

Health Educational Program for Mothers regarding Care of their Children with Retinoblastoma

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Abstract:

Background: Retinoblastoma is a malignant (cancerous) tumor that occurs in the retina of the eye. Mothers play an important role in caring for their children suffering from retinoblastoma. They must easily learn and follow treatment protocols, recognize and react to severe and distressing adverse effects of treatment. **Aim of the study:** The aim of the study was to evaluate the effect of health educational program for mothers regarding care of their children with retinoblastoma. **Research design:** A quasi-experimental design was utilized in this study. **Setting:** The study was conducted at Oncology Outpatient Clinics affiliated with Rod Al-Farag Hospital in Cairo City. **Study subjects:** A purposive sample of 45 mothers having children with retinoblastoma. **Tools of data collection:** Two tools were used in this study: **Tool (I):** An interviewing questionnaire including: a): Mothers demographic characteristics and personal characteristics of children, b): Medical history of children suffering from retinoblastoma, c): Mothers knowledge about retinoblastoma and d): Mothers practices to care of their children with retinoblastoma. **Tool (II):** Likert scale used to assess mothers' attitudes regarding to care of their children with retinoblastoma. **Results:** 4.4% of the studied mothers had good total knowledge level pre-program implementation which improved to 71.1% post-program implementation, 46.7% of the studied mothers had satisfactory total practices level pre-program implementation and then this percentage improved to 86.7% post- program implementation. Also, 31.1 % of the studied mothers had positive total attitude level pre-program implementation which improved to 77.8 % post-program implementation. **Conclusion:** The health educational program achieved significant improvement in mothers' knowledge, practices and attitude. **Recommendations:** Providing continuous health educational program to mothers in Outpatient Clinics to improve their knowledge, practices and attitudes about retinoblastoma for their children.

Keywords: Children, Care, Educational Program Mothers, Retinoblastoma.

Introduction:

Children are curious beings, discovering and investigating the world around, and use the senses of seeing, hearing, tasting, smelling and touching to accomplish the tasks. Play is the tool for this work that children use to explore the mysteries of the physical and social worlds. In play, children learn collaboration and conflict resolution with friends as they

investigate the properties of equipment, materials and routines. Play affords children the ability to improve the language, social, physical, math, science, and thinking skills. The development and enhancement of these skills promotes the self-esteem of the child (Bjorklund, 2022).

Retinoblastoma (RB) is a rare yet malignant pediatrics intra-ocular cancer. The

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disease presents as an aggressive tumor in the retina, arising from the precursors of the cones, and is primarily found in children under five years old. It affects approximately 1 in 16,000–18,000 new-born globally. Unfortunately, the burden of RB is mostly concentrated (>80 %) in Low- and Middle-Income Countries (LMICs), where the prognosis is comparatively poorer than in High-Income Countries (HICs). RB caused by complementary biallelic mutations of RB1. Approximately 60% of cases are sporadic, where somatic mutations occur in a retinal progenitor cell resulting in a unilateral tumor. In the heritable form, the first is a germ line mutation present in every cell of an individual, and the second somatic mutation occurs in retinal progenitor cells of both eyes, thus often causing bilateral and/or multifocal retinoblastoma **(Pareek et al., 2024 & Pai et al., 2024)**.

The most typical symptoms of RB would be leukocoria and strabismus. Leukocoria, or in plain words, white pupil, is frequently the initial sign of retinoblastoma, which is the result of light reflection caused by tumor growth between the pupil and retina (cat's eye reflex). Another prevailing symptom would be strabismus in cases with lost central vision after macular involvement and it can co-exist with leukocoria. Vitreous seeding, elevated eye pressure, secondary close-angle glaucoma, eye pain, proptosis, eye movement and retinal detachment may be found during the initial presentation or during therapy. Children may also show red eye, loss of vision, or swollen eyelids and extra ocular tumor infiltration **(Zhao et al., 2024)**.

Diagnosis of retinoblastoma mainly depends on the combination of presentations and examinations such as indirect

ophthalmoscopy, ocular ultrasonography (b-scan) and Magnetic Resonance Imaging (MRI). Computed Tomography (CT) scans and biopsies are commonly avoided as they would add to the risk of metastasis or second primary cancer. Indirect ophthalmoscopy facilitates objective counting of the number of tumors and their size **(Zhou et al., 2024)**.

Staging system is an important factor in choosing treatment. There are multiple staging systems in retinoblastoma. Tumor, Node, Metastasis (TNM) classification is developed by the American Joint Commission on Cancer (AJCC) and the Union International Control Cancer (UICC). TNM is a global system for describing the location and spread of cancer in the body of children. T stands for tumor size and any cancer spread into neighboring tissue; N stands for cancer spread to nearby lymph nodes; and M stands for metastasis (spread of cancer to other parts of the body). This involves both intraocular and extra ocular aspects in the same system **(Indian Council of Medical Research, 2023)**.

The treatment options available for children with RB are contingent on the stage of the disease and encompass a range of interventions, including radiation therapy, enucleation, cryotherapy, chemotherapy (either systemic or local), laser therapy (thermotherapy or photocoagulation), and a combination of these therapeutic techniques are recommended in treating retinoblastoma **(Rajput et al., 2024)**.

