A Video-Assisted Nursing Educational Intervention to Enhance Mothers' Performance in Caring for their Children Undergoing Ptosis Surgery: A Quasi-Experimental Study

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Abstract

Background: Ptosis surgeries are one of the most performed surgeries by the oculo-plastic surgeons worldwide. As primary caregivers, the mother ensures continuity of care, reinforces postoperative instructions, and helps the child adapt and heal.

Objective: to evaluate a video-assisted nursing educational intervention in enhancing mothers' performance regarding care for their children undergoing ptosis surgery.

Methods: A quasi-experimental research design, was involving a simple random sample of 140 mothers and their children aged 3 to 18 years undergoing ptosis surgery. A structured interviewing questionnaire was used to collect socio-demographic data of mothers and their children, medical data and mothers' knowledge. Mothers' reported practices concerning the care of their children undergoing ptosis surgery were evaluated via a validated interview questionnaire sheet.

Results: More than one-fifth of the studied mothers had adequate total knowledge level concerning ptosis and ptosis surgery pre-intervention, which increased to the majority & more than three-quarters post-intervention and at follow-up, respectively. Less than a third of the studied mothers had satisfactory total reported practice concerning care of their children undergoing ptosis surgery pre-intervention, which increased to the majority, 88.6% & 84.3% post-intervention and at follow-up, respectively.

Conclusion: There was a highly statistical significant positive correlation between total knowledge level and total reported practice level among the studied mothers pre and post intervention and at follow-up. These observations suggest that incorporating this intervention for the mothers caring for their children undergoing ptosis surgery might enhance their Performance Concerning care of their children and achieve appropriate outcomes for a long time.

Key words: A video-assisted nursing educational intervention, Mothers, Care, Children, Ptosis Surgery.

Introduction

Ptosis, also known as blepharoptosis is a condition characterized by the drooping of one or both upper eyelids which may partially or fully cover the pupil, caused by congenital or acquired dysfunction or weakness of the levator palpebrae superioris muscle or its innervation. The problem can occur unilaterally or bilaterally in any age group and with varying degrees of severity. Drooping of the upper eyelid leads to secondary restriction of the visual field, deterioration of vision quality, as well as a subjective decrease in visual acuity. Additionally, it is an aesthetic defect, which consequently negatively impacts the child's quality of life, self-esteem, and social perception.[42]

Ptosis in children presents in a range of severities and aetiologies. Congenital ptosis is the most common form encountered in infancy and

early childhood, present at birth or within the first year, most frequently resulting from dysfunction or developmental dysgenesis of the levator palpebrae superioris muscle (aplasia or hypoplasia), and may lead to disturbed visual development and function. Acquired paediatric ptosis present later in life due to various factors, can result from neurogenic causes (e.g., third nerve palsy, Horner syndrome), myogenic conditions (e.g., myasthenia gravis, chronic progressive external ophthalmoplegia), mechanical factors (e.g., eyelid tumours, scars), traumatic or aponeurotic. Clinicians must maintain high suspicion for ptosis in new-born and paediatric eye examinations because of the potential for amblyopia and refractive changes.[18]

The primary indicator of ptosis in children involves; Visible drooping of one or both upper eyelids sometimes enough to obstruct the pupil. Compensatory mechanisms, children may tilt their heads back (chin-up posture) or raise their eyebrows (forehead wrinkling) to see beneath the droopy eyelid. Additional signs, increased tears, asymmetrical eyelid creases, or difficulty keeping eyes fully open. Eye misalignment, refractive errors (like astigmatism), blurred or double vision, headaches, dizziness, or delayed motor milestones. Functional impact, severe ptosis may block vision, leading to amblyopia (lazy eye) or permanent visual impairment. It may also distort visual optics and induce neck posture issues over time. Other signs, fatigue induced drooping (especially in myasthenia gravis), poor or absent eyelid crease formation, compensated by frontal muscle over action.[34]

Ptosis can be diagnosed by: Initial assessment thorough ophthalmologic and neurologic history and physical examination as eye movement examination, observe head posture, eyelid symmetry, and any associated movements (e.g., jaw-winking). Ocular measurements; MRD-1 (Margin Reflex Distance-1), visual acuity test and levator function. Additional parameters: palpebral fissure height, lid crease distance, lid lag, Bell's phenomenon. Diagnostic tools; Slit-lamp exam, ocular motility, visual field testing, refraction, and, if needed, neurologic or imaging workup.[17]

Management of ptosis in children comprises: Observation; Mild cases without visual impact may be monitored with regular ophthalmic follow-up. Non-surgical interventions; correct refractive errors with glasses; patching to treat amblyopia; ptosis crutches (eyeglass frames) to hold up the eyelid. Children with ptosis, often require surgical intervention to restore eyelid function, protect the visual axis, and improve cosmetic appearance.[45]

Surgical management timing depends on severity, urgent surgery is indicated in severe cases if the visual axis is obstructed posing a risk of amblyopia. Elective surgery may be delayed to age 4–5 years in mild cases if no visual threats exist, allowing better assessments and reducing psychosocial concerns as children become more self-aware. Successful management requires a comprehensive understanding of the anatomy, precise preoperative assessment, and detailed surgical planning.[5]

The various surgical techniques, including the frontalis sling suspension: Best when levator function is poor; uses a sling (e.g., silicone rod, fascia) to connect eyelid to forehead muscle. Levator resection and advancement (anterior or posterior approach): Used when levator function is fair to good, typically excising or modifying the muscle. Müller's muscle conjunctival resection (the Putterman procedure), and modified Fasanella-Servat procedure. The surgical technique is chosen depending on child

case, severity of ptosis and levator muscle functionality, as each associated with distinct indications, benefits, and drawbacks, necessitating a unique tailored approach to each surgical candidate.[41]

The major clinical concern in paediatric ptosis is its effect on visual development and quality of life. Severe ptosis that occludes the visual axis can cause stimulus deprivation amblyopia. Even less severe ptosis may induce refractive errors such as astigmatism through chronic eyelid induced corneal moulding, and can contribute to anisometropia or strabismus, compensatory head postures (e.g., chin-up) or asymmetric facial development and psychosocial impact. Developmental delays in visual maturation are time sensitive. Timely correction is therefore critical and careful preoperative planning and intraoperative considerations are crucial to achieve optimal outcomes and minimize potential complications. [24 7]

