

Effect of Comprehensive Nursing Intervention on Patient's Knowledge, Anxiety and Self-care Practice following Vitrectomy for Diabetic Retinopathy

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Abstract

Background: Diabetic retinopathy is a major health problem that is consider the first cause of blindness worldwide. Nurses play a crucial role in managing patients undergoing vitrectomy for diabetic retinopathy. Vitrectomy which plays a vital role in the treatment of severe complications of diabetic retinopathy. **Aim:** This study was conducted to evaluate the effect of comprehensive nursing intervention on patient' knowledge, anxiety and self-care practice following vitrectomy for diabetic retinopathy. **Design:** Quasi-experimental design was applied in this study. **Subject:** purposive sample of 60 adult patients, they were distributed equally to control and study groups (30 for each). **Setting:** Data were collected from the Ophthalmology Diagnostic Laser Unit at El Kaser Al Ani hospital, affiliated to Cairo University, Cairo, Egypt. **Tools:** Data were collected through four tools. Tool(1) Structured Interview questionnaire; Tool(2) Patient's Knowledge Assessment Questionnaire; Tool(3) self-care compliance scale; and Tool(4) Hamilton Anxiety Rating Scale (HAM-A) **Result:** there is an improvement of patients' level of knowledge, level of anxiety post comprehensive nursing intervention program. While there is a highly statistically significant improvement of patients regarding self-care practice ($P>0.001$) post comprehensive nursing intervention program for diabetic retinopathy patients following vitrectomy. **Conclusion:** The finding of the study concluded that, diabetic retinopathy patients following vitrectomy who receive comprehensive nursing intervention improve their knowledge, self-care practices and decrease level of anxiety. **Recommendation:** Comprehensive nursing intervention for diabetic retinopathy patients following vitrectomy is essential.

Key words: comprehensive nursing intervention, Diabetic retinopathy, self-care vitrectomy, practice

Introduction:

Diabetic retinopathy (DR) is a group of fundus disorders caused by long-term, progressive diabetes that are distinguished by retinal microvascular leakage and obstruction. It is a serious microvascular consequence of diabetes that can have a big effect on a patient's vision. It can potentially cause blindness if treatment is not received, which would significantly obstacles patient is performing daily life activities **(Wufuer, et al., 2024 and Galiero, et al., 2023)**. **Researches emphasis that 422 million people with diabetes globally reside in low- and middle-income nations, and the disease is directly responsible for 1.5 million each year (WHO, 2023).**

According to the latest data, 463 million adults currently have diabetes internationally, with China ranking first. Approximately 60% of diabetics will develop DR. Diabetic retinopathy (DR) is one of the major microvascular complications among diabetics and the (DR) is one of the common visually impairing complications **(Zhang, et al., 2023)**.

One of the main complications of diabetes that can lead to blindness is diabetic retinopathy. In order to treat DR effectively, systemic management of blood pressure, cholesterol, and hyperglycemia is necessary in addition to local treatments like vitrectomy. Damage to the retina's blood vessels occurs in DR, and when the condition worsens, vitrectomy is frequently required as a surgical procedure. The light-sensing tissue in the rear of the eye

is called the retina. What fills the center of the eye is a clear, jelly-like fluid called vitreous. **(Zou, et al., 2022 and Park, et al., 2021, Lim, 2019)**

Numerous disorders, including proliferative diabetic retinopathy, proliferative retinopathy after vascular occlusion and vasculitis, trauma, retinal breaks, and posterior vitreous detachment without retinal break, are linked to vitreous hemorrhage. Numerous factors, such as the rupture of aberrant or normal arteries or the extension of blood from a nearby source, can result in vitreous hemorrhage **(Shaikh, et al., 2023)**.

When it comes to treating serious DR problems, vitrectomy is essential. Vitrectomy is used to control the formation of scar tissue that may impair vision and to remove blood from the retinal blood vessels that have bled from the vitreous gel inside the eye. Putting up with improved retinal therapy and vision **(Johns Hopkins Medicine, 2024 and Elsevier patient education, 2024)**. Vitreal hemorrhage, retinal detachment, increased intraocular pressure (IOP), infection and inflammation, neovascular glaucoma, and double vision are among the most frequent side effects **(Belin, and Parke 2020)**. For patients following vitrectomy surgery, comprehensive nurse intervention is essential to ensuring the best possible recovery and addressing any potential problems. These are the main elements of nursing care before, during, and after surgery. Comprehensive patient education about vitrectomy, including its goal, risk factors, and the significance of adhering

to postoperative instructions, should be given by the preoperative nurse. The nurse should also perform a preoperative evaluation, which should include a review of the patient's medical history, current medications, and any allergies. This aids in creating a nursing care plan based on the requirements of the patient. Additionally, the nurse produces a preoperative instruction package that includes nutritional guidelines, small meals, and self-care practices before to hospitalization **(NHS, 2024)**.