Retinoblastoma can lead to several complications, even after successful treatment. These may include vision loss, blindness, or the need for a prosthetic eye. In severe cases, the cancer can spread to other parts of the body. This can be life-threatening and requires aggressive treatment. Additionally, some

survivors of retinoblastoma may experience long-term effects, such as glaucoma or retinal detachment. Regular follow-up care is essential to monitor for and address these potential complications (Nag et al., 2024).

Mothers play a pivotal role in the lives of children with retinoblastoma. Their emotional support, advocacy, and active involvement in the treatment process are invaluable. Mothers often serve as the primary caregivers, ensuring that their children receive the necessary medical care, adhere to treatment plans, and manage the emotional challenges associated with the disease. They may also need to coordinate with healthcare providers, navigate complex medical insurance systems, and balance the demands of their child's treatment with other family responsibilities (Nasr, 2023).

Community health nurses (CHNs) play a vital role in the care of children with retinoblastoma. They can provide essential support to families throughout the treatment process, helping to alleviate stress and ensure that the child receives the necessary care. CHNs can educate families about the disease, its treatment options, and potential complications. They can also assist with coordinating appointments, medication management, and home care. CHNs can help mothers access resources, such as financial assistance, support groups, and counseling services. By providing comprehensive care and support, CHNs can significantly improve the quality of life for children with retinoblastoma and their families (Tohidian, 2024).

Significance of the study:

It could be roughly estimated that Cancer Children Hospital Egypt (CCHE) receives annually around 40–50% of the total retinoblastoma children in Egypt. Globally, about 100 in one million births develop

retinoblastoma, and it is estimated that around 9,000 children are newly affected each year. Due to global population distribution, 90% of these children live in developing countries. At CCHE receive about 150 retinoblastoma cancer patients a year, and these represent 5% of all cancer cases accepted by CCHE during the year (Cancer Children Hospital Egypt, 2018).

According to the statistical department in National Cancer Institute (NCI) at 2016, there was 2166 child admitted to NCI with different types of cancer. (NCI reported that retinoblastoma children represented 3% of all Egyptian national cancer institute pediatric tumor children (Ahmed et al., 2019). According to statistics of the Mobilization and Statistics Office of the Rod Al-Farag Hospital in Egypt for the year 2019/2020, the number of children diagnosed with RB 146 cases, the number of children diagnosed with RB for the year 2020/2021, 144 cases and the number of children diagnosed with RB for the year 2021/2022, 154 cases, the number of children diagnosed with RB for the year 2023/2024, 161 cases (Rod Al-Farag Statistics Office, 2024).

The magnitude of the problem has highlighted the importance of paying attention to deal with post-operative children with retinoblastoma so, the mothers need to improve their knowledge, practices and attitudes about the importance of early detection and early treatment of RB to protect their child from many diseases. These diseases can lead to death of their children. The mother's practices will be improved after improving their knowledge about retinoblastoma. They will provide their children with all available facilities to improve their life.

Aim of the study:

The aim of this study was to evaluate the effect of health educational program for

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mothers regarding care of their children with retinoblastoma through:

- 1- Assessing mothers' knowledge regarding retinoblastoma.
- 2- Assessing mothers' practices regarding care of their children with retinoblastoma.
- 3- Assessing mothers' attitudes regarding retinoblastoma.
- 4- Designing and implementing health educational program for mothers regarding care of their children with retinoblastoma.
- 5- Evaluating the effectiveness of health educational program on mothers' knowledge, practices and attitude regarding care of their children with retinoblastoma.

Research hypothesis:

Mothers' knowledge, practices and attitude regarding care of their children with retinoblastoma will be improved after implementation of the health educational program.

Subjects and Method:

Research design:

A quasi-experimental research design was used in carrying out this study.

Setting:

This study was conducted at Oncology Outpatient Clinics affiliated with Rod Al-Farag Hospital in Cairo City.

Subjects:

A purposive sample was used in carrying out this study. All mothers of children suffering from retinoblastoma attending to the previously mentioned setting were included through a period of six months, (n=45). The sample was chosen according to the following criteria.

a): Age of child from 1-6 year.

b): All children undergoing enucleation and chemotherapy.

c): All children free from chronic diseases

Tools of data collection:

Two tools were used in this study.

Tool 1-: An interviewing questionnaire was used to collect the data: It was developed by researchers, based on reviewing related literatures and it was written in simple clear Arabic language: It comprised of four parts:

First part: It was concerned with: **A-** Demographic characteristics of the mothers of children suffering from retinoblastoma. It included eight closed ended questions (multiple choice types) as age, level of education, marital status, occupation

B- Personal characteristics of children suffering from retinoblastoma. It included three closed ended questions as age, gender and child ranking among siblings.

Second part: It was concerned with medical history of the children. **A-** Past medical history of children with retinoblastoma which included seven closed ended questions as, child hospitalization, causes of hospitalization, history of cancer, previous surgical operations, other siblings with retinoblastoma, relatives with retinoblastoma and consanguinity marriage.

B- Medical data of children with retinoblastoma. It included seven closed ended questions as type of retinoblastoma, eye affected with the disease, child age when symptoms appeared, child age when the enucleation performed, noticing vision problems, type of vision problem and type of treatment.