Prognosis varies based on severity, type of ptosis, timing of intervention, surgical technique, and presence of other ocular issues. Prognosis is generally good if diagnosed timely, especially to prevent amblyopia and correct functional and cosmetic issues. Paediatric ptosis presents unique diagnostic and therapeutic challenges, underscoring the importance of early detection and management. Advances in diagnostic techniques, including imaging and electrophysiological assessments, alongside evolving surgical approaches, have improved outcomes. Despite these developments, timely intervention remains crucial to prevent long-term visual impairment.[13]

Postoperative care includes; Short-Term Care: Clean wound with boiled and cooled water using sterile cotton avoid soap and rubbing for ~10 days, apply antibiotic ointment (e.g., chloramphenicol) to surgical area three times daily for 2 weeks; apply to eye hourly while awake until follow-up, use cold compresses (e.g., chilled sterile saline or gauze) for about 10 minutes every hour during the first day or two to reduce swelling, keep head elevated (e.g., 2–3 pillows) to minimize swelling, prevent strenuous activities, avoiding head-down positions (e.g., bending, certain yoga poses) for about two weeks, avoid getting water or shampoo on the eyelids for the first week, avoid eye rubbing and makeup for several weeks to prevent irritation or wound disruption.[25]

Additional Measures: Frost sutures may be used postoperatively to protect the cornea; removed after ~48 hours, along with antibiotic ointment and lubricants. Antibiotic-steroid ointment may be applied on suture lines and in the eye to prevent dryness and lubricating eye drops or ointments help heal exposure keratopathy or dry eye. Follow-up Schedule: First follow-up around 2–7 days post-operative: assess for infection, wound healing, and adjust sutures if needed. Next evaluation at 1–2 weeks: remove sutures (if non-absorbable), monitor bruising/swelling, and assess eyelid position. Further follow-up at 3 months for final assessment of contour, symmetry, and function.[30]

Common postoperative issues: Bruising/swelling; peaks around day 2–3; majority subsides by week 2; minor residual swelling may persist for several weeks. Healing timeline: Cosmetic scars are typically well-hidden in a skin crease and fade over weeks to months. Approximately 15–20% in some settings; repeat surgery may be needed for asymmetry. Possible complications as exposure keratopathy, granulation, under/overcorrection and infection, managed with lubrication, massage, antibiotics or revision surgery. Functional outcomes are

generally excellent for congenital ptosis, especially with timely surgery. [14]

As primary caregivers, the mother ensure continuity of care, reinforce postoperative instructions, and help the child adapt and heal vital components for both immediate recovery and favourable long-term outcomes. Role of the Mother in Postoperative Care: Administer medications (antibiotic ointment, lubricants) strictly as prescribed. Perform wound care: gently cleanse surgical site using boiled cooled water and sterile cotton to prevent infection, apply cold compresses, maintain head elevation, and help the child avoid physical strain and eye rubbing, monitor for signs of complications (increased redness, discharge, pain, excessive swelling) and contact the surgeon promptly if noted.[10 40]

Also, ensure attendance of follow-up appointments and understand potential long-term needs (revision surgery, amblyopia therapy, spectacle correction), provide emotional support, reassurance, and foster patience as the swelling and full healing may take weeks or months, help protect the operated eye during sleep (e.g., moisture shield or artificial tears) if eyelid closure is incomplete and encourage compliance with amblyopia treatments if prescribed (e.g., patching, glasses).[43]

Methods

Aim of the Study

This study aims to evaluate a video-assisted nursing educational intervention to enhance mothers' performance in caring for their children undergoing ptosis surgery: a quasi-experimental study through:

1- Assessing mothers' knowledge and reported practice regarding care of their children undergoing ptosis surgery.

2- Designing and implementing a video-assisted nursing educational intervention for mothers regarding care of their children undergoing ptosis surgery.

3- Evaluating the effect of a video-assisted nursing educational intervention on mothers' knowledge and reported practice regarding care of their children undergoing ptosis surgery.

Hypotheses

H1

The video-assisted nursing educational intervention will enhance mothers' knowledge regarding care of their children undergoing ptosis surgery.

H2

The video-assisted nursing educational intervention will enhance mothers' reported practice regarding care of their children undergoing ptosis surgery.

Design: A quasi-experimental research design with simple random sample was utilized in this study, which was conducted over a 12-month period from the beginning of July 2024 to the end of June 2025.

Setting: This study was conducted in Ophthalmology Clinics of Benha University Hospital which is one of the main Governmental Hospitals in Qalyubia Egypt, affiliated to Ministry of Higher Education and Scientific Research. The ophthalmology clinics of Benha University Hospital is on the ground floor of the ophthalmology building, classified as two sides of 8 rooms that equipped to provide comprehensive care for children with ophthalmic problems, including ultrasound, fundus examination, vision examination, surgical examination, post-operative follow-up, a classroom for ophthalmologists, vision examination and prescription eyeglasses.

Participants

A simple random sample of 140 mothers and their children from 3 to 18 years old undergoing ptosis surgery were included in this study who

attended the previously mentioned setting for follow up and willing to participate in the study.

- Sample size calculation:

The sample size calculated through the Slovin's formula

$$\mathbf{n = \frac{N}{1 + N(e)2}}$$

Where:

n = number of subjects

N = total population (215)

e = margin of error (0.05)

Tools of data collection:-

Two tools were used to collect the data in this study:

Tool I: A structured interviewing questionnaire: It was developed by the researcher and revised by supervisor staff, based on reviewing related literatures and it was written in a simple clear Arabic language. It consisted of four parts to assess the following:

Part 1: Socio-demographic characteristics related to mothers involved in the study. It included 6 closed ended questions such as: age, educational level, occupational status, income, marital status and place of residence.

Part 2: Characteristics related to children involved in the study. It included 6 closed ended questions such as: age, gender, Childs' rank in his family, educational level, degree of kinship between the parents and type of kinship.

Part 3: Medical history of the studied children. It included 8 questions: child's age when he was diagnosed with ptosis, type of ptosis, side affected by ptosis, tests were done to diagnose the child's ptosis, family history of ptosis, degree of kinship with the child if there were family history, eyelid surgeries been performed before and type of surgery if eyelid surgeries were performed before.

Part 4: Mothers' knowledge regarding care of their children undergoing ptosis surgery adapted from Dutton et al, Abo-eleinin & Salama,[1] it consist of two sub parts;

A) Mothers' knowledge regarding ptosis in children, It included 10 questions: meaning of ptosis, causes of ptosis, factors that leading to ptosis, types of ptosis, types of ptosis according to distance of the margin, signs and symptoms of ptosis, tests are performed to diagnose ptosis, complications of ptosis, treatment of ptosis and prevention of ptosis.