The nurse helps during the intraoperative period by setting up equipment, keeping an eye on vital signs, and maintaining a clean environment. Additionally, the nurse provides reassurance and emotional support to those who are experiencing anxiety. The nurse checks vital signs and examines the eye for any indications of complications, such as increased redness, swelling, or discharge, during the post-operative phase. The nurses also give out painkillers and medications. Put an eye patch on. Instruct the patient to maintain head position if a gas bubble is used during surgery to ensure appropriate recovery **(Johns Hopkins Medicine, 2024)**.

Establishing a positive nurse-patient connection initially, offering an efficient, all-encompassing nursing intervention, and creating an educational program on the self-care practices of patients with DR after vitrectomy are all ways that nurses can encourage patients to share in their self-

care practices. Increased illness information, help people understand appropriate self-care techniques, better adherence to recommended therapy, strict blood glucose control, and reduced anxiety are all part of the educational program. To motivate individuals who are at risk to seek prompt and appropriate care, appropriate health education is essential. Additionally, this will need creating instructional resources that are clear, concise, and culturally relevant in light of the community's current knowledge, attitudes, and behaviors.

(Khalaf, 2019, and Wufuer, et al., 2024).

Significance of the study:

According to these statistics, diabetes mellitus is a serious worldwide health issue that requires immediate attention **(Zhang, et al., 2023)**. As a result, DR, a microvascular consequence of diabetes, is becoming more common in Egyptians. According to researches 2014 assessment, 5% of diabetic individuals are legally blind, while 42% of them have retinopathy **(Elmassry, et al., 2023)**.

In Egypt, the prevalence of retinopathy caused by chronic diabetic complications increased from 8.1% to 41.5%. One significant public health issue that has a detrimental impact on patients' quality of life is visual impairment brought on by DR. Most diabetes people who lose their vision do so because they are unaware of their condition rather than because they are unable to treat it **(Safaan, et al., 2023)**. 83% of patients with diabetic

retinopathy and 78% of patients with vision-threatening disease did not know they had the condition at their initial visit (**Singh, et al.,2022 and Mostafa, 2023**).

Visual impairment brought on by DR and the expenses of treating it have a significant negative impact on patients' quality of life and place a significant financial strain on society. Boundaries resulting from it can produce psychological and environmental-social problems, as well as impact several parts of the patient's life. Decreased productivity and quality of life, which, when combined with depression brought on by vision loss and stress from not being able to perform everyday tasks, lower the patient's quality of life (**Beaser, & Howson, 2018 and Saffan, et al., 2023**).

Aim of the study:

This study aims to evaluate the effect of comprehensive nursing intervention on patient' knowledge, anxiety and self-care practice following vitrectomy for diabetic retinopathy.

Research hypothesis:

H₁. Patients who received the comprehensive nursing intervention exhibit improved knowledge, for vitrectomy than the patients who don't follow the comprehensive nursing intervention

H₂Patients who received the comprehensive nursing intervention exhibit improved self-care practices for vitrectomy than the patients who don't follow the comprehensive nursing intervention

H₃. Patients who received the comprehensive nursing intervention exhibit decrease level of anxiety post vitrectomy than the patients who don't follow the comprehensive nursing intervention

Subject &Methods:

Research design:

A quasi-experimental research design, was utilize to conduct the study. which involved the use of control and study approaches for patients.

Setting:

This study subject was recruited from Ophthalmology Diagnostic Laser Unit at Al Kaser Al Ani hospital, affiliated to Cairo University, Cairo, Egypt. The sitting composed of operating room, service of ophthalmology condition for outpatients and inpatients clinics, all of them in the in the ninth floor at emergency & surgery building.

Subjects:

The study subjects comprised a purposive sample of 60 adult patients. They were distributed equally into control and study groups (30 for each). All studied patients were selected according to the following criteria:

- Male and female adult patients ranging from 20-60 years old.
- Undergoing vitrectomy surgery pre, during, and post-surgery
- Able to communicate effectively and follow instructions.
- Patients had smart phones and was able to use WhatsApp group to follow patient and give instruction during saying at home
- Exclusion criteria were patients with serious cardiovascular or

cerebrovascular diseases, mental disturbances.

- **Sample size calculation:**

The sample size calculation was done by subject size calculator program with confidence level at 95 %, accepted error d =error proportion (0.05) and p =probability (50%) =0.50. Population size 63, minimal sample size =50, increased to 75.

