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Original Research Article

Knowledge, attitude and practice pattern among intensive care nursing staff on eyecare practices in ICU patients

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ABSTRACT

Background: Eyecare forms a major part of the care provided to all patients in ICUs. Critical care nurses limited knowledge about anatomy and physiology of eyes and ocular manifestations in critically ill patients can delay the identification and delivery of proper eyecare.
Methods: A hospital based descriptive study among 74 ICU nursing staff was conducted using a well-structured questionnaire. Basic demographic data including age, gender, education, experience in ICU, type of ICU and previous eye training were collected. Questionnaire had 3 parts-knowledge, attitude and practice with 7 MCQs in each. Knowledge assessment was on different ocular signs in patients, their risk factors and management with 2 or more correct responses and a score of 3, 2, 1 or 0 was given. Attitude assessment was regarding the importance of early detection, treatment and prevention of eye diseases. Positive response was given score1, negative response 0. Practice assessment was based on methods and techniques of eyecare followed in ICU.
Results: 54% had 1-5 years experience in ICU. 20.3% were from NSICU. 78% had average knowledge. 86.8% answered the question on high risk for exposure keratopathy correctly. 50% showed good attitude, maximum positive attitude was for the question on the effect of eye care on preventing eye disorders. No correlation was found between attitude and knowledge score. Average practice pattern was shown by 54%. Practice patterns followed included assessment of lid closure in their last duty by 66.2%, eyelid closure assessed hourly by 59.5%, eyedrops instilled 3 hourly and 6 hourly by 36.5% and method of cleaning eyes using distilled water by 41.9%. 50% of nurses cleaned the eyes hourly. 60% staffs did taping for incomplete eyelid closure and 61% followed fixed eyecare protocol.
Conclusions: ICU nurses level of knowledge concerning eye care of mechanically ventilated develop a fixed protocol for eyecare in ICU which will help in systematic management.

Keywords: Eyecare, Intensive care unit, Nursing staff

INTRODUCTION

Lifesustaining operations are prioritized in the intensive care unit (ICU) for critically sick patients because they often have a variety of lifethreatening systemic illnesses that may mask relatively "minor" eye issues. Despite the fact that patients in the intensive care unit are more vulnerable to various eye conditions, eye care is not given much thought.

Eye care practices in the intensive care unit (ICU) are essential for maintaining the overall health and well-being of patients. In the ICU, patients are often unable to care for their own eyes, making them vulnerable to dry eyes, corneal abrasions, infections and various other ocular disorders. Proper eye care in the ICU involves regular assessment of eye health, including monitoring for signs of inflammation or infection. The incidence of exposure keratopathy varies from 3.6 % to as high as

60% in these aptients.[1] These practices are crucial for preventing complications and promoting the recovery of critically ill patients in the ICU.

They can play an important role in the early detection and prevention of ocular disorders. As a result, it is critical to determine the level of knowledge of ocular disorders among nursing personnel who are responsible for caring for patients admitted to the ICU around the clock. Eye care practice in intensive care units varies from unit to unit and from country to country. The most reported methods are cleansing eyes with sterile gauze soaked with normal saline every 2-6 hr, covering the eye with polyethylene cover, instillation of artificial eye drop and ointment and passive eyelid closure. The effectiveness of these methods depends on the degree of eye complication, using the appropriate methods and the nurses' skills and knowledge in performing the procedure.[2] Poor documentation of early signs of the eye complications by nurses and the lack of evidence-base practice contributes to high incidence of eye complications among mechanically ventilated patients. Many studies had tested hospital base design protocol for eye care at their hospitals and showed great improvement in nurses' performance regarding eye care and decrease incidence rate of eye complications after the education programs but there is no evidence base practices for eye care nurses to be followed by nurses.[2] Furthermore, a better understanding of their eye care habits is required in order to build a defined eye care protocol in ICU settings. KAP studies gather data on what is understood, accepted, and practiced in a given community regarding a given subject. By identifying specific gaps, knowing the levels of knowledge, attitudes, and practices can help create awareness more efficiently and enable programs to be tailored to the needs of the community. The purpose of this study was to analyze nursing staff's awareness on eye care, asses the attitude and to evaluate their practices. This study aimed to estimate knowledge, attitude and practice pattern of nursing staff regarding eye care in patients admitted in ICU in a tertiary care centre.