B) Mothers' knowledge regarding ptosis surgery in children, It included 13 questions: indications for ptosis surgery in children, purpose of performing ptosis surgery in children, tests required before performing ptosis surgery in children, types of ptosis surgery, appropriate age for congenital ptosis surgery in children, type of anaesthesia is used during ptosis surgery in children, medications were given to the child after ptosis surgery, side effects of ptosis surgery, complications of ptosis surgery, measures that should be followed with the child after ptosis surgery, signs of wound infection, appropriate time to remove non-absorbable sutures after ptosis surgery, and recommended lifestyle for a child to follow after ptosis surgery to avoid recurrence of the ptosis problem.

Tool (II): Interviewing questionnaire sheet regarding mothers' reported practice regarding care of their children undergoing ptosis surgery: It was designed by researcher adapted from Crum & Gensure,[16] Alkalash et al,[8] and Gwenhure & Shepherd.[23] To assess mothers' reported practice towards care of their children undergoing ptosis surgery, It included mother's actual practices regarding their children undergoing ptosis surgery.

The practices include four main skills which involves;

- Mothers' reported practice of eye care towards care of their children undergoing ptosis surgery (17 item).
- Mothers' reported practice of wound care towards care of their children undergoing ptosis surgery (28 item).
- Mothers' reported practice of eye drop application towards care of their children undergoing ptosis surgery (22 item).
- Mothers' reported practice of ointment application towards care of their children undergoing ptosis surgery (17 item).

Ethics statment:

An official letter was issued and permission was obtained from Dean of Faculty of Nursing, Benha University concerned the title, objectives, tools, the study technique and an official approval was obtained from administrators of the previous mentioned study setting to carry out the study. A clear explanation was given about the nature, importance and expected outcomes of the study. Written approval consent from the Scientific Research Ethical Committee, Faculty of Nursing, Benha University was obtained. Also approval and informed written consent has been obtained from all studied mothers before conducting the study and given them a brief orientation to the purpose and nature of the study. Mothers were also reassured that all information gathered would be confidentially and used only for the purpose of the study. No names were required on the forms to ensure anonymity and confidentiality. The mothers had right to withdraw from the study at any time without giving any reasons. Ethics, values, beliefs and culture were respected. The data collected were stored in confidential manner.

Data collection:

The data collection process conducted in four phases: assessment phase, planning phase, implementation phase and evaluation phase.

Assessment phase: Incorporates interviews with the mothers and their children involved in the study to collect baseline data. During the initial visit to the clinics, the researcher interviewed each mother individually, starting by introducing herself to the mothers, providing brief explanation about the current study and its outcomes, and took their written approval to participate in the study prior to data collection, and their phone numbers were taken for the purpose of facilitating communication, interaction, motivation, support during the study period and follow up. A pre-test was conducted for the mothers, in this phase, the researcher used Tool I to assess socio-demographic characteristics of the studied mothers, characteristics of studied children, and medical data of children was obtained from medical hospital records. Additionally, this tool used to assess mothers' knowledge regarding care of their children undergoing ptosis surgery. The researcher used Tool II to assess reported practice of the studied mothers. Each mother took around 30-45 minutes to fill and complete the questionnaires.

Planning phase: As per baseline data obtained from the assessment phase and a review of relevant literature, the researcher designed the goals and objectives of the intervention according to the actual needs of the studied mothers. The intervention was designed in clear, simple Arabic language and consisted of five sessions: two theoretical sessions and three practical sessions. The content was constructed, reviewed, and modified to improve mothers' knowledge and practices concerning care of their children undergoing ptosis surgery. Various teaching

methods were employed, including lectures, group discussions, brainstorming, and presentations. Multiple media were used to present the content effectively, such as colorful handouts, data shows, laptops, videos, PowerPoint presentations, illustrated booklets, posters, and brochures to facilitate proper understanding of the material.

Implementation phase: The actual field work of the current study took about twelve months starting from the beginning of July 2024 to the end of June 2025 in the previously mentioned setting according to policy of the study setting. The researcher came to the study setting three days weekly Tuesday, Wednesday and Thursday of each week (from 9:00 AM to 1:00 PM), because these days coincide with appointments of mothers and their children undergoing ptosis surgery, and also these days suitable for the researcher's appointments. The researcher implemented intervention through five sessions of 2:30 to 3:45 hours, 2 theoretical sessions and 3 practical sessions; 1:00 to 1:20 hours theoretical and 1:30 to 2:15 hours practical, each theoretical session took about 30:40 minutes to complete, while the practical sessions took about 30:45 minutes to implement and the average number of mothers were 2-4 mothers/day. Each session started by summary about the previous session and objectives of the new topics. Direct reinforcement in the form, a copy of the intervention was given as a gift for each mother to use it as future reference. Discussion, motivation and reinforcement during sessions were used to enhance learning. All the mothers were cooperative with the researcher, as at the end of each session, mother participated in a discussion to correct any misunderstanding. Also, they were informed about the time of next session. Through the period of post intervention and follow-up, the researcher contacted with the studied mothers through WhatsApp and telephone calls for responding to the studied mother's inquiries related to caring for their children.

Evaluation phase: After implementation of intervention, the researcher applied the post-test immediately and then after one month of the intervention to evaluate knowledge and reported practice of studied mothers regarding care of their children undergoing ptosis surgery. Evaluation was done by using the post-test questionnaire which was the same formats of pre-test in order to compare the change in the knowledge and reported practice of studied mothers. The intervention achieved research hypothesis, which improved knowledge and reported practice of mothers caring for their children undergoing ptosis surgery.

Statistical analysis

Data collected from the studied sample was revised, coded and entered using a personal computer. All data were organized, tabulated and analyzed using appropriate statistical test. Computerized data entry and statistical analysis were fulfilled using Statistical Package for Social Science SPSS V.21 which was applied to calculate frequencies and percentage for qualitative descriptive data, mean and standard deviation was used for quantitative data, as well as test statistical significance and associations by using Chi- square test (x2) and matrix correlation to detect the relation between the variables (P value). Statistical significance was considered at a p value <0.05.