Tools for data collection:

In order to fulfill the objective of the study, four tools were used for data collection.

Tool I: Structured interview questionnaire for patients with diabetic retinopathy undergoing vitrectomy.

This tool was developed by the researchers after reviewing the related literatures, to collect baseline data. It was divided into two parts as the following:

Part 1: Patient's socio demographic characteristics: Including age, gender, marital status, level of education, occupation, residence, and monthly income.

Part 2: Patient's medical profile: Including indication for surgery, previous eye surgery, affected eye, type of anesthesia, complaint of other chronic diseases.

Tool II: Patient's Knowledge Assessment Questionnaire:

This part was designed to assess patient's knowledge regarding DR, treatment methods and their advantages and disadvantages, surgery indication, complications, nursing requirements before, during and after surgery, eye

care, postural activity, and diet control. it was adapted from (American Academy of ophthalmology, 2021), it consisted of 30 questions. Answers were scored as the following:

Correct answer was scored =1

Incorrect answer or don't know was scored =0

Scoring System:

-The total score was evaluated as the following:

-Poor less than 50% (less than score 15)

- Fair 50-60% (score 15 - 18)

- Good more than 60% (more than score 18)

Tool III: self-care compliance scale:

This tool was adopted from (Cho and Rho, 2012) to assess self-care practice for patient with diabetic retinopathy patient undergoing vitrectomy. It consists 15(items) distributed in four domains. Eye drops administration (4 items), eye care (3 items), protection of operation site (6 items), and daily life activities (2 items). Each item is scored according to a 3-point Likert scale ranging from 1 (never carry out the self-care) to 3 (Always carry out the self-care).

Scoring system:

15 points with Likert scale 1-3 -with total score 45 divided as following:

- Inadequate self -compliance from (15-23)

- Adequate self-compliance from (more than 24)

Tool IV: Hamilton Anxiety Rating Scale (HAM-A):

This tool was adopted from (Maier, et al.,1988) to assess the severity symptoms of anxiety. The scale consists

of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety).

Scoring system: Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56. The result of evaluation can be interpreted as the following:

- 17 or less indicates mild anxiety
- 18-24 indicates mild to moderate anxiety
- 25–30 moderate to severe

Ethical considerations

It was approved by the Research Ethics Committee at the Faculty of Nursing, Damanhour University, before the beginning of the actual work. After describing the aim, methods, and significance of the study, the hospital director official approval was approved and was obtained from the directors of ophthalmology department to get their permission to conduct the study. Furthermore, after explaining the purpose of the study to the studied patients' written & oral agreement was obtained. They received guarantees about the privacy of the information gathered. The studied patients were informed of their right to participate in the study or not, as well as their right to withdraw from it at any moment.

Content validity:

A panel of five professors from Adult Health Nursing Department. Faculty of Nursing, Damanhour University and Helwan University, reviewed the tools for clarity, relevance.

Comprehensiveness, understanding and applicability.

Reliability:

The reliability of the added question was assessed by using test-retest for a group of 10 patients who were asked to answer the questions and were asked to answer the same questions after two weeks. The answers in the two testing were analyzed and computed for reliability. It reaches 85% ($r = 0.85$), which is considered reliable. A pilot study was performed to test the practicality and applicability of the tools and to determine any obstacles that may be encountered during the period of data collection.

Field of work:

The data was collected from the beginning of October 2023 to end of March 2024 Ophthalmology Diagnostic Laser Unit at Al Kaser Al Ani hospital, affiliated to Cairo University, Cairo, Egypt. Patients were interviewed in ophthalmology department 3 days per week (Saturday, Sunday, and Monday) in the morning shift from 9 am to 2 pm. Data were collected at three time periods: day before operation, second day of operation, and after one month for follow up (during this month there is a follow up instruction through what's App).

The study was recruited through four phases, namely; assessment, planning, implementation and evaluation phase.

1. Assessment phase:

Researchers conducted initial assessment through individual interview with each studied patient, to assess baseline data about sociodemographic characteristics,

medical profile, patient's level of knowledge, self-care practices and level of anxiety symptoms, using tool I, II, III, and IV. A simple introduction about the aim and duration of the study was done; it took between 20 and 30 minutes.

2. Planning phase:

- According to the data collected from the initial assessment phase, the planning of comprehensive nursing intervention was developed for patients by the researchers to determine the objective of the study

An Arabic leaflet for diabetic retinopathy patients undergoing vitrectomy, regarding self-care practice and needed information about vitrectomy surgery procedure pre, during, and post operative care including indication for surgery, postoperative position, eye care, use of eye drops, post operative self-care regimen developed by researchers based on studied patients' needs identified during the assessment phase. The researcher's interview with patient 3 sessions (day of surgery, second day of surgery and after one month for follow up) . Each session takes 10-15 minutes. Number of patients in each session about 2-3 patient according to schedule of surgery.

