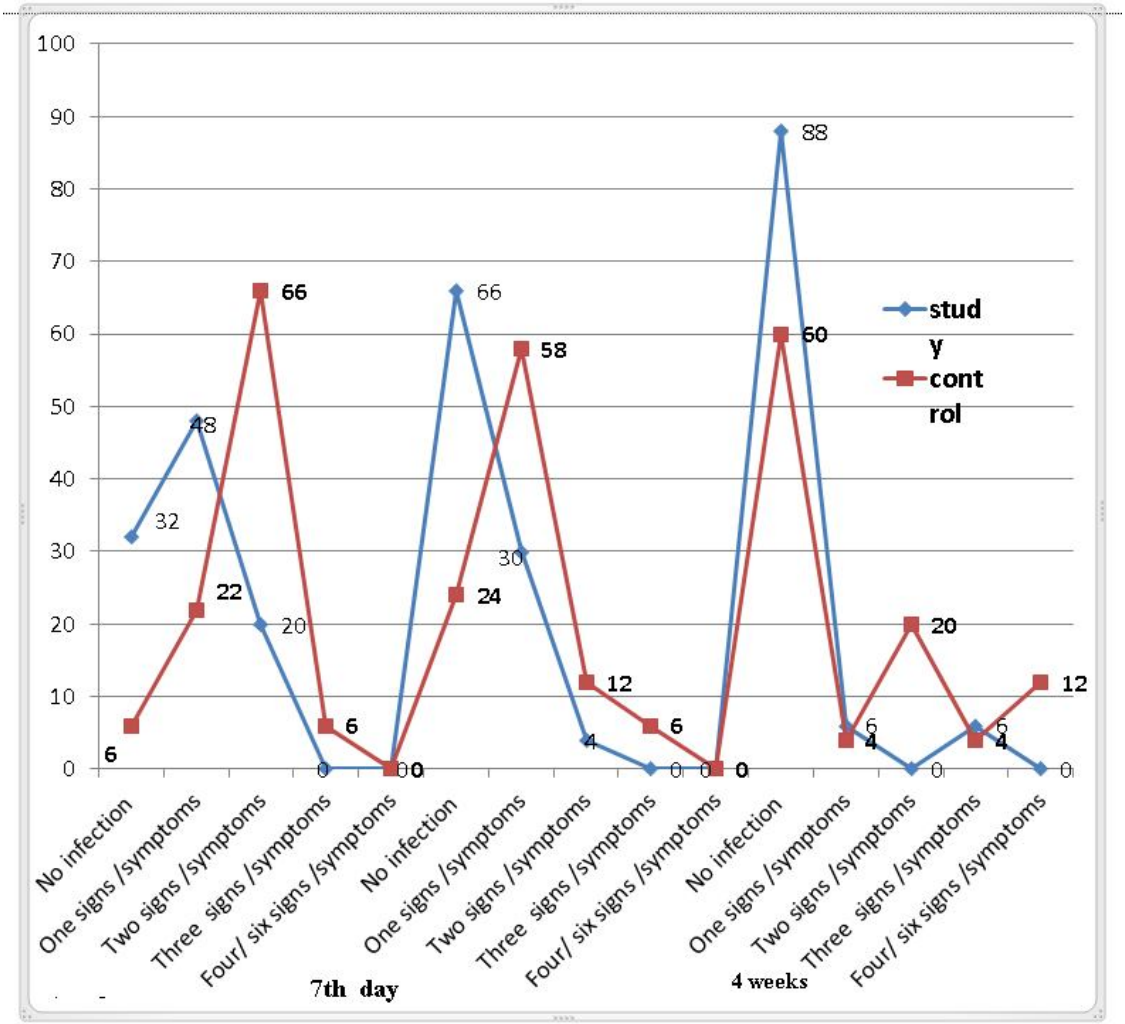

Figure (1) Percentage distribution of the study and control groups according to presence of eye infection manifestation after cataract surgery

Figure (1) Displayed that 32% of the study group had no signs of infection compared to 6% of the control group didn't had any signs of infection in 1st day after operation. Also 66% of the study group had no signs of infection in 7th day after operation compared to 24% of the control group. While 88 % of the study group had no signs of infection compared to 60% of the control group didn't had signs of infection in 4th week post operatively with statistical significance difference.

Discussion

Cataract is a common serious eye disease among older adults, considered the major cause of blindness globally. The rate and risk of cataract surgery complications is greater among elderly people. Nurse plays an important role in all aspects of cataract surgery focusing on post cataract surgery instructions and home self-care to prevent eye infection. .

The aim of this study was to evaluate the effect of post cataract surgery discharge instructions on reducing eye infection among elderly patients.

Result of current study demonstrated that ,the mean age among study and control group was (63.8 ± 4.2 years and 64.3 ± 4.2 years) respectively; this due to ageing process, physiological changes that affect eye structure and chronic diseases among elderly which have systemic effects as DM.

Findings of the present study was compatible with the study conducted in India by (Singh, et al., 2019), who reported that, the mean age for cataract surgery was (64.3±5.1 years and 66.4±6.4). Also (El-Shamy, et al., 2017) concluded that, the age of the patients undergoing cataract surgery was

50 years old and more, further validation by (Pundareekaksha, 2016) who documented that, the average age for cataract surgery is 64 to 65 years.

In the current study, it has been noticed, that more than half of the total sample was female, this is can be discussed as decline level of estrogen at menopause cause increased risk of cataract in women, as known estrogens produce several anti-aging effects including anti-oxidative properties, because oxidative stress is considered the most important cause in cataract genesis, in addition to lifestyle-related factors in rural areas as continuous exposure of the female to the risks of house work as dust , steam at the kitchen, animals in the house ,preparing fertilizers for cultivation, also in rural areas females less likely to receive cataract surgery than men, and tend to seek surgery later.

