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Audio-Visual versus Lecture Education on Teaching Quality and Discharge Readiness in Cataract Patients

[C]Muhammad Iqbal Nasrulloh[1], Kusman Ibrahim[2], Nursiswati, Nursiswati[3]
[1]National Eye Center, Cicendo Eye Hospital, Bandung, Indonesia
[1,2,3]Nursing Faculty, Padjadjaran University, Jatinangor, Bandung, Indonesia
Corresponding Email: muhammad21329@mail.unpad.ac.id
muhammad21329@mail.unpad.ac.id, nursiswati@unpad.ac.id[2] , k.ibrahim@unpad.ac.id[3]

ABSTRACT

Cataract surgery in a day-care unit significantly reduces preoperative education time, posing a challenge for elderly patients with cognitive decline. Traditional lectures rely on nurse availability and verbal recall, necessitating a more standardized and sensory-engaging alternative. This study compared the effectiveness of audio-visual media versus traditional lectures on the Quality of Discharge Teaching (QTDS) and Readiness for Hospital Discharge (RHDS) in phacoemulsification patients. A quasi-experimental, post-test-only study was conducted at a tertiary referral hospital in August 2023. Using sequential sampling, 100 participants were allocated to either the lecture group (n=50) or the audio-visual group (n=50) based on a systematic time-based approach (odd-even surgery dates) to prevent cross-contamination. Data were collected through the validated Indonesian P-QTDS and P-RHDS questionnaires and analyzed using the Mann–Whitney U test. No significant difference was found in teaching quality (p=0.647), with both methods rated as satisfactory. However, the audio-visual group had a higher mean rank for discharge readiness (55.47) than the lecture group (45.53). Although approaching marginal significance (p=0.073), this reflects a clinically meaningful trend favoring the audio-visual intervention. The use of audio-visual media is recommended as the primary educational method to improve discharge readiness and ensure nursing standardization in high-volume day-care units.

Keywords: Cataract; health education; patient discharge; patient education; multimedia.

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Address :
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Makassar, Sulawesi Selatan.
Email :
jurnalwoh.fkm@umi.ac.id
Phone :
+62 82188474722

INTRODUCTION

Cataracts remain a leading cause of blindness and visual impairment globally, significantly impairing the quality of life among older adults.[1] While the natural aging process is the primary driver of lens opacification, systemic factors such as diabetes, ocular trauma, and long-term steroid use have been identified as key contributors to its development.[2] In the Indonesian context, the burden of cataract blindness is extremely high. It is estimated that cataracts are the leading cause of blindness in approximately 1.3 million people aged 50 years and over across the archipelago.[3,4]

The clinical management of cataracts has undergone a significant paradigm shift, with phacoemulsification becoming the gold standard treatment, increasingly delivered through an Outpatient Surgery or Day Care (ODC) model.[5] While this model is highly operationally efficient, it poses significant challenges to patient safety. In a day care system, patients are discharged immediately after the procedure, shifting responsibility for complex postoperative care, including infection control and medication adherence, directly to the patient and their family.[6]

This rapid patient care presents significant challenges in nursing care, particularly in conveying important health information to patients vulnerable to cognitive decline and perioperative anxiety.[7,8] Traditional lecture methods are often ineffective in stressful environments because they overload elderly patients' cognitive resources, requiring them to mentally recall and re-understand instructions.[9,10] Although health education has proven beneficial, evidence is limited regarding the most effective methods in a day care setting with rapid patient turnover and limited interaction time.

To address this gap, this study compared the effectiveness of lecture and audiovisual methods on the Quality of Discharge Teaching (QTDS) and Readiness for Discharge (RHDS) in a tertiary referral hospital (FKRTL). In contrast to previous research, this study specifically addresses the challenges of delivering standardized, easily understandable, and appropriate education to elderly patients with sensory and cognitive limitations in the outpatient surgical environment.