3. Implementation phase:

- Comprehensive nursing intervention was given in simplified Arabic language, in 2 theoretical part of vitrectomy as (definition of vitrectomy surgery, causes, indication, nursing care, and discharge instructions), and 2 practical sessions related to vitrectomy

surgery (application of eye care, eye drops, and eye ointment).

- The teaching session was given preoperatively using demonstrations and redemonstration.
- Each session lasted from 10 to 15 minutes. Each session began with a review of the previous session and the objectives of the present one.
- Comprehensive nursing intervention was given for the study group only, the control group was given the hospital routine care.

4. Evaluation phase: The researchers evaluate the effect of implementing the comprehensive nursing intervention on patients' knowledge, and self-care practices, anxiety level immediately postoperatively before discharge for both control and study groups. The follow up was done one month post implantation of comprehensive nursing intervention to evaluate the patient's retention of the knowledge and self-care they have learned. And assess level of anxiety. The goal of establishing this interval was to evaluate if interventions were beneficial after a period of implementation. Communication with the studied patients was maintained through a WhatsApp group to answer questions, and to raise or schedule for follow-up meeting.

Statistical analysis:

Results were tabulated and statistically analyzed using standard computer program using SPSS V.24 program. Categorical variables were described by number and percent (N, %), where continuous variables described by mean and standard deviation (Mean, SD).

Chi-square test, ANOVA and Fisher exact, regression test used to compare between categorical variables $p < 0.05$ was considered statistically significant.

Results: Distribution of the studied patients regarding to socio demographic characteristics (Table 1): Represents that (56.7%) in the control group their aged was range (45-60) years, with mean age $X \pm SD$ (49.3 \pm 5.6). (63.3%) of the study group in the same age group (45-60) years old with $X \pm SD$ (43 \pm 3.54). Regarding gender (56.7%) of the control group was male and (60%) of the study group was male and also. Regarding marital status, (36.6%, 43.3%) was married in control and study group respectively. In addition, (40%, 33.3%) was read and write in the control and study group respectively. Regarding occupation 43.3% of the control group has a manual work. While (40%) of the study group was employee. In consideration of area of residence (53.3%, 63.3%) of the control and study group respectively was live in ruler area. Regarding monthly income, (63.3%, 75.7%) have a sufficient income in the control, and study group respectively. Regarding treatment system, (66.7%, 73.3%) has a health insurance in the control and study group respectively.

Distribution of the studied patients regarding medical profile (Table 2): Mentions that (33.3%) of the control group has an indication of the surgery resulting from macular hole, and (40%) of the study group has the same cause. Regarding affected eye (66.7%, 60%) has left eye affection in control and

study group respectively. Regarding type of anesthesia used in the operation (70%) of the control group has a local anesthesia while (76.7%) of the study group has the same type of anesthesia. In consideration of chronic disease, the patients in the control group (83.3%) complain of diabetes and (86.3%) of them has hypertension, while in the study group (70%) has a diabetes and (73.3%) has other diseases. Regarding previous eye surgery (43.3%) of patients in the control group has a previous eye surgery, while (60%) of them in the study group pass a previous eye surgery, **Satisfactory level of knowledge for studied patients (Figure 1):** Illustrates that 20% of the control group has a good level of knowledge in pre intervention, and improved to 30% in post, and follow up stages with no great change in their level of knowledge. While in study group 20% has a good level of knowledge in pre intervention stage, while in post increased to be 76.7% and in follow up become 66.7%. **Total level of anxiety for studied patients (Table 3):** illustrates that concerning control group 32% of the studied patients has a severe anxiety, 42% has a moderate level of anxiety while just 2% has a minimal level of anxiety in pre intervention, and changed to become 29% has a severe anxiety and 37% has a moderate level of anxiety while the patients has a minimal level of anxiety increased to 10% in post, and regarding follow up stages there was a great change, 14% has severe anxiety level while 25% has a moderate level of anxiety and 28% has a minimal anxiety

level. Regarding study group 46% of studied patients has a severe level of anxiety, 30% has a moderate level of anxiety while just 3% has a minimal level of anxiety in pre intervention, and improved to become 10% has a severe anxiety and 6% has a moderate level of anxiety while the patients has a minimal level of anxiety increased to 62% in post, and regarding follow up stages there was a great improvement, 18% has severe anxiety level while 10% has a moderate level of anxiety and 51% has a minimal anxiety level.