Results:

Table (1): Shows that; more than half 51.4% of the studied mothers were aged 30 < 40 years with mean±SD was **32.4±8.2.** Regarding educational level; less than third 28.6% of the studied mothers had primary education, almost two thirds 65.7%

of them didn't work, slightly less than three fifth 59.3% of them had enough income, more than half 52.9% of them were married, and more than three fifth 62.9% were lived in rural areas.

Table (2): Reveals that; more than half 53.6% of the studied children were aged 3 < 6 years with mean±SD was **6.66±2.71.** Regarding gender; more than half 56.4% of the studied children were males, approximately two fifth 42.1% of them had second ranking between their brothers/sisters, more than half 53.6% of them had nursery school, three fifth 60% of them had a degree of kinship between the parents and half 50% of them was first degree kinship.

Table (3): Illustrates that; more than half 55% of the studied children were aged 3<6 years when diagnosed with ptosis, more than half 52.9% of them had left and right sides of eye affected by ptosis. Regarding diagnostic tests two thirds 66.4% of them had been performed marginal reflex distance to diagnose the child's condition, two thirds 67.1% of them had family members suffer from ptosis, approximately two fifth 46.8% of them were their brother/sister, and two thirds 66.4% of them didn't have eyelid surgeries been performed before.

Figure (1): Clarifies that; approximately two fifth 42.1% of studied children had bilateral congenital ptosis. While, more than fifth 22.9% of them had unilateral acquired ptosis.

Figure (2): Portrays that; more than one fifth 20.7% of the studied mothers had adequate total knowledge level regarding ptosis and ptosis surgery pre intervention which increased to majority 83.6% & more than three quarters 77.9% post intervention and at follow-up respectively. Less than third 30% of the studied mothers had average total knowledge level regarding ptosis and ptosis surgery pre intervention which decreased to tenth 10% & more than tenth 12.9% post intervention and at follow-up respectively. Slightly less than half 49.3% of the studied mothers had inadequate total knowledge level regarding ptosis and ptosis surgery pre intervention compared to minority 6.4% & 9.2% post intervention and at follow-up respectively.

Figure (3): Clarifies that; less than third 27.9% of the studied mothers had satisfactory total reported practice regarding care of their children undergoing ptosis surgery pre intervention which increased to majority 88.6% & 84.3% post intervention and at follow-up respectively. More than two thirds 72.1% of the studied mothers had unsatisfactory total reported practice regarding care of their children undergoing ptosis surgery pre intervention which decreased less than fifth 11.4% & 15.7% post intervention and at follow-up respectively.

Table (4): Illustrates that; there were highly statistically significant positive correlation between total knowledge level and total reported practice level among the studied mothers pre and post intervention and at follow-up (P<0.001).

Table (1): Distribution of the studied mothers regarding their socio-demographic characteristics (n=140)

Socio-demographic characteristics of the studied mothers	No.	%
Age/years		
>20 years	15	10.7
20<30 years	33	23.6
30<40 years	72	**51.4**
≥ 40 years	20	14.3
Min-Max	**18-45**	
Mean ±SD	**32.4±8.2**	
Educational level		
Can't read and write	11	7.9
Read and write	17	12.1
Primary education	40	**28.6**
Preparatory education	13	9.3
Secondary school education	24	17.1
Bachelor's	35	25.0
Job status		
Working	48	34.3
Does not work	92	**65.7**
Income		
Enough and save	26	18.6
Enough	83	**59.3**
Not enough	31	22.1
Current marital status		
Married	74	**52.9**
Divorced	37	26.4
Widowed	29	20.7
Place of residence		
Rural	88	**62.9**
Urban	52	37.1

Table (2): Distribution of the studied children regarding their Characteristics (n=140)

Personal characteristics of the studied children	No.	%
Age/years		
3<6 years	75	**53.6**
6<9 years	36	25.7
9<12 years	22	15.7
12< 15years	5	3.6
15≤18 years	2	1.4
Min-Max	**3-14**	
Mean ±SD	**6.66±2.71**	
Gender		
Male	79	**56.4**
Female	61	43.6
Childs' rank in his family		
First	32	22.9
Second	59	**42.1**
Third	28	20.0
Fourth or more	21	15.0
Educational level		
Nursery school	75	**53.6**
Primary school	58	41.4
Preparatory school	7	5.0
Secondary school	0	0.0
Is there a degree of kinship between the parents		
Yes	84	**60.0**
No	56	40.0
If there is a degree of kinship between the parents, what is the type of kinship? (n=84)		
First degree kinship	42	**50.0**
Second degree kinship	25	29.8
Third degree kinship	17	20.2

Table (3): Distribution of the studied children regarding their medical history (n=140)

Childs' medical history	No.	%
Child's age in years when diagnosed with ptosis		
> 3years	14	10.0
3<6 years	77	**55.0**
6<9 years	22	15.7
9<12 years	19	13.6
12< 15years	5	3.6
15≤18 years	3	2.1
Side is affected by ptosis		
Right side	45	32.1
left side	21	15.0
Both sides (Left & right)	74	**52.9**
****Tests were done to diagnose the child's condition**		
Marginal reflex distance	93	**66.4**
Slit lamp test	18	12.9
Evaluation of the child's visual acuity	25	17.9
Eye movement examination	11	7.9
Field of vision test	6	4.2
Did any of the family members suffer from ptosis		
Yes	94	**67.1**
No	46	32.9
If the answer is yes, what is the degree of kinship with the child (n=94)		
Father	15	16.0
Mother	22	23.4
Brother/sister	44	**46.8**
Aunt/ uncle	6	6.4
Grandfather/grandmother	7	7.4
Have eyelid surgeries been performed before		
Yes	47	33.6
No	93	**66.4**
If eyelid surgeries were performed before, what type of surgery was performed (n=47)		
Ptosis surgery	25	**53.2**
Eyelid retraction	13	27.7
Eyelid reconstruction	9	19.1