Third part: It was concerned with:

A- Mothers' knowledge regarding retinoblastoma which included nine closed ended questions as meaning, causes, signs and

symptoms, types of retinoblastoma, diagnosis, prevention, aim of taking medication, treatment and complications of retinoblastoma.

B- Mothers' knowledge regarding chemotherapy which included four closed ended questions as meaning, methods of taking chemotherapy, side effects of chemotherapy and precautions that must be observed during chemotherapy.

C- Mothers' knowledge regarding post-operative care which included four closed ended questions as meaning, the importance of care after enucleation, precautions after enucleation and measures to be followed after enucleation.

Scoring system:

The scoring system for mothers' knowledge was calculated as follows, (2) score for correct and complete answer, (1) score for correct and incomplete answer and (0) for don't know. The total knowledge score = 34 points

The total knowledge score was considered good if total knowledge score > 75% (>26 points), while considered average if it equals 50-75% (17-26 points) and considered poor if it is < 50% (<17 points).

N.B: Scoring system didn't include source of knowledge

Fourth part: It was concerned with mothers' reported practices regarding the care of their children with retinoblastoma.

A-Mother's practices regarding to care of their children with retinoblastoma which included forty-nine (49) items divided into eight procedures).

B- Mother's practices to management of side effects of chemotherapy for children with retinoblastoma which included thirty (30) items divided into five procedures.

Scoring system:

The scoring system for studied mothers' reported practices was calculated as: (2) score

for always done, (1) score for sometimes done and (0) score for never done. The total reported practices score = 158 points.

The total practices score was considered satisfactory if the total practices score $\geq 80\%$ (≥ 126 points) and considered unsatisfactory if it $< 80\%$ (< 126 points).

Tool II-: Modified Likert attitude scale. This scale was used to assess mothers' attitudes regarding care of their children with retinoblastoma. It was adapted from (Pozo et al., 2021), and modified by the researchers and consisted of seventeen items such as (early examination before marriage prevent the occurrence of disease, it's important to examine the child's eyes routinely, eye examination helps in early detection of retinal tumor.

Scoring system:

All attitude variables were weighted according to items included. The score was calculated as: (3) for "agree". (2) for "uncertain" and (1) for "disagree".

The total attitude score =51 points

Total attitude score was classified as the following:

- Positive attitude $\geq 60\%$. (≥ 31 points)
- Negative attitude $< 60\%$. (<31 points).

Administrative design:

A written official approval to conduct the study was obtained from the Dean of Faculty of Nursing, Benha University to the Director of Rod Al-Farag Hospital in order to obtain the agreement to conduct the study after explaining the study purpose, nature, activities, and expected outcomes of the study.

Tools validity:

Tools of data collection were investigated for content validity by panel of five jury experts from Community Health

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Nursing Department to judge clarity, relevance, comprehensiveness, understanding and applicability and ease for implementation of tools. The opinion was elicited regarding the layout, format and sequence of the questions and all of their remarks were taken into consideration and the tools were considered valid from the experts' point of view.

Tools reliability:

Reliability for tools was applied by the researchers to test the internal consistency of the tools. Internal consistency reliability of all items of the tools was assessed using Cronbach's alpha coefficient test. The internal consistency of knowledge was 0.776, for practices was 0.821 and mother reported attitude was 0.701.

Ethical considerations:

All ethical issues were assured; approval of the Scientific Research Ethical Committee, Faculty of Nursing Benha University was obtained for the carrying out the study. An official permission from the selected study setting was obtained for the fulfillment of the study; oral consent has been obtained from each mother before conducting the interview and given them a brief orientation to the purpose of the study. Mothers were also reassured that all information gathered would be confidential and used only for the purpose of the study. The study didn't have any physical or psychological risk of the studied mothers. The mothers had the right to withdraw from the study at any time without giving any reasons.

Pilot study:

The pilot study was conducted on 10% (5) mothers at one month (January 2023). The pilot study was aimed to test applicability of the constructed tools, the clarity of the included questions and the time needed for each mother

to fill the questionnaire and identify problems that may be encountered during the study. Time needed to fill each questionnaire consumed about 20 minutes. No modifications were done, so the pilot study sample was included in the total sample.

Field work:

The health educational program was conducted through the following phases:

Assessment phase:

At the beginning of the interview the researchers introduced herself to each mother, greeted the mothers included in the study, explained the purpose of the study and provided the mother with all information about the study such as purpose, duration, activities, and take oral consent. Then the researchers distributed the tools for collecting data to assess mothers' demographic characteristics, knowledge, practices and attitude regarding retinoblastoma. Each questionnaire took about 20 minutes.

Planning phase:

Based on baseline data obtained from assessment phase and review of literature, the health educational program regarding RB was designed by the researchers to enhance the mothers' knowledge, practices and attitudes regarding care of their children with retinoblastoma. The researchers designed ten sessions, 4 theoretical sessions and 6 practical sessions regarding retinoblastoma. The number of sessions and its contents, different methods of teaching and instructional media were determined and explained to the participants. The contents of program were prepared according to the mother's level of understanding in simple, organized and scientific Arabic language.

The objectives of the program:

General objective: By the end of the health educational program, the studied mother's knowledge, practices and attitudes regarding care of their children with retinoblastoma were improved.