Comparison between studied patients (Table 4): Clarifies that 83.3% of the control group has an adequate level of self-care practices in pre, post, and follow up stages with no significance difference or change in their level, and their $X \pm SD$ was (30.2 \pm 2.6, 33.4 \pm 5.1, 32.4 \pm 5.3) in pre, post and follow up respectively. While in study group the result reflects that 76.7% has an adequate level of self-care in pre stage with $X \pm SD$ 35.4 \pm 2.3, in post become 100% with $X \pm SD$ 42.1 \pm 2.5 and in follow up become 96.7% with $X \pm SD$ 40.1 \pm 3.5, which reflects a highly statistically significant improvement ($P < 0.001$).

Patient self-care compliance level for studied patients? Figure (2) Shows that

83.3% of the control group has an adequate level of self-care compliance in pre, post, and follow up stages with no significance difference or change in their level of compliance. While in study group the result reflects that 76.7% has an adequate level of self-care compliance in pre stage, in post become 100% and in follow up become 96.7%.

The correlation between patient's level of knowledge improvement and self-care level in control group Table (5): Presents that, there was no significant correlation between knowledge, and self-care compliance in the control group ($P > 0.05$).

The correlation between patient's level of knowledge improvement and self-care level in study group (Table 6): shows that, there was a highly statistically significant relation between level of knowledge improvement and self-care compliance level with ($P < 0.001$) in study group.

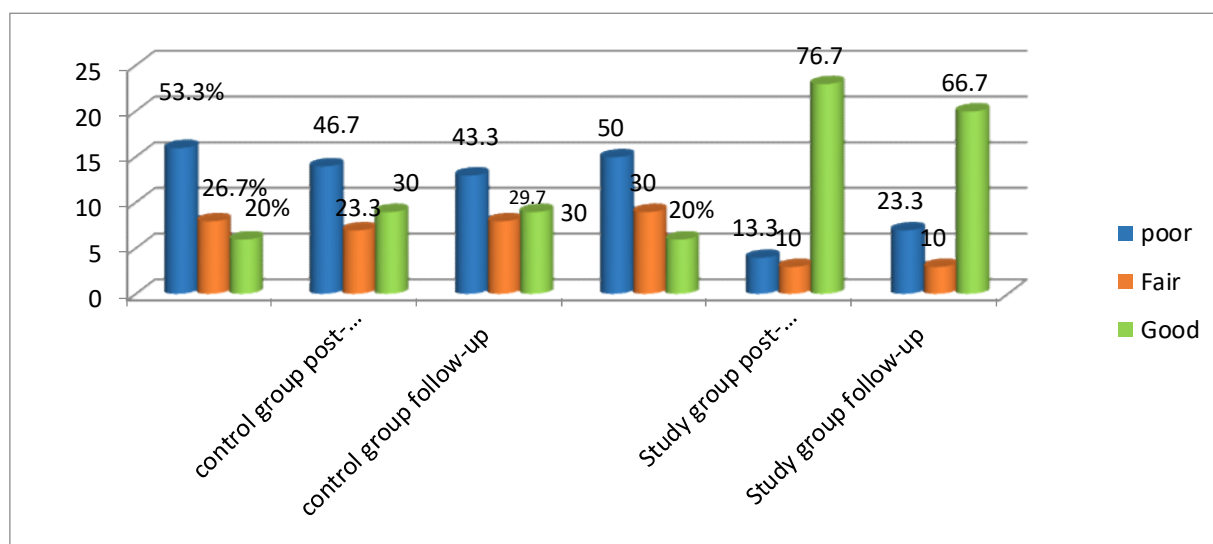
The correlation between patient's level of knowledge their level of anxiety regarding studied patients Table (7): presents that, there was a highly statistically significant relation between level of knowledge improvement and level of anxiety with ($P < 0.001$).

Table (1): Frequency Distribution of the studied patients regarding to socio demographic characteristics (n= 60)

Variable	Control group (n= 30)		Study group (n= 30)		P
	NO	%	NO	%	
Age					
20< 35	6	20%	5	16.7%	
35 < 45	7	23.3%	6	20%	
45-60	17	56.7%	19	63.3%	0.324
	Mean= 49.3 ±5.6				
Gender					
Male	17	56.7%	18	60%	
Female	13	43.3%	12	40%	0.384
Marital status					
Single	7	23.4%	5	16.7%	
Married	11	36.6%	13	43.3%	
Divorced	4	13.3%	5	16.7%	
Widow	8	26.7%	7	23.3%	0.253
Education level					
Illiterate	6	20%	7	23.3%	
Read and write	12	40%	10	33.3%	
Primary school	4	13.3%	5	16.7%	
Secondary school	6	20%	5	16.7%	
Highly educated	2	6.7%	3	10%	0.430
Occupation					
Not working	7	23.3%	9	30%	
Employee	10	33.3%	12	40%	
Manual	13	43.3%	9	30%	0.542
Area of residence					
Urban	14	46.7%	11	36.7%	
Rural	16	53.3%	19	63.3%	0.301
Monthly income					
Sufficient	19	63.3%	23	75.7%	
Insufficient	11	36.7%	7	23.3%	0.300
Treatment system					
Health insurance	20	66.7%	22	73.3%	
State expenditure	10	33.3%	8	26.7%	0.734