METHODS

This is a questionnaire based descriptive study conducted among nursing staff working in ICU from the month of April to July 2023 at a Medical College Hospital in Trivandrum, Kerala. The study included 74 ICU staffs caring for a total of 121 ICU beds (medical, surgical, neonatal, paediatric, cardiac and neurosurgery ICU). All ICU nursing staff willing to participate in the study were included in the study. Nursing staff from other wards and outpatient departments were excluded. A purposive sampling was done and data was collected in the form of a multiple-choice questionnaire. The questionnaire included 3 parts: knowledge, attitude, practice. Each part consisted of 7 questions. Knowledge comprised of questions based on ocular signs, risk factors and management with two or more correct responses and a score of 3,2,1 or 0 was given depending on the number of correct responses. The participants were grouped based on their score into good (15-21), average (8-14), poor (1-7). Attitude consisted of 7 questions regarding early detection, treatment and prevention of eye diseases or complications and a score of 1 was given for positive response and 0 for negative response. Depending on the total score, attitude was graded into good (6-7), average (4-5) and poor (1-3). Practices were assessed based on questions regarding method and techniques of eyecare and the protocol routinely followed in the ICU. Response to each practice pattern was noted and participants were graded into good (15-21), average (8-14) and poor (1-7) The data was analysed based on age, gender, education, previous eye care training, experience, types of ICU.

RESULTS

This cross sectional descriptive study was done among 74 ICU nursing staffs. Age ranged from 23 to 54 years, mean age being 33.7±7.8 yrs (Figure 1). Majority of the participants (92%) were females (Figure 2). Of the study participants, 93% were BSc graduates and 7% held Diploma. Only 35.1% underwent eye care training. Majority (54%) had 1-5 years' experience. 20.3% staffs were from NSICU followed by 16% in MICU.

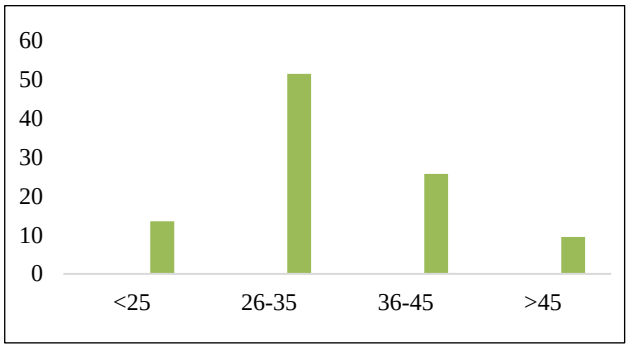

Figure 1: Age distribution.

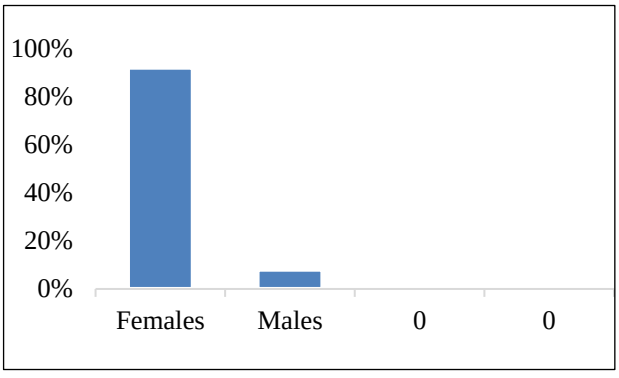

Figure 2: Gender distribution.

Knowledge

About 78.3% of study participants scored between 8-14 marks (average knowledge). Knowledge was found to be good in 20.3% and poor in 1.4% (Figure 3).

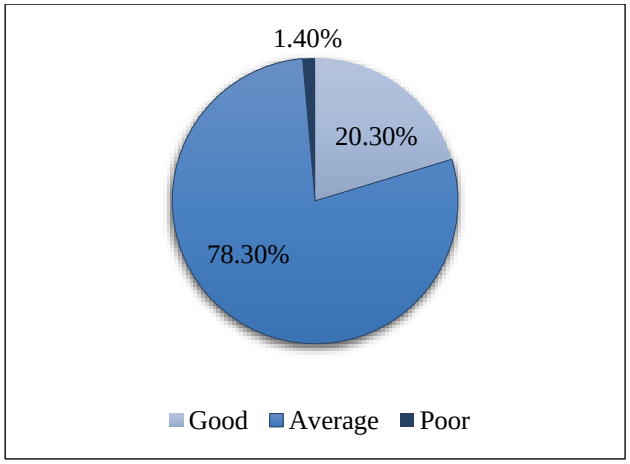

Figure 3: Knowledge.

Total 86.8% of the participants answered the question on patients with higher risk for exposure keratopathy correctly. Least knowledge level was for the question on reasons for developing exposure keratopathy (54%). Ventilated and sedated patients in