Specific objectives: At the end of the educational program the studied mothers were able to: -

The theoretical part includes:

- Define retinoblastoma and mention causes of retinoblastoma.
- Enumerate signs and symptoms and mention types of RB.
- Enumerate methods of diagnosis of retinoblastoma.
- List types of treatment retinoblastoma and determine complications of retinoblastoma.
- Define chemotherapy and enumerate methods of taking chemotherapy.
- List side effects of chemotherapy and enumerate precautions that must be observed during chemotherapy.
- Define post-operative care and discuss importance of post-operative care.
- Identify precautions after enucleation and enumerate measures that must be observed during chemotherapy.

The practical part includes:

- Identify the correct method of personal hygiene and eye cleaning at home after enucleation.
- Apply the correct method of wound dressing and put the eye drops in the right method.
- Apply the correct method for removing, fixing and caring for the prosthetic eye.
- Provide a safe environment for the child.
- Applying steps of management, the side effects of chemotherapy for children such as (high temperature - constipation - diarrhea

- nausea and vomiting - alopecia after chemotherapy).

Implementation phase:

The researchers visited the previously mentioned study setting one day/week (Wednesdays), from 9:00 A.M. to 1:00 P.M., the average number interviewed at the oncology Outpatient Clinics were 1-2 mothers/week depending on the responses of the mother.

At the beginning of the first session mothers were oriented with the program contents, purpose and activities. The mothers were interviewed in small groups by the researchers to implement the educational program regarding retinoblastoma. The program sessions were carried out at patients waiting area. The number of mothers participated in each session were 5 mothers. The subsequent session started by feedback about the previous session and the researchers discussed the objectives of the new session taken into consideration the use of simple Arabic language to suit mothers' level of understanding. The researchers used teaching methods such as lectures, discussion, demonstration and re- demonstration and suitable teaching media included booklet, pictures, brochures and videos through laptop. The booklet was distributed to all recruited mothers in the study from the first session to achieve the objectives.

At the end of each session, the researchers gave the chance to the mother to ask any questions to clarify the session contents and to correct any misunderstanding. The researchers informed the mother to participate in the study about the time of the next sessions.

The researchers applied the educational program through ten sessions, the sessions divided into 4 theoretical sessions and 6 practical sessions. The duration of each session was (30-50) minutes according to mother's

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achievement and feedback. The researchers implements theoretical and practical sessions as following

Evaluation phase:

The evaluation phase emphasized on determining the effect of the educational program on studied mothers' knowledge, reported practices, and attitude regarding care of children with retinoblastoma by comparing the results pre and post implementation of educational program. Post-test was done immediately after the educational program implementation using the same tools used in pretest.

Statistical analysis:

Statistical analysis was done by using the Statistical Package for Social Science (SPSS) version 21. All data were collected, revised, coded, organized, tabulated and analyzed using frequencies, numbers and percentages. Data were presented in the form of tables and figures. Quantitative data was presented by mean (\bar{x}) and standard deviation (SD). Qualitative data was presented in the form frequency distribution tables, number and percentages. It was analyzed by Chi-square test (χ^2) and coefficient test (r) to detect the relation and correlation between the variables of the study (P- value).

Statistical Significance levels were considered as follows:

- Highly statistically significant P-value < 0.001**
- Statistically significant P-value < 0.05*
- Not significant P-value > 0.05

Results:

Table (1): Shows that, 48.9% of the studied mothers aged 30 < 40 years old, with mean age 33.58±5.44 years. Regarding the level of education 35.6% of the mothers had basic

education while 66.7% of the mothers were married, and 82.2% of them not working. While 53.3% of families had an adequate income and 71.1 % of studied mothers lived in rural areas.

Table (2): Shows that; 37.8% of studied children aged from 4 to less than 5 years old with mean age 5.21±1.24. Regarding to child's sex, 57.8% of them were males and 60% of them were the second child among their siblings.

Table (3): Describes that; 66.7% of children were hospitalized and 60% of them were hospitalized due to eye bleeding. Also 57.8% of them didn't perform any previous surgeries, 73.3% of the children didn't have other siblings with retinoblastoma, 55.6% of them hadn't relatives with retinoblastoma, and 77.8% of them were consanguinity marriage.

Figure (1): Illustrates that, 4.4% of the studied mothers had good total knowledge level pre-program implementation which improved to 71.1% post -program implementation, also, 42.2% of them had average total knowledge level pre-program implementation which changed to 20% post -program implementation, while 53.3 % of studied mothers had poor total knowledge level pre-program implementation which decreased to 8.9% post -program implementation.

Figure (2): Illustrates that, 46.7% of studied mothers had satisfactory level regarding their total practices level pre-program implementation and then this percentage improved to 86.7% post- program implementation. While 53.3% of them had unsatisfactory level regarding their total practices level pre-program implementation and then this percentage decreased to 13.3% post-program implementation.

Figure (3): Represent that, 31.1 % of the studied mothers had positive total attitude level pre-program implementation which improved to 77.8 % post-program implementation, while 68.9% of the studied mothers had negative total attitude level at pre-program implementation which decreased to 22.2% post-program implementation.