Table (2): Frequency Distribution of the studied patients regarding medical profile (N=60)

Variable	Control group (n=30)		Study group (n= 30)		P
	NO	%	NO	%	
Indication for surgery					
Vitreous hemorrhage	9	30%	10	33.3%	
Macular hole	10	33.3%	12	40 %	
Retinal detachment	4	13.3%	5	16.7%	
Others	7	23.3%	3	10%	0.356
Affected eye					
Right	10	33.3%	12	40%	
Left	20	66.7%	18	60 %	0.523
Type of anesthesia					
Local	21	70%	23	76.7%	
General	9	30%	7	23.3%	0.238
Presence of chronic disease					
Yes	28	93.3%	25	83.3%	
No	2	6.7%	5	16.7%	0.251
If yes describe					
D M	25	83.3%	21	70%	
Hypertension	26	86.7%	19	63.3%	
Others	18	60%	22	73.3%	0.381
Previous eye surgery					
Yes	13	43.3%	18	60%	
No	17	56.7%	12	40%	0.302



-Poor: score < 50.0%

-Fair: score 50.0 % - 75.0%

-Good: score > 75.0%

Figure (1): Satisfactory level of knowledge for studied patients (control & study groups) (n=60)

Table (3): Total level of anxiety for studied patients (control & study groups) (N=60)

Group	Level of Anxiety	Pre	Post	Follow up
Control group	Minimal anxiety	2%	10%	28%
	Mild anxiety	24%	24%	33%
	Moderate anxiety	42%	37%	25%
	Severe anxiety	32%	29%	14%
Study group	Minimal anxiety	3%	62%	51%
	Mild anxiety	21%	22%	21%
	Moderate anxiety	30%	6%	10%
	Severe anxiety	46%	10%	18%

Table (4): Comparison between studied patients (Control and study group) regarding overall Self-care practices (n=60)

Overall Self-care Practices	Pre		Post		Follow up		Z	P
	No.	%	No.	%	No.	%		
Control group								
Adequate	25	83.3%	25	83.3%	25	83.3%	1.58	0.069**
Inadequate	5	16.7%	5	16.7%	5	16.7%		
Overall mean score	30.2±2.6		33.4±5.1		32.4±5.3		1.74	0.349**
Study group								
Adequate	23	76.7%	30	100%	29	96.7%	5.77	0.000**
Inadequate	7	23.3%	0	0.0%	1	3.3%		
Overall mean score	35.4±2.3		42.1±2.5		40.1±3.5		7.88	0.001**

*Statically significant P>0.5

** highly statistically significant P>0.001

Inadequate self-compliance: (15-23)