METHOD

A quasi-experimental study with a post-test-only control group was conducted in August 2023 at a tertiary referral eye hospital (Fasilitas Kesehatan Rujukan Tingkat Lanjut [FKRTL]) in West Java, Indonesia. The study involved patients undergoing phacoemulsification cataract surgery in the Day Care Unit. A total of 100 participants were recruited using sequential sampling. To ensure systematic assignment and prevent treatment contamination, participants were allocated using a systematic time-based approach: patients scheduled for surgery on odd-numbered dates were assigned to the lecture group (n = 50), while patients on even-numbered dates were assigned to the audio-visual group (n = 50). Sample size determination was based on a power analysis with a 95% confidence level ($\alpha = 0.05$) and 80% power, adjusted for the unit's surgical volume. Eligibility criteria included patients aged 18 years or older, visual acuity of 3/60 or better in the unoperated eye, and the ability to provide informed

consent. Patients with severe perioperative complications or cognitive impairment that could impair communication were excluded from the study. Ethics approval was obtained from the Ethics Committee of Cicendo Eye Hospital (Registration Number: LB.02.01/2.3/9206/2023), and participant confidentiality was maintained throughout the study. Outcomes were measured using the Indonesian versions of the Discharge Teaching Quality Scale (P-QTDS) and the Hospital Discharge Readiness Scale (P-RHDS). These instruments were originally developed and subsequently validated for the Indonesian context, demonstrating high internal consistency (Cronbach's alpha 0.95 and 0.91, respectively).[11–13] The instruments used included cataract-specific indicators, and scores were categorized into four levels. The audio-visual group received a standardized 15-minute educational video, while the lecture group received a 20-minute face-to-face counseling session using a printed brochure. Data were analyzed using IBM SPSS Statistics version 26. Normality testing using the Shapiro-Wilk test showed a non-normal distribution of the data ($p<0.05$); therefore, comparisons between groups were performed using the non-parametric Mann–Whitney U test, with $p<0.05$ considered statistically significant.

RESULTS

Table 1 presents the demographic characteristics of participants in the two groups (lecture and audiovisual presentation). Both groups were predominantly female. The average age of the audiovisual presentation group was higher than that of the lecture group, and a higher proportion of participants were aged 75 years or older. Most participants had low to secondary education, with primary and secondary education being the most common. Regarding employment status, the majority of participants were unemployed or retired. In both groups, most participants had suffered from cataracts for 1 to 5 years.

Table 1. Demographic Data Frequencies (n = 100)

Variable	Lecture		Audio-Visual	
	Frequency	%	Frequency	%
Sex				
Man	19	38.0	24	48.0
Woman	31	62.0	26	52.0
Age (years)				
< 44	5	10.0	4	8.0
45 - 54	13	26.0	8	16.0
55 - 64	17	34.0	11	22.0
65 - 74	9	18.0	5	10.0
> 75	6	12.0	12	24.0
Mean	58.24		64.12	
Standard Deviation	11.51		12.03	
Range	26 – 79 y.o		37 – 84 y.o	

Variable	Lecture		Audio-Visual	
	Frequency	%	Frequency	%
Educational level				
No school	5	11.8	7	14.0
Elementary school	14	23.5	14	28.0
Junior high school	8	5.9	10	20.0
High school	14	38.2	9	18.0
Academy/university	9	20.6	10	20.0
Occupation				
Unemployed Farmer	22	44.0	19	38.0
Laborer	12	24.0	10	20.0
Private/Entrepreneur	5	10.0	7	14.0
Government employees/retired	11	22.0	14	28.0
Suffering from cataracts				
1 – 5 years	44	88.0	48	96.0
6 – 9 years	3	6.0	0	0.0
≥ 10 years	3	6.0	2	4.0
Mean	2.54		2.14	
Standard Deviation	2.697		2.836	
Range	1 – 10 y.o		1 – 18 y.o	

Quality of Discharge Teaching Scale (QTDS)

Table 2 presents the distribution of teaching quality among respondents who received health education using the lecture method. Most respondents were classified as having very high teaching quality, followed by those with moderate and high categories. A smaller proportion of respondents fell into the low category. Overall, the lecture group demonstrated a mean QTDS score of 8.23 with a standard deviation of 1.59.