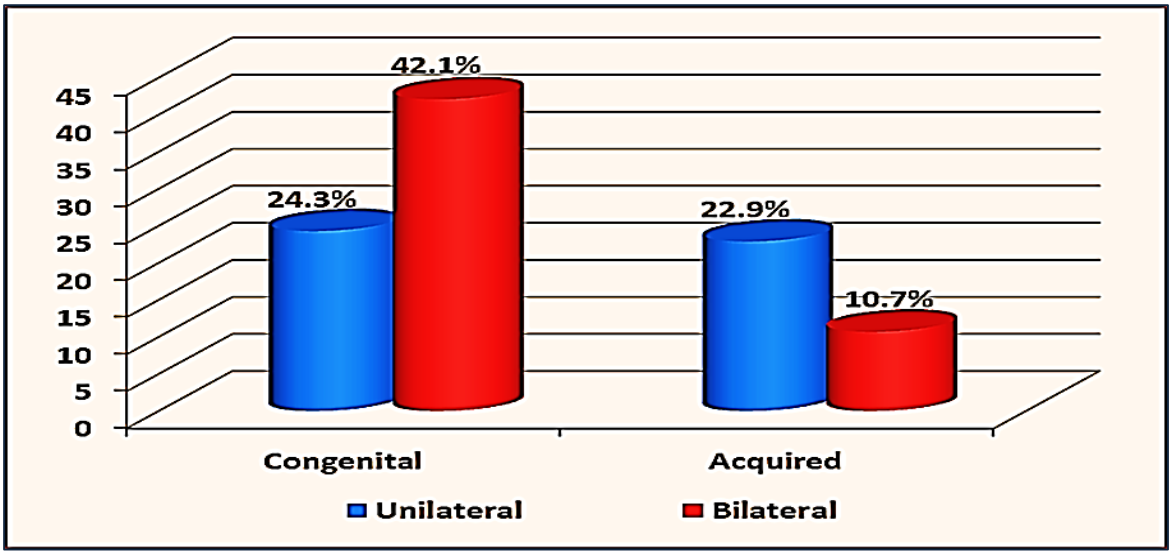

Figure (1): Percentage distribution of the studied children regarding their type of ptosis (n=140).

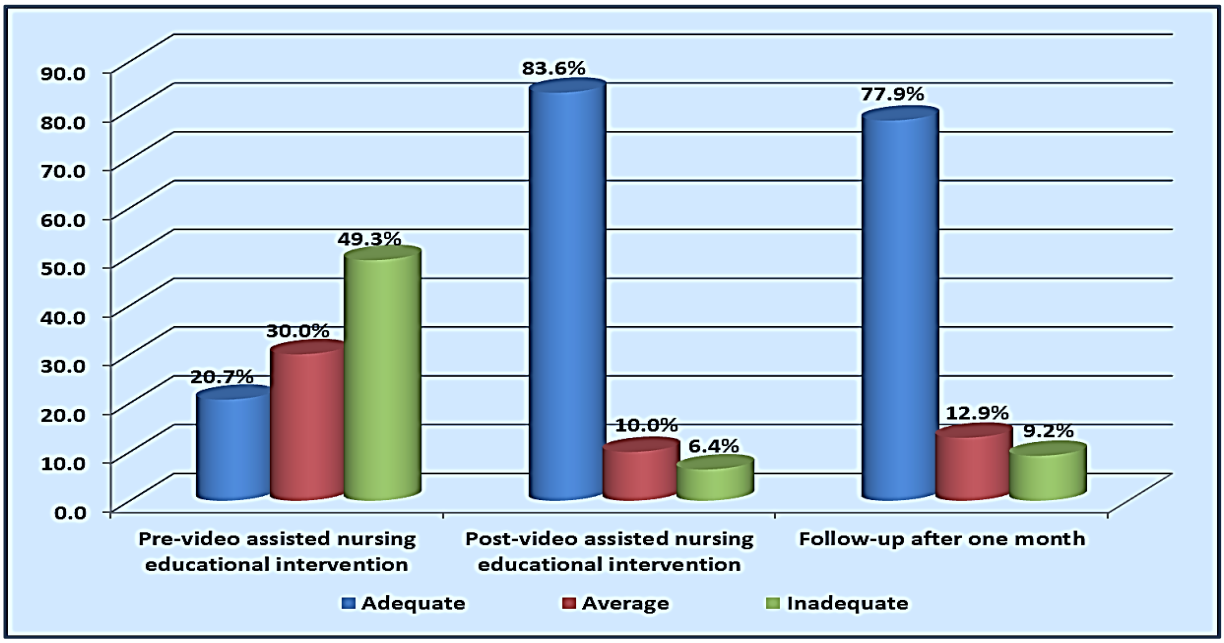

Figure (2): Percentage distribution of the studied mothers' total knowledge level regarding ptosis and ptosis surgery throughout a video-assisted nursing educational intervention phases (n=140).

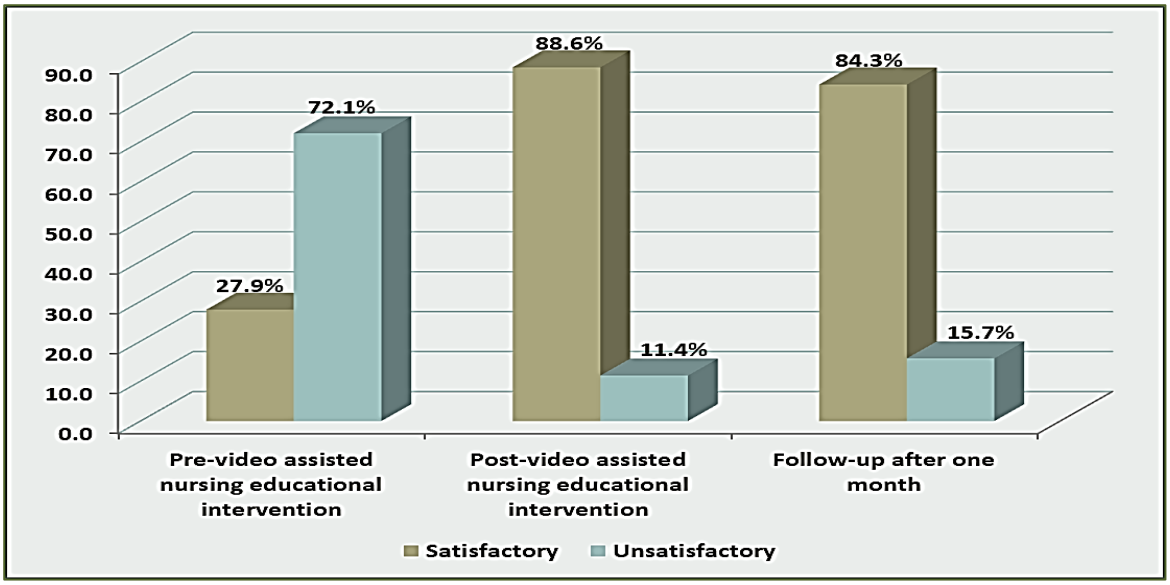

Figure (3): Percentage distribution of the studied mothers' total reported practice regarding care of their children undergoing ptosis surgery throughout a video-assisted nursing educational intervention phases (n=140).