Adequate self-compliance: more than 24

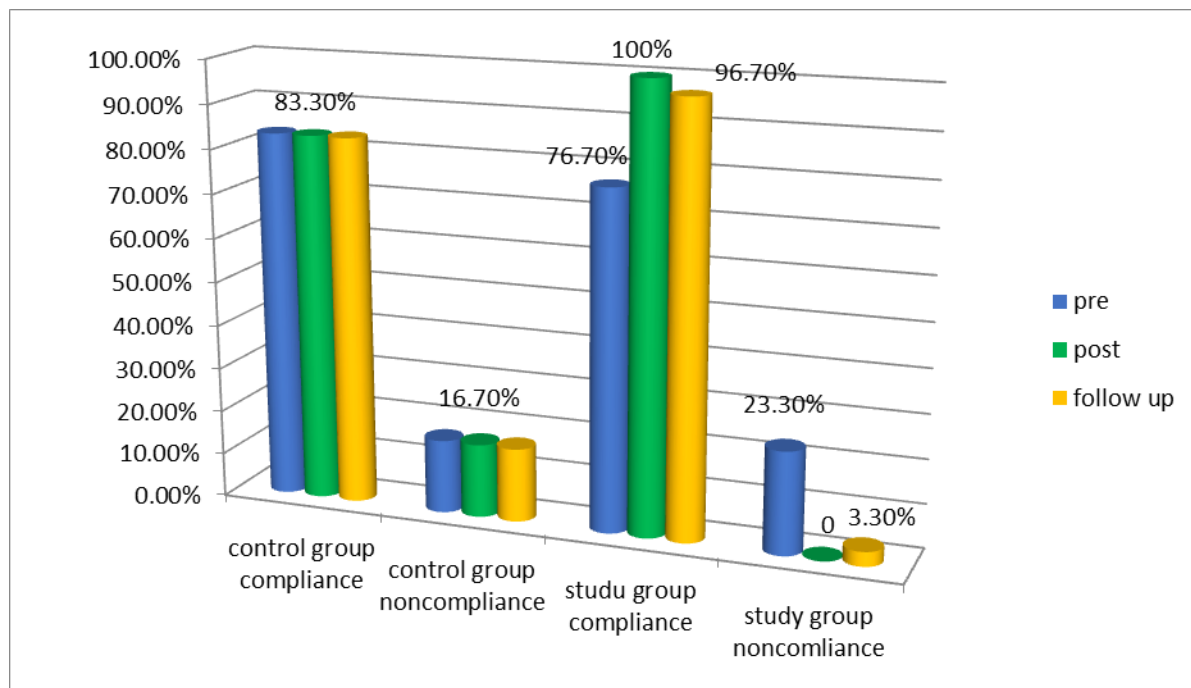


Figure (2) patient self-care compliance level for studied patients' (control& study) (n=60)

Table (5): The correlation between patient's level of knowledge improvement and self-care level in control group (n=30):

Knowledge	Self-care						P-value
	Pre intervention		Post intervention		Follow up		
	Inadequate	Adequate	Inadequate	Adequate	Inadequate	Adequate	
Poor	0	53.33%	0	46.7%	0	43.33%	0.057
Fair	13.33%	13.33%	13.33%	10%	13.33%	13.33%	0.048
Good	3.33%	16.7%	3.33%	26.7%	6.7%	23.33%	0.056

Table (6): The correlation between patient's level of knowledge improvement and self-care level in study group (n=30):

Knowledge	Self-care						P-value
	Pre intervention		Post intervention		Follow up		
	Inadequate	Adequate	Inadequate	Adequate	Inadequate	Adequate	
Poor	3.33%	46.7%	0	13.33%	0	23.33%	0.001**
Fair	13.33%	16.7%	0	10%	0	10%	0.001**
Good	6.7%	13.33%	0	76.7%	3.33%	63.33%	0.001**

**p<0.001 is highly significant

Table (7): The correlation between patient's level of knowledge their level of anxiety regarding studied patients (n=60)

Variable	Level of knowledge							
	Post intervention				Follow up			
	Control group		Study group		Control group		Study group	
	R	P value	R	P value	R	P value	R	P value
Level of anxiety	0.766	0.001**	0.856	0.001**	0.967	0.001**	0.978	0.001**

**p<0.001 is highly significant

Discussion:

Diabetic retinopathy (DR) is a common microvascular complication of diabetes and can significantly impact patients' vision. (Hammes et al., 2023). Vitrectomy is one of the mainstays of DR treatment. However, patients are only able to recover or retain partial useful vision after surgery, and most patients continue to have psychological, emotional, and social problems (Berrocal et al., 2021 and Assi et al., 2021). Comprehensive nursing interventions include enhancing patient knowledge, self-care practices measures can improve (Makhdoum, et al., 2024). This study aims to evaluate the effect of comprehensive nursing intervention on patient' knowledge, anxiety and self-care practice following vitrectomy for diabetic retinopathy.

Based on the sociodemographic and medical characteristics of the patients with diabetic retinopathy under investigation, the results of this study showed that the majority of the

patients in the control and study groups were between the ages of 45 and 60. This result was consistent with Al Baiuomy et al., (2019). They discovered that most DR patients were between the ages of 50 and 60. In terms of gender, the results of this study showed that there were more male patients than female patients. These results were consistent with those of Najee & Shakir (2019), who found that male patients made up the largest percentage of both the control and study groups. These results ran counter to those of Baiuomy et al., (2021). They discovered that women make up the majority of participants across all groupings.

Regarding educational attainment, the results of this study indicated that the majority of patients in the control and study groups are only able to read and write. It can be because they didn't care to get educated in the past and didn't understand the value of education. This result was comparable to that of Makhdoum et al. (2019),

who discovered that 40% of the patients in the study group lacked literacy.

Our findings shows that the studied patients had enough income which may be related to the majority of them were males, working and covered with health insurance. However, our findings in line with the findings of **Al Zarea (2016)** who reported that, half of his studied patients belonged to high economic status and contradicted with **Foster et al., (2016)** who found that, the majority of patients were housewives and a majority of those had lower income.