Table 2. Frequency Distribution Quality of Discharge Teaching Scale (QTDS) of Respondents Who Were Given Health Education Using the Lecture Method (n= 50)

P-QTDS	Frequency	%	Mean	Standard Deviation
Very high	20	40.0	8.23	1.59
High	10	20.0		
Moderate	12	24.0		
Low	8	16.0		
Total	50	100		

Teaching Quality of Respondents Who Were Given Health Education with Audio-Visual Media

Table 3 shows the distribution of teaching quality among respondents who received health education using audio-visual media. Most respondents were classified as having very high teaching quality, followed by high and moderate categories, while only a small proportion were categorized as low. The audio-visual group demonstrated a mean QTDS score of 8.58 with a standard deviation of 1.25.

Table 3. Frequency Distribution of Quality of Discharge Teaching Scale (QTDS) in Education Using Audio-Visual Media

P-QTDS	Frequency	%	Mean	Standard Deviation
Very high	22	44.0	8.58	1.25
High	15	30.0		
Moderate	10	20.0		
Low	3	6.0		
Total	50	100		

The Readiness for Hospital Discharge (RHDS)

Table 4 presents the level of patient readiness for hospital discharge after receiving health education using the lecture method. Most respondents were classified into the very high and high readiness categories, followed by the moderate category, while a smaller proportion showed low readiness. The mean RHDS score in the lecture group was 8.04 with a standard deviation of 1.65.

Table 4. The Readiness for Hospital Discharge (RHDS) in Lecture Method Health Education

RHDS	Frequency	%	Mean	Standard Deviation
Very high	15	30.0	8.04	1.65
High	15	30.0		
Moderate	12	24.0		
Low	8	16.0		
Total	50	100		

Patient Readiness in the Discharge Procedure After Receiving Health Education Using Audio-Visual Media

Table 5 shows the level of patient readiness for hospital discharge after receiving health education using audio-visual media. Most respondents were classified in the very high readiness category, followed by high and moderate categories, while only a small proportion were categorized as low. The mean RHDS score in the audio-visual group was 8.79 with a standard deviation of 1.37.

Table 5. Frequency Distribution of The Readiness for Hospital Discharge (RHDS) in Education with Audio-Visual Media

P-RHDS	Frequency	%	Mean	Standard Deviation
Very high	28	56.0	8.79	1.37
High	13	26.0		
Moderate	7	14.0		
Low	2	4.0		
Total	50	100		

Comparison of Lecture and Audio-Visual Health Education Methods on Teaching Quality and Readiness for Discharge Procedures in Cataract Patients

As shown in Table 6, the Mann–Whitney U test demonstrated no statistically significant difference in teaching quality (QTDS) between the lecture and audio-visual groups (p=0.647). Similarly,

no statistically significant difference was found in readiness for hospital discharge (RHDS) between the two groups (p = 0.073), although the audio-visual group showed a higher mean rank than the lecture group.

Table 6. Comparison of Lecture and Audio Health Education Methods Visuals on Teaching Quality and Readiness For Discharge Procedures

	Methods	Mean Rank	Z	P Value
Quality of Discharge Teaching Scale (QTDS)	Lecture Audiovisual	49.22 51.78	- 0.458	0.647
Readiness For Hospital Discharge Scale (RHDS)	Lecture Audiovisual	45.53 55.47	- 1.794	0.073

DISCUSSION

The demographic profile of respondents in this study goes beyond statistical information; it provides a clear clinical description of the population affected by cataracts. The predominance of female patients (57%) is consistent with global epidemiological trends and has been biologically associated with postmenopausal estrogen decline, a hormone that functions as a natural antioxidant and neuroprotective agent for the lens.[14] Furthermore, the concentration of respondents in the 55–64 age group aligns with evidence indicating that cataract risk increases progressively with age.[15] From a nursing perspective, these demographic characteristics are important in shaping educational delivery strategies, as this population is biologically vulnerable to sensory impairment and cognitive slowing. Therefore, interventions should be designed to accommodate these physiological limitations.[15]

A key finding of this study is the discrepancy between perceived teaching quality and actual discharge readiness. Both the lecture and audio-visual groups reported similarly high scores on the Quality of Discharge Teaching Scale (QTDS), indicating that conventional health education delivered by trained nurses reflects adherence to professional care standards. This finding aligns with evidence demonstrating that nurse presence and structured explanations significantly predict patient satisfaction.[16] Similarly, preoperative education has been shown to reduce patient anxiety irrespective of the educational medium used.[17] However, high satisfaction levels do not necessarily translate into equivalent readiness for self-care. Although the difference did not reach statistical significance (p> 0.05), the audio-visual group demonstrated a clinically meaningful advantage on the Readiness for Hospital Discharge Scale (RHDS), with higher mean scores than the lecture group. This pattern is consistent with evidence showing that video-based patient education is more effective than traditional methods in improving self-care performance.[18] The superior readiness observed in the audio-visual group, despite comparable teaching quality, suggests fundamental differences in information processing and retention mechanisms.

This discrepancy can be explained through the integration of neurobiological principles and learning theory. Contemporary neuroscientific frameworks suggest that visual-based education is particularly effective for older adults because the brain encodes information through both symbolic-

verbal and sensory-experiential systems.[19] Traditional lecture-based education primarily relies on verbal processing. For elderly patients experiencing age-related declines in verbal memory, translating abstract instructions into concrete actions requires substantial cognitive effort. In contrast, audio-visual media employ dual coding by presenting auditory explanations alongside visual demonstrations, activating both processing systems simultaneously and producing stronger memory traces. Consequently, patients may retrieve information by recalling visual scenes rather than reconstructing verbal commands.[7,20] Furthermore, the fast-paced nature of outpatient surgical care is often associated with perioperative anxiety that reduces working memory capacity. Reducing cognitive effort during learning is therefore essential in such contexts.[21] Lecture-based methods tend to impose greater extraneous cognitive load because patients must internally visualize procedures, whereas video modeling provides concrete visual anchors that enhance self-efficacy and discharge readiness.

Beyond individual outcomes, these findings support the standardization of discharge education in high-volume clinical settings. Reliance on verbal instruction alone introduces variability related to nurse fatigue and workload intensity.[9,22] Audio-visual media function as a quality assurance mechanism by ensuring consistent delivery of safety information regardless of clinical activity levels. Standardized discharge education has been shown to improve patient engagement and reduce post-discharge complications.[23,24] By delegating repetitive instructional content to audio-visual platforms, nurses can focus on emotional support and complex clinical decision-making, thereby optimizing overall care quality.

Several limitations should be acknowledged. The quasi-experimental design with time-based allocation (odd–even), although practical, lacks the rigor of randomized controlled trials and may introduce selection bias. Additionally, cataract duration relied on patient recall; future studies should verify this information using ophthalmological diagnosis records to improve accuracy. Baseline anxiety levels were not controlled despite their known influence on learning.[25] Future research should employ longitudinal designs to determine whether improved discharge readiness is associated with reduced adverse events during the 30-day postoperative period.[16,22,26,27].

CONCLUSIONS AND RECOMMENDATIONS

Based on our findings, we conclude that while traditional lecture-based methods remain effective in ensuring patient satisfaction with teaching quality, they may not be sufficient to maximize functional autonomy in a fast-paced Daycare environment. Although both methods yielded comparable perceptions of teaching quality, audio-visual media demonstrated a clinically meaningful advantage in improving patient readiness for discharge. This suggests that visual reinforcement is crucial for bridging the gap between “receiving information” and being “ready to act,” particularly for older patients facing cognitive and sensory declineTherefore, we recommend integrating audio-visual media as the primary standard of care for patient discharge education in high-volume cataract units. This approach offers dual

benefits: standardizing information quality to minimize human variability and reducing cognitive load on patients, allowing for more effective encoding of safety protocols. Moving forward, nursing practice should shift from reliance on verbal instruction alone to a technology-assisted, multisensory educational model that ensures patient safety and consistency despite the operational constraints of modern surgical care.

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ETHICAL CONSIDERATIONS

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