Table (4): Correlation between total knowledge level, total attitude level, and total reported practice level among the studied mothers pre and post a video-assisted nursing educational intervention and at follow-up (n=140).

Items		Total knowledge level		Total reported practice	
		r	p-value	r	p-value
Pre educational program	Total knowledge level	1	-	0.71	.000**
	Total reported practices	0.71	.000**	1	-
Post educational program	Total knowledge level	1	-	0.92	.000**
	Total reported practices	0.92	.000**	1	-
Follow-up	Total knowledge level	1	-	0.93	.000**
	Total reported practices	0.93	.000**	1	-

Discussion

Pediatric ptosis surgery is a critical intervention aimed at correcting drooping eyelids in children, which can impact vision and quality of life. The success of such surgeries extends beyond the operating room, heavily relying on post-operative care provided by parents, particularly mothers. Mothers' knowledge and performance in managing post-surgical care are pivotal in preventing complications and ensuring optimal recovery. Educational programs tailored to enhance mothers' understanding and skills in post-operative care have shown promise in improving their performance and, consequently, children's recovery.[46]

The structured educational interventions play a significant role in empowering mothers to provide effective post-surgical care, thereby improving the overall success of pediatric ptosis

surgeries. Nurses play a key role in educating mothers about post-operative care, addressing their concerns, and reinforcing proper techniques for monitoring and managing their children's recovery. Nurses are also responsible for providing hands-on demonstrations, distributing written resources, and conducting follow-up visits to ensure that the mothers' knowledge is effectively applied in practice.[33]

By offering continuous education and support, nurses empower mothers to confidently care for their children, thus reducing the risk of complications and improving the overall success of the surgery.[15] Therefore**,** the present study aimed to evaluate effect of an educational program on mothers' performance regarding care of their children undergoing ptosis surgery.

Regarding personal characteristics of the studied mothers, the current study revealed that more than half of the studied mothers were aged from 30 to less than 40 years old with mean ±SD was 32.4±8.2 years. This may be due to the fact that mothers within this age range often fall within the peak childbearing and caregiving period, making them more likely to be involved in medical decisions regarding their children's health.

This result was supported by Hasbi et al,[24] whose study in Malaysia was entitled "Evaluation of the Effect of Surgery on Psychosocial Function and Quality of Life in Children with Simple Congenital Ptosis and Their Parents," as they found that the largest proportion of the studied mothers aged 31–40 years old. In contrast, a study conducted by Almogbel et al,[9] under the title "Parents' awareness and attitude toward pediatrics eye diseases in Makkah, Saudi Arabia: a cross-sectional study" reported that the highest percentage of the studied mothers aged from 36 to 45 years old.

Moreover, the present study reflected that almost two thirds of the studied mothers didn't work. This can be explained by a combination of socio-economic and cultural determinants that affect mothers' participation in the workforce. Mothers may choose not to work or may be unable to work due to family responsibilities, such as caring for young children or managing household duties. In the same scene,[2] who studied "Knowledge and Practices of Mothers regarding their Children with Eye Trauma" in Egypt, found that a significant proportion of mother were housewives. On the other hand, a study performed by Khattak et al,[29] under the title "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," in Pakistan, reported that less than half of the studied mothers were not working.

Additionally, the current study clarified that slightly less than three fifth of the studied mothers had enough income. This may be due to the fact that a substantial proportion of the mothers in the study had sufficient financial resources, allowing them to afford the medical costs associated with their children's ptosis surgery. This result reflects a certain level of economic stability or access to financial support, enabling these mothers to prioritize their children's healthcare needs.

This result was in accordance with a study conducted by Almogbel et al,[9] who noticed that slightly more than half of the studied participants had sufficient monthly income. In the opposite side, a study performed by Khan et al,[28] about "Awareness of parents regarding eye diseases and eye care needs among children of Tehsil Babuzai, District Swat," in Pakistan, found that about three fifths of the studied respondents had not enough monthly income.

Furthermore, the current study indicated that more than half of the studied mothers were married and more than three fifth of them were lived in rural areas. In the same line, a study conducted by Alshammari et al,[10] about "Levels of awareness regarding pediatric eye diseases among Saudi parents from the Hail and Al-Qassim regions, Saudi Arabia," reported that majority of the studied subjects were married. This finding was congruent with a study carried out by El-Maghawry et al,[21] who performed a study entitled "Effect of Designed Guidelines for Mothers regarding Care of their Children with Ophthalmological Trauma," in Egypt and observed that around two thirds of the studied mothers were married and were rural residents, respectively.

As for personal characteristics of the studied children, the present study displayed that more than half of the studied children were aged from 3 to less than 6 years old with mean ±SD was 6.66±2.71 years. This may be attributed to the fact that ptosis surgery is typically performed during early childhood, especially when the condition begins to affect the child's vision or ability to engage with their surroundings. Also, this age is a common period for diagnosing and treating ptosis, as any visual impairment during these formative years can hinder a child's development and learning.

Aligned with this finding, a study performed by Paulos et al,[34] under the title "Management of congenital blepharoptosis in pediatric patients," in Chile, found that the average age of the studied children was 7.7 years old ± SD 4.7 years. In contrast, a study conducted by Ghiam et al,[22] published as "Surgical outcomes after frontalis suspension using expanded polytetrafluoroethylene sling for congenital ptosis," in USA reported that the mean age of the studied participants was 2.3 years (standard deviation: 2.2 years).

Additionally, the present study clarified that more than half of the studied children were males. This may be attributed to the fact that ptosis is more commonly observed in males, as some studies suggest that congenital ptosis tends to be more prevalent in boys. The anatomical and genetic factors influencing eyelid development may contribute to this gender difference, leading to higher incidence of ptosis in male children.

This finding matched with a study in China carried out by Ma et al,[32] which is titled "Application of e-PTFE frontalis suspension in the treatment of congenital ptosis in children," and found that more than half of the studied children were males. Conversely, a study conducted by Hasbi et al,[24] entitled "Evaluation of the Effect of Surgery on Psychosocial Function and Quality of Life in Children with Simple Congenital Ptosis and Their Parents," found that more than half of the studied children were females.