Regarding the patients, medical profile, the present study showed that more than one third of them the macular hole was the indication of vitrectomy surgery This may be related to the pathophysiological changes of retina due to long duration of DM. This finding disagreed with **Khalaf et al., (2019)** who found that nearly two-thirds of studied retinopathy patients suffered from type II diabetes mellitus.& two third of the studied patients done surgery in the left eye. Also, the majority of the studied patients have hypertension as an associated chronic disease with DM this constant with **Khalaf et al., (2019)** who revealed that hypertension was the most prevalent chronic condition with DR patients, with 74.5% of the study group suffering from it.

Prior to the adoption of comprehensive nursing care, the majority of patients in the study and control groups had low overall knowledge scores regarding

diabetic retinopathy. This may be explained by the fact that the majority of the patients in the study were either illiterate or just able to read and write. Additionally, it can be because medical professionals don't have enough time to educate patients about DR. This result was consistent with that of **Hosseini et al. (2021)**, who reported that prior to the start of their educational program; the participants' understanding of diabetic retinopathy was inadequate.

More than three-quarters of the study group had a strong total knowledge score when the comprehensive nursing care was implemented, while the minority had low knowledge, according to the study's findings. The use of various teaching techniques, such as lectures, films, and colored booklets, along with the researcher's reinforcement of the material at the conclusion of each session and before the next one, as well as the study group's compliance with the guidelines regarding diabetic retinopathy, may be the cause of this increase in patient knowledge. These results were consistent with those of **Duan et al. (2017)**, who reported that following the intervention, most participants' understanding of diabetic retinopathy increased. This comes in contrast with **Najee & Shakir (2019)** who found that diabetic retinopathy knowledge has decreased after three months post-implementation of the educational program.

The results of the current study showed that when comprehensive

nursing care was implemented, the degree of self-care practices improved. According to the researcher, this progress resulted from ongoing patient follow-up, regular re-demonstration of self-care techniques, and ongoing correction of skills that patients and their caregivers had overlooked or done improperly. In order to help patients remember and to make knowledge easier to obtain when needed, a colored booklet depicting various self-care techniques was also given to them. The study also underlined how crucial it is to support patients' self-care behaviors.

Furthermore, there was a highly statistically, significant difference within study group pre, and post-implementation of comprehensive nursing care. This may be explained by the that patient level of knowledge was improved which augment their adherence with self-care practices, these results mean that the patients have got many benefits from the implementation of comprehensive nursing care.

This finding was similar to **Baiuomy et al., (2021)** who illustrated that the self-care practices was significantly increased in the experimental group compared to the control group after intervention. This result approved the hypothesis of the current study which stated “the patient will have improvement in self-care practices after the implementation of comprehensive nursing care”. Moreover, this finding was congruent with **Umaefulam& Premkumar**

(2020) who showed in a study "Impact of mobile health in diabetic retinopathy awareness and eye care behavior among Indigenous women" that, the self-care practices score of DR patients post implementation of the educational intervention was increased.

Concerning anxiety level, the finding of current study showed that, majority of the studied patient had moderate or severe anxiety which may be related to DR patients undergoing vitrectomy, experience sudden blurred vision, dark shadows and other subjective feelings, which often make patients feel fear and anxiety. Additionally, DR patients become concerned about the surgical effect, disease prognosis and outcome in the post-surgery phase, with an increased sense of uncertainty. This is consistent with the findings of **Shi et al. (2022) & Zhang et al. (2023)**. Post-implementation of comprehensive nursing care the study result showed significant difference between patient's level of knowledge their level of anxiety which explained by the positive effect of comprehensive nursing care for DR patients, guide them to vent their negative emotions and relieve their fear and anxiety. Additionally, communicate with those patients promptly, inform them of the causes, risk factors, treatment methods and relevant prognostic information, reduce their fear of follow-up treatment and improve their coping ability and selfcare.

5. Conclusion

Based on the findings of the current study, it can be concluded that, application of comprehensive nursing interventions following vitrectomy for diabetic retinopathy patients reflected on improve level of knowledge, decrease anxiety level, and improve self-care practice.

6. Recommendations

Based upon the results of the current study, the following recommendations are suggested:

- Educational sessions by nurses in the ophthalmology department about the self-care practices for vitrectomy is required.
- Ophthalmology nurses should receive periodic in-service training programs to update and improve their awareness about self-care practices regarding vitrectomy.
- A simplified illustrated and comprehensive brochure and posters including vitrectomy vascular self-care practices guidelines should be available at health care settings and provided for patients undergoing vitrectomy.
- Replication of the current research on a larger statistical sample size drawn from various geographical areas and with a long-term follow-up is recommended to obtain more generalizable results.

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