Table (4): Clarifies that there was statistically insignificant correlation between studied mothers' total knowledge level, total practices level and total attitude level pre-

program implementation ($p > 0.05$). While there was a highly statistically significant correlation between studied mothers' total knowledge level, total practices level and total attitude level post program implementation, ($p < 0.001$).

Table (5): Clarifies that, there was a highly statistically significant positive correlation between studied mothers', total attitude level and total practices level pre and post program implementation, ($p < 0.001$).

Table (1): Distribution mothers regarding to their demographic characteristics (n=45).

Demographic characteristics	No.	%
Age / years		
20 < 30	13	28.9
30 < 40	22	48.9
≥ 40	10	22.2
Mean ±SD	33.58±5.44	
Level of education		
Can't read and write	5	11.1
Basic education	16	35.6
Secondary education	13	28.9
University education and above	11	24.4
Marital status		
Married	30	66.7
Divorced	8	17.8
Widowed	7	15.6
Occupation		
Working	8	17.8
Not working	37	82.2
Residence place		
Urban	13	28.9
Rural	32	71.1
Family monthly income		
Adequate and save	4	8.9
Adequate only	24	53.3
Inadequate	17	37.8

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Table (2): Distribution of children suffering from retinoblastoma regarding to their personal characteristics (n=45).

Personal characteristics	No.	%
Age / years		
1 < 2	5	11.1
2 < 3	5	11.1
3 < 4	3	6.7
4 < 5	17	37.8
5: 6	15	33.3
Mean \pm SD	5.21 \pm 1.24	
Gender		
Male	26	57.8
Female	19	42.2
Child ranking among their siblings		
First	13	28.9
Second	27	60.0
Third and more	5	11.1

Table (3): Distribution Medical history of children regarding to their past medical history (n=45).

Child medical history	No.	%
Child hospitalization		
Yes	30	66.7
No	15	33.3
Causes of hospitalization (n=30). *		
Eye infections	21	70.0
Eye bleeding	18	60.0
Sudden deterioration in vision	17	56.7
Previous surgical operation		
Disease-related operations	2	4.4
Operations not related to the disease	17	37.8
No surgeries were performed	26	57.8
Other siblings with retinoblastoma		
Yes	12	26.7
No	33	73.3
Relatives with retinoblastoma		
Yes	20	44.4
No	25	55.6
Consanguinity marriage		
Yes	35	77.8
No	10	22.2



Figure (1): Percentage distribution of the studied mothers regarding to their total knowledge level about retinoblastoma pre and post program implementation (n=45).

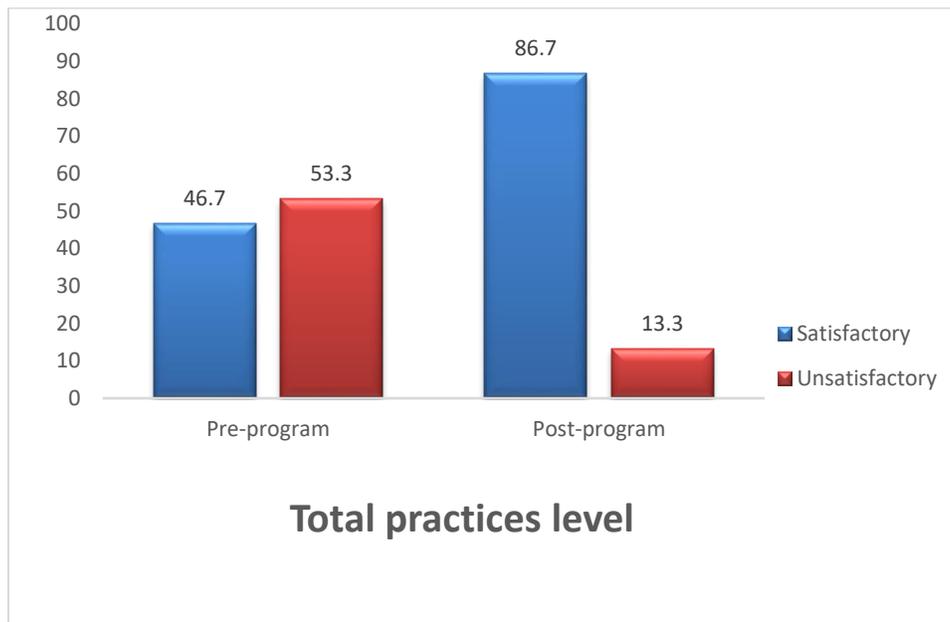


Figure (2): Percentage distribution of studied mothers regarding their total practices level about care of their children with retinoblastoma pre and post program implementation (n=45).

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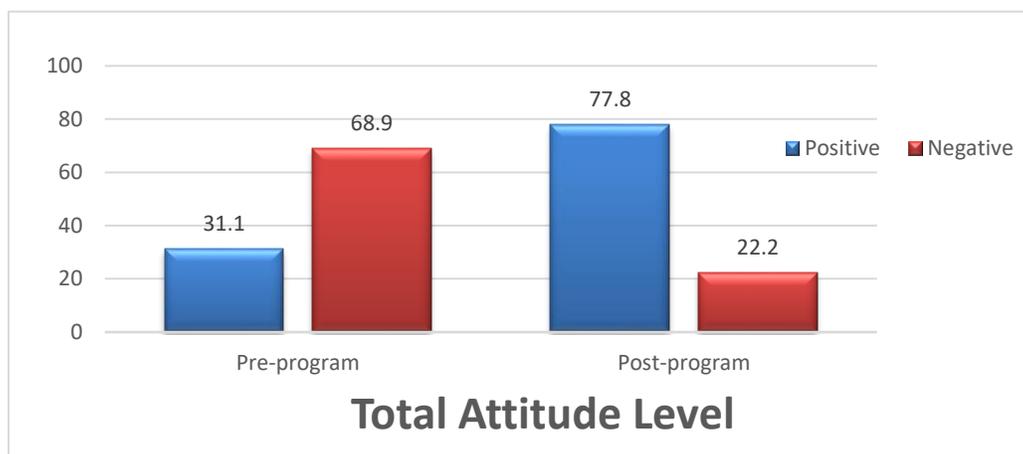


Figure (3): Percentage distribution of the studied mothers regarding their total attitude level about care of their children with retinoblastoma (n=45).

Table (4): Correlation between total knowledge, practices and attitude level among studied mothers regarding care of their children with retinoblastoma pre and post program implementation (n=45).

	Total Knowledge level			
	Pre- program implementation		Post program implementation	
	R	p-value	r	p-value
Total practices level	0.126	0.408	0.937	0.000**
Total attitude level	0.117	0.442	0.850	0.000**

Statistically insignificant difference $p > 0.05$ **highly statistical significance $p < 0.001$

Table (5): Correlation between total practices level and total attitude level among studied mothers regarding care of their children with retinoblastoma pre and post program implementation (n=45).

Total attitude level	Total practices level			
	Pre- program implementation		Post program implementation	
	r	p-value	r	p-value
	.903	.000**	.793	.000**

**Highly statistically significant difference ($p < 0.001$).

Discussion:

Regarding the demographic characteristics of the studied mothers of children with retinoblastoma, the present study showed that, less than half of the studied mothers aged 30 < 40 years old with mean age 33.58±5.44 years and more than one third of them had basic education.

Concerning the personal characteristics of children with retinoblastoma, the present study showed that, less than two fifths of studied children aged from 4<5 years old with mean age 5.21±1.24, and three fifths of them were the second child among their siblings.

Concerning the medical history of children with retinoblastoma, the present study illustrated that slightly more than three fifths of children were hospitalized and three fifths of them hospitalized due to eye bleeding. These findings were in accordance with **Handayani et al., (2021)**, who studied "Treatment outcome of children with retinoblastoma in a tertiary care referral hospital in Indonesia" (n=61), and reported that, less than three quarters of the study's population had been hospitalized and the most common causes of hospitalization were due to ocular bleeding.

Regarding total knowledge level of the studied mothers, the present study revealed that, the minority of the studied mothers had good total knowledge level pre-program implementation which improved to less than three quarters post -program implementation, also more than two fifth of them had average total knowledge level pre-program implementation which changed to one fifth post -program implementation, while more than half of studied mothers had poor total knowledge level pre-program implementation which

decreased to minority post -program implementation.

These findings were in congruent with **Abd El- Halem et al., (2022)**, who studied "Effect of designed guidelines for mothers regarding care of their children with ophthalmological trauma in Egypt" (n=80) who stated that slightly more than one third of studied mothers had adequate knowledge, but after implementing the designed guidelines, less than three quarters of mothers had adequate knowledge. This might be due to effectiveness of current education program and mother didn't receive any health education program regarding retinoblastoma before.

The present study revealed that, less than half of studied mothers had satisfactory total practices level pre-program implementation and improved to majority post- program implementation and more than half of them had unsatisfactory total practices level pre-program implementation and decreased to minority post -program implementation.

These findings were confirmed by **Said & Mohamed, (2022)**, "Effect of empowerment program on parents' self-competence regarding caring for their children with eye injuries in Egypt" (n=74), and explained that majority of the studied parents had incompetent reported practices pre-empowerment program. On the other hand, majority and slightly more than three quarters of them had competent reported practice post- program and after three months of empowerment program implementation respectively and there was highly statistically significant improvement of parents' self-reported practice post empowerment program implementation.

In addition these findings were in accordance with **Ahmed et al., (2019)**,

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(n=100), who noticed improvement of parents total practices through program implementation from inadequate practices to adequate practices for post program with highly statistical significant relation. Also, these findings were in accordance with **Hamdy et al., (2022)**, who reported that, there was a highly statistically significant improvement among studied participants in all items of practices about preventive measure after ophthalmic surgery immediately post guidelines implementation than pre guidelines. This might be due to that the mothers received good training regarding care of their children with retinoblastoma from educational program.

The present study revealed that, showed that less than one third of the studied mothers had positive total attitude level pre-program implementation which improved to more than three quarters post-program implementation, while slightly more than two thirds of the studied mothers had negative total attitude level at pre-program implementation, which decreased to slightly more than one fifth post-program implementation. These findings were consistent with **Alkalash et al., (2023)**, who reported that, less than one fifth of the studied parents had positive total attitude score regarding children eye care and recommended about the importance of educational guidelines for parents to improve their attitude. This might be due to the positive effect of the program which reflected directly on mother's attitude. This result indicates the readiness of mothers to cooperate with health care workers to best manage child care. The burden is therefore on health care providers to find innovative ways of delivering information to mothers to enable them dealing with their children eye problem positively

Related to correlation between total knowledge, total practices and total attitude among studied mothers pre and post program implementation, the present study showed that, there was a statistically insignificant correlation between studied mothers' total knowledge score, total practices score and total attitude score pre-program implementation ($P > 0.05$). While there was a highly statistically significant correlation between studied mothers' total knowledge score, total practices score and total attitude score post program implementation ($P < 0.001$). These findings were in accordance with **Khattak et al., (2023)**, (n=385), who reported that there was a significant positive strong correlation between knowledge and practice ($r = 0.602$, $p = 0.00$) and a strong positive correlation between knowledge and attitude variables ($r = 0.546$, $p = 0.00$) among studied mothers related to caring of their children with ophthalmic problems.

Additionally, these findings were in accordance with **Said & Mohamed, (2022)**, who stated that there was a statistically significant positive correlation between total parents' attitude level and their total knowledge pre, post- and after 3 months of empowerment program implementation. Furthermore, there was a statistically significant positive correlation between total parents' attitude level and their total reported practice. These findings confirmed two facts, (1) the mothers' knowledge, practices and attitude were improved by health educational program, (2) increasing mothers' knowledge would certainly lead to improvement in their practices and attitude in caring of their child with retinoblastoma.

Concerning the correlation between total practices and total attitude among studied

mothers pre and post program implementation, there was a highly statistically significant positive correlation between studied mothers' total attitude score and total practices score pre and post program implementation ($P < 0.001$). These findings were in accordance with **Khattak et al., (2023)**, who stated that there was a fair positive correlation between practice and attitude variables ($r = 0.390, p = 0.00$). This might be due to the link between practice and attitude is logic as the studied mothers who gained positive attitude are more likely to improve their practice regarding retinoblastoma.

Conclusion:

The health educational program succeeded in improving mothers' knowledge, practices and attitudes regarding care of their children with retinoblastoma and research hypothesis was achieved. Also, there was a highly statistically significant positive correlation between studied mothers' total knowledge level, total practices level and total attitude level post program implementation, ($p < 0.001$).

Recommendations:

- 1- Providing continuous health educational program to mothers in Outpatient Clinics to improve their knowledge, practices and attitudes about retinoblastoma for their children.
 - 2- Distribution of guidance brochures or handouts including information about community resources and comprehensive care needed to be provided for children mothers to meet their needs and prevent further complications.
- **Further studies needed to be performed about:** Replication of the present study with more participants and at several settings for generalization of the results.

References:

- Abd El-Halem, D., Said K., and Metwally E., (2022).** Effect of designed guidelines for mothers regarding care of their children with ophthalmological trauma, *Journal of Nursing Science - Benha University* ISSN 2682 – 3934 3 (1): 625-635.
- Ahmed, S., Ahmed, H., Mohammed, M., Shelil, A., and Elzomor, H. (2019).** Prevention of home accident among children with retinoblastoma, *Egyptian Journal of Health Care*; 52 (4): 530-535.
- Alkalash, H., Alsayed, k Alamshani, T., Almarhabi, A., Alsayed, N., Alsayed, M. & Alkudaysi, M. (2023).** Knowledge, attitude, and practice of parents regarding children's eye care in Al-Qunfudah Governorate, Saudi Arabia. *Cureus*: 15(10).
- Bjorklund, F. (2022):** Children's Evolved Learning Abilities and their Implications for Education, *Educational Psychology Review*; 34(4): 2243-2273.
- Cancer Children Hospital Egypt, (2018).** Annual Statistics for newly diagnosed children with retinoblastoma from 2007 to October 2018, statistical unit.
- Hamdy, A., Hamed, M., Said, A., and Mohammed, H., (2022).** Effect of nursing guidelines on patients' outcomes post ophthalmic surgeries, master degree, Faculty of Nursing, Benha University, chapter 4, Pp. 166-178.
- Handayani, K., Indraswari, B., Sitaresmi, M., Mulatsih, S., Widjajanta, P., Kors, W. and Mostert, S. (2021).** Treatment Outcome of Children with Retinoblastoma in A tertiary Care Referral Hospital in Indonesia, *Asian Pacific Journal of Cancer Prevention: APJCP*; 22(5): 1613.