These findings supported by (Elgazar, et al., 2016) who stated that, more than two thirds of the studied patients was female regarding to cataract surgery. Also further support by (El-Shamy, et al., 2017) who documented that, more than half of the patients undergoing cataract surgery were females. While the result of current study disagree with the study conducted by (Alanazi, et al., 2017) in Northern Saudi Arabia, who mentioned that, around and more than half of the total sample undergoing cataract repair was male.

The present study findings showed that, the highest percentage of the studied sample was married. Results of the current study were compatible with (Elgazar, et al., 2016) who reported that, more than two thirds of the studied sample was married. This results also validated by (Flayeh, 2017) who stated that, about three quarter of studied sample was married.

The participated sample findings represented that, majority of the study and control group come from rural areas .This may be due lack of health awareness about the minor health problems which can be converted into severe diseases lead to blindness as well as lack of health care services in rural areas. This result disagreed with the results of the study which carried out in Baghdad city by (Flayeh, et al., 2017), who stated that, more than two thirds of studied sample lives in urban.

Concerning educational level the study reflected that, majority of the studied patients were illiterate. This may be rationalized as in the past there was no interest in education so, illiteracy was common among elderly that lead to lack of health awareness.

This result is consistent with (El-Shamy, et al., 2017), who stated that, more than two thirds of studied patients were illiterate, also this result validated by (Taha and Abd Elaziz, 2015), who reported that, near three quarter of the studied sample had no formal education.

Findings of the present study showed that majority of the studied patients were not work, as majority of the studied patient were females from rural areas and housewife, also elderly people had been retired at age of sixty in Egypt.

This result agreed with (Taha and Abd Elaziz, 2015), who stated that, about three quarter of the studied sample unemployed. Also supported by (Beth, et al., 2015) and (Alanazi, et al., 2017) who stated that, majority of studied sample not work.

Findings of the present study showed that, majority of the studied patients weren't smoker as the highest percent of them was female. This result is similar to the study of (El-Shamy, et al., 2017) who stated that; majority of the studied patients had never smoked. Also supported by (Elgazar , et al., 2016), who reported that, minority of the patients were smokers.

The participated sample findings represented that; about three quarter of the studied sample had sufficient income, as most of them lives with their family .This finding was in accordance with (Alanazi , et al., 2017) ,who mentioned that, three quarter of the studied cataract cases had enough income. While this result was in contradiction with, (Hegazy, et al., 2012) who found that two thirds of the patients had not enough income.

Current study results represented that, more than half of the patients had chronic diseases, as a result of ageing accompanied with increase in the prevalence of systemic chronic diseases mainly HTN and DM that lead to pathologies in many tissues in the eye structure, with both a systemic chronic metabolic disease and a microangiopathic character which lead to cataract formation. On other hand HTN and advanced age are the main risk factors of atherosclerosis with possible subsequent inflammation in the blood vessels beside elevation of inflammatory cytokines and C-reactive protein (CRP) level when the individual blood pressure rises, cataract formation is closely related to intense systemic inflammation and structure alteration of proteins in lens capsules which induced by HTN.

This result was in consistent with (El-Shamy, et al., 2017), who demonstrated in his study that, two thirds of patients had past medical history. Further support by (Thanigasalam, et al., 2015), who said that, systemic comorbidities were present in more than two thirds of the patients included in his study.

The present study findings revealed that, one quarter of both groups had previous eye disease. This result supported by (Thanigasalam, et al., 2015), who said that, ocular comorbidities were present in about one quarter of the studied patients.

The current study data represented that, the highest majority of the study group were adherent with the self-care instruction postoperatively, this due to social support as the most of patients living with family with sufficient income, social support indirectly influenced self-care compliance through enhancing self-efficacy and reducing anxiety ,in addition, nurses' counseling and education among outpatients during follow-up period as a form of social support enhance self-efficacy and self-care compliance.

These results were in accordance with, (El Shafaey and Basal, 2018), who said that, majority of studied patients perform self-care practices. This confirmed by (Cho and Rho, 2012), who found that, most of the patients were in compline with post-operative instructions.

Regarding the distribution of the study and control groups according to presence of eye infection manifestation after cataract surgery, the current study revealed that, statistically significant differences in relation to study group fewer numbers of them complained of eye infection after cataract surgery than control group due to applying post cataract surgery instructions accurately, patient's adherence to treatment is a key mediator between the medical practice and patient's outcomes.

These results were in agree with (Cho and Rho, 2012), additionally (Flayeh, et al., 2017), who documented that, effectiveness of an instructional program on adult Cataract patients' knowledge concerning prevent post-operative complications had appositive highly significant rate.

Conclusions:

Application of post cataract surgery discharge instructions for elderly patients undergoing cataract surgery reflected significant impact on patient's outcomes, study group had low incidence rate of eye infection compared to control group.

Recommendations:

Recommendations for Ophthalmology department and nurses:

- A continuous educational and training program for staff nurses planned and offered on regular basis for patients undergoing cataract surgery, including post cataract surgery discharge instructions and home care.
- Written Arabic booklets or brochure and posters including post cataract discharge instructions should be available at health care settings and given to elderly patients and their care givers
- The mass media should be used more effectively to improve awareness of the public specially the older adults and their care giver about disease, methods of treatment and prevention.

Recommendations for Patients:

- Planning educational classes for elderly people about age related changes that affect their vision as cataract disease, it's risk factors, treatment, complications and prevention, through home visit in their health care settings.
- Focusing on geriatric to be a part of training programs for all health care professionals in all health care settings to ensure providing care based on gerontological considerations to improve their health.

Recommendations for further researches:

- Replication of the current study on a larger probability sample from different geographical areas to achieve generalizable results.

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