Furthermore, the present study portrayed that approximately two fifths of the studied children were the second ranking between their brothers/sisters, and more than half of them were at nursery school. In the same line, Sayed et al,[39] who carried out a study published as "Effect of Health Educational Program on Mothers' Knowledge and Practices Regarding Care of Children with Trachoma," in Egypt, found that more than half of children were between two to four in the family ranking and more than two thirds of them had nursery education. Likewise, a study conducted by Mohamed et al,[33] which is called "Effect of Instructional Guidelines on Mothers' Knowledge and Practice regarding Conjunctivitis among Children in Ophthalmology Outpatient Clinic," noticed that more than two

thirds of children were the second child and were at preschool, respectively.

Moreover, the current study indicated that three fifth of the studied children had a degree of kinship between the parents and half of them was first degree kinship. This may be due to the genetic factors that contribute to the development of ptosis, which can be more prevalent in families with a closer degree of kinship. This result was compatible with Khalili et al,[27] who conducted a study under the title "Consanguinity and Increased Risk of Congenital Ptosis: A Case–Control Study from Southern Iran," which emphasized that more than half of parents of the cases with congenital ptosis were relatives and the highest percentage of them were first cousin.

Also, this result was partially agreed with a study carried out by Aishwarya et al,[6] entitled "Study on various ocular congenital anomalies and its association with consanguineous marriage," which found that parents' consanguinity was present in more than more of the studied cases and among these cases with consanguineous parents, half of them had 2nd-degree consanguinity.

As regard medical history of the studied children, the present study showed that more than half of the studied children were aged from 3 to less than 6 years old when diagnosed with ptosis. This may be reflect the fact that ptosis is often diagnosed in early childhood when visual development and sensory processing are critical. The age range of 3 to less than 6 years old corresponds to a developmental period when any visual impairment, as ptosis, becomes more noticeable and potentially disruptive to a child's learning and interaction with their environment.

Parallel with this result, a study carried out by Sun et al,[44] under the title "Ocular biological characteristics and refractive errors in children with unilateral congenital ptosis," reported that mean age at diagnosis was 4.7 (.09 – 18.9) years old. On contrary, a study conducted by Ripa et al,[37] which is named "Association of Eyelid Disorders and Ocular Motility Disorders in Pediatric Age: an Epidemiologic Analysis. A Multicenter Retrospective Study," reported that the mean age children when they were diagnosed with ptosis was 2 [1 – 6] years old.

Additionally, the current study represented that approximately two fifths of the studied children had bilateral congenital ptosis. This may be due to the fact that bilateral congenital ptosis is a common presentation of the condition. Also, this result could reflect the hereditary nature of the condition, where both sides of the face are equally impacted.

In this context, Assadi et al,[12] carried out a study published as "Effect of congenital ptosis correction on corneal topography-A prospective study," in India and declared that the largest portion of children had bilateral congenital ptosis. This result was incongruent with a study carried out by Prabha & Padma,[36] who conducted a study entitled "Congenital ptosis-A clinical and demographic study in a tertiary eye care hospital," in India and reported that less than three quarters of the studied respondents were unilateral and involvement of Left eye was predominant at rate of about three fifths.

Furthermore, the current study showed that about two thirds of the studied children had been performed marginal reflex distance to diagnose the child's condition. This may be due to marginal reflex distance (MRD) being a standard, quick, and non-invasive measurement that objectively quantifies eyelid position relative to the corneal light reflex, making it ideal for pediatric ptosis assessment.

In this concern, a study in China, conducted by Ji et al,[26] entitled "Efficacy and Safety of

Conjoint Fascial Sheath (CFS) Suspension in the Treatment of Blepharoptosis: A Systematic Review and Meta-analysis," affirmed that change in marginal reflex distance was used for most of the studied participants as a primary endpoint, which is reinforcing its central role in diagnosis and follow-up. Consistently, a study in China conducted by Liu et al,[31] which is called "Refractive error characteristics and influence on ocular parameters in patients with unilateral congenital ptosis," stated that marginal reflex distance is described as the primary clinical measurement to quantify ptosis and to grade severity.

Moreover, the current study represented about two thirds of the studied children had family members suffered from ptosis, and more than two fifths of them were their brother/sister. This may stem from the hereditary nature of many congenital ptosis cases, where autosomal inheritance with variable expressivity leads to clustering within families and particularly among first-degree relatives. In the same line, a study carried out by Ripa et al,[37] noticed that three fifths of the studied cases had ptosis family history and the highest portion of them had brother or sister with ptosis. Also, this result contradicted with a study performed by Prabha & Padma,[36] who found that family history of congenital ptosis was present in only less than one fifth of cases.

In addition, the current study demonstrated that about two thirds of the studied children hadn't eyelid surgeries been performed before. This may be due to common clinical practice to delay ptosis surgery until a child is old enough for safer anesthesia, stable measurements, and clearer assessment of levator function. In addition, parental hesitancy, limited access to pediatric oculoplastic services, financial barriers, and waiting lists can postpone intervention. These may be factors that make it likely that a substantial proportion of children had not undergone any prior eyelid surgery.

This result agreed with a study in China conducted by Ma et al,[32] entitled "Application of e-PTFE frontalis suspension in the treatment of congenital ptosis in children," and noted that most of the studied children not having had previous eyelid procedures. On contrary, Diab et al,[20] who carried out a study in Egypt published under the title "Combined levator and frontalis muscle advancement flaps for recurrent severe congenital ptosis," report substantial prior eyelid surgery among the studied patients.

As regards the studied mothers' total knowledge level regarding ptosis and ptosis surgery throughout intervention phases, the present study indicated that slightly more than one fifth of the studied mothers had adequate total knowledge level pre-intervention, which increased to the majority and more than three quarters post intervention and at follow-up, respectively. Similarly, slightly less than half of them had inadequate total knowledge level pre- intervention compared to a minority post intervention and at follow-up, respectively.

This may be due to the effectiveness of the intervention in providing comprehensive and well-structured information about ptosis and its surgical management, which significantly enhanced the mothers' overall knowledge. The continued improvement at the follow-up phase reflects both the immediate learning impact and the long-term retention of information, which could be attributed to the clarity of the educational content, the use of simple and understandable language, and the mothers' strong motivation to learn in order to better support their children's health and recovery. Similarly, the study by Khan et al,[28] titled "Awareness of parents regarding eye diseases and

eye care needs among children of Tehsil Babuzai, District Swat," found that less than half of the mothers surveyed possessed adequate knowledge about childhood eye diseases.