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- Indian Council of Medical Research, (2023).** Consensus document for management of retinoblastoma. Pp: 1–73.
- Khattak, M. I., Khan, N., Tahir, M. Y., Rashid, F., Iqbal, R. N., & Sarfraz, M. (2023).** Knowledge, practice and attitude of mothers for ophthalmic problems in children in rural areas-A cross-sectional study: Ophthalmic problems in children in rural areas. *Pakistan Journal of Health Sciences*, 115-121.
- Nag, H., Chan, Y., Mohamad, F., and Rahmat, B. (2024).** Anophthalmic socket in retinoblastoma: Exploring complications and risk factors in a tertiary centre in Malaysia, *European Journal of Ophthalmology*; 34(4): 999-1008. Available at: <https://doi.org/10.1177/11206721231219530>.
- Nasr, W. (2023).** Mother's coping while caring for a child with cancer and its relationship with mother-child relationship, doctoral dissertation, The American University in Cairo, Available at: <https://fount.aucegypt.edu/etds/2114?utm>.
- Pai, V., Muthusami, P., Ertl-Wagner, B., Shroff, M., Parra-Fariñas, C., Sainani, K., and Mallipatna, A. (2024).** Diagnostic imaging for retinoblastoma cancer staging: guide for providing essential insights for ophthalmologists and oncologists, *RadioGraphics*; 44(4): 230125.
- Pareek, A., Kumar, D., Pareek, A., Gupta, M., Jeandet, P., Ratan, Y., and Chuturgoon, A. (2024).** Retinoblastoma: An Update on Genetic Origin, Classification, Conventional to Next-generation Treatment Strategies, *Heliyon*; 10(12): 32844.
- Pozo, C., Bretones, B., and Vazquez, A. (2021).** When your Child has Cancer: a Path-Analysis Model to Show the Relationships between Flourishing and Health in Parents of Children with Cancer, *International Journal of Environmental Research and Public Health*; 18(23): 12587. Available at: <https://doi.org/10.3390/ijerph182312587>
- Rajput, S., Malviya, R., and Uniyal, P. (2024).** Advancements in the diagnosis, prognosis, and treatment of retinoblastoma, *Canadian Journal of Ophthalmology*; 59(5): 281-299. Available at: <https://doi.org/10.1016/j.cjco.2024.01.018>.
- Rod Al-Farag Statistics Office, (2024).**
- Said, K., and Mohamed, H. (2022).** Effect of Empowerment Program on Parents' Self-Competence regarding Caring for their Children with Eye Injuries, *Egyptian Journal of Health Care*; 13(1): 1487-1505. Available at: https://ejhc.journals.ekb.eg/article_233429_3fc2999b5a83e20b5194602ad81a5170.
- Tohidian, M. (2024).** Role of nursing care after retinoblastoma surgery in children: A narrative review, *Journal of Nursing Reports in Clinical Practice, Journal homepage*; 2(2): 2980-9711. Available at: <https://www.jnursrcp.com>. Accessed on: 10 September 2024.
- Zhao, J., Cui, R., Li, L., Zhao, B., and Chen, L. (2024).** Multimodal imaging for the differential diagnosis and efficacy evaluation of intraocular retinoblastoma in children with selective ophthalmic artery infusion. *Translational Pediatrics*;13(7): 1022. Available at: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11320019/>.
- Zhou, M., Tang, J., Fan, J., Wen, X., Shen, J., Jia, R., and Fan, X. (2024).** Recent progress in Retinoblastoma: Pathogenesis, Presentation, Diagnosis and Management, *Asia-Pacific Journal of Ophthalmology*; 13(2): 100058. Available at: <https://doi.org/10.1016/j.apjo.2024.100058>.

برنامج تثقيفي صحي للأمهات تجاه رعاية أطفالهن المصابين بورم شبكية العين

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ورم شبكية العين هو ورم يصيب العين وأكثر شيوعاً بين الأطفال، وتلعب الأمهات دوراً هاماً في رعاية أطفالهن المصابين بورم شبكية العين. ويجب على الأمهات أن يتعلموا ويتبعوا بروتوكولات العلاج، وأن يتعرفوا على الآثار الضارة الشديدة والمزعجة للعلاج ويتفاعلوا معها. لذا هدفت هذه الدراسة إلى تقييم تأثير برنامج التثقيف الصحي للأمهات فيما يتعلق برعاية أطفالهن المصابين بورم شبكية العين. وقد أجريت هذه الدراسة في العيادات الخارجية للأورام بمستشفى رمد روض الفرج بالقاهرة. تم استخدام تصميم شبه التجريبي لإجراء الدراسة على عينة عرضية (٤٥) من الأمهات وأطفالهن. قد أسفرت النتائج على أن الأقلية من الأمهات كان لديهن معلومات جيدة قبل البرنامج والذي تحسن إلى ثلاثة أرباع بعد تنفيذ البرنامج، أما بالنسبة لممارسات الأمهات، وجد أن أقل من نصف الأمهات كان لديهن ممارسات مرضيه قبل البرنامج ثم تحسنت هذه النسبة إلى الأغلبية بعد تنفيذ البرنامج. أما بالنسبة لاتجاهات الأمهات، وجد أن حوالي ثلث الأمهات كان لديهن مستوى اتجاهات إجمالي إيجابي قبل تنفيذ البرنامج والذي تحسن إلى حوالي أكثر من ثلاثة أرباع بعد تنفيذ البرنامج. كما كان هناك علاقة ذات دلالة إحصائية بين مستوى معلومات الأمهات و ممارساتهن، واتجاهاتهن قبل البرنامج بينما كانت هناك علاقة ذات دلالة إحصائية عالية بين مستوى معلومات الأمهات، ممارساتهن واتجاهاتهن بعد تنفيذ البرنامج. واوصت الدراسة بتقديم برنامج تعليمي مستمر للأمهات في العيادات الخارجية لتحسين معرفتهن وممارساتهن واتجاهاتهن حول ورم شبكية العين.