Likewise, a study in China, performed by Wang,[46] entitled “Analysis of the Impact of Nursing Interventions on Treatment Compliance in Children with Congenital Ptosis after Surgery,” reported that immediate post-intervention scores showed significant improvement in knowledge. Applying comprehensive nursing interventions can improve knowledge, reduce the incidence of complications, improve treatment compliance, and enhance their quality of life. This result was supported by Anulao,[11] who studied the "Impact of a Preoperative Education Video on Parent Satisfaction in Pediatric Ophthalmology," in the USA, and declared that preoperative video education can positively impact understanding and knowledge among parents of pediatric ophthalmology patients.

As for the studied mothers’ total reported practice regarding care of their children undergoing ptosis surgery, the current study indicated that less than third of them had satisfactory total reported practice at pre-intervention, which increased to majority of them at post intervention and at follow-up, respectively. As well, more than two thirds of them had unsatisfactory total reported practice at pre-intervention, which decreased to less than fifth of them at post intervention and at follow-up, respectively. This may stem from the educational intervention providing clear, hands-on training and simple take-home instructions that turned key postoperative tasks into easy, repeatable routines.

In this respect, this result was compatible with a study conducted by Samy et al,[38] which is titled "Effect of educational program regarding eye infection care on mothers' performance and their children outcomes" who stated that there was a highly statistically significant improvement in mothers' all practice items, including hand washing and right administration of eye medications, immediately and after one week of program implementation compared to before implementation. Moreover, this result was similar to Abd-El Naby et al, [4] who in their study "Health Educational Program for Mothers regarding Care of their Children with Retinoblastoma" found that less than half of the studied mothers had satisfactory total practices level pre-program implementation and then this percentage improved to majority of them post-program implementation.

Concerning the correlation between total knowledge level and total reported practice level among the studied mothers, the present study displayed that there was a highly statistically significant positive correlation between total knowledge level and total reported practice level among the studied mothers pre and post intervention and at follow-up. This may be attributed to the interdependent relationship between knowledge and practice in the context of health education. As mothers gain accurate and comprehensive knowledge about ptosis and its care through the educational intervention, this likely motivates them to apply what they have learned with more confidence, resulting in improved caregiving practices.

This result was supported by Mohamed et al,[33] in their study entitled "Effect of Instructional Guidelines on Mothers' Knowledge and Practice regarding Conjunctivitis among Children in Ophthalmology Outpatient Clinic," which declared that the mothers under study's total knowledge and practice scores regarding their children with conjunctivitis were positively and significantly correlated at pre and post the instructional guidelines. Also, this finding was

compatible with the results of a study by Khattak et al,[29] under the title "Knowledge, Practice and Attitude of Mothers for Ophthalmic Problems in Children in Rural Areas-A Cross-Sectional Study" who observed that parents' knowledge of ophthalmic problems significantly correlated with their practice.

This result also was in accordance with the study carried out by Abd El-Kader & Mohammed,[3] titled "Effect Of An Educational Intervention On Mothers' Knowledge, Attitude And Practice About Proper Antibiotic Use In A Selected Family Health Center," which pointed out that mothers who joined the educational sessions became more aware post-educational sessions than before, they demonstrated proper practice.

Implication for practice

The findings of this study highlight the importance of designing and implementing continuous preoperative educational intervention for mothers about effect of ptosis surgery on quality of life and psychosocial function of their children, implementing educational intervention had a positive effect on improvement of the mothers' knowledge and reported practice regarding care of their children, improve the child's visual development, achieve appropriate outcomes for a long time, decrease mothers' anxiety, improve coping mechanisms of mothers during their children surgical journey, improve their awareness regarding any health problems that possibly might occur and ways of prevention, increasing the mothers' awareness regarding the essential lifestyle pattern modifications following the ptosis surgery that helps them to achieve more sustainable health outcomes.

Limitations

Despite the valuable findings of this study, several limitations should be acknowledged. First, lack of randomization as a quasi-experimental design, participants were likely not randomly assigned, this can introduce selection bias and reduce the internal validity of the findings. Second, limited generalizability as the sample have come from a single hospital, limiting the ability to generalize results to other settings, cultures, or healthcare systems. Additionally, the study focused only on mothers, excluding fathers or other caregivers who may also provide postoperative care to children.

Conclusion

The educational intervention had a positive effect on improvement of the mothers' knowledge and reported practice regarding care of their children undergoing ptosis surgery. More than one fifth of the studied mothers had adequate total knowledge level regarding ptosis and ptosis surgery pre educational intervention which increased to majority & more than three quarters post educational intervention and at follow-up respectively. Meanwhile regarding studied mothers' total reported practice level, less than third of the studied mothers had satisfactory total reported practice regarding care of their children undergoing ptosis surgery pre educational intervention which increased to majority post educational intervention and at follow-up. There were highly statistically significant positive correlation between total knowledge level and total reported practice level among the studied mothers pre and post educational program and at follow-up.

Strengths of the study

This study demonstrates several strengths that add to the validity and usefulness of its results. It is filling an important gap in research regarding care for children with ptosis, as very few studies address educational interventions for ptosis surgery caregiving, making this research a

valuable addition. Opens new avenues for innovation in patient and family education within specialty surgical areas. The use of video education provides standardized, repeatable, and engaging content, reduces variability in instruction that often occurs with verbal teaching. Allows mothers to learn at their own pace and review material, improving comprehension and retention. The relatively large sample size (n=140) strengthens the internal validity of the study. Use of an innovative, technology-based educational tool: the adoption of video-assisted education provides a standardized, consistent, and repeatable method of delivering postoperative care instructions and video materials enhance comprehension, especially for visual learners, and reduce dependence on verbal explanations alone.

High clinical relevance: the study addresses a real and specific clinical need improving mothers' ability to care for children after ptosis surgery, where improper care can affect healing and outcomes and supports the global shift toward family-centered care in pediatric nursing. Quasi-experimental pre–post design enables measurement of change over time in mothers' knowledge, skills, or performance and allows evaluation of the effectiveness of the educational intervention even in clinical settings. Practical and easily implemented intervention: video-assisted education is cost-effective, accessible, and easy to integrate into routine nursing practice and improves time management for researcher by reducing repeated one-to-one teaching. Enhanced external validity for real-world Settings: conducted in a natural clinical environment, making findings applicable to actual nursing practice. Focus on empowering mothers as primary caregivers: builds maternal competence, confidence and autonomy in the postoperative care process. Potential to improve child health outcomes through proper home care delivered by informed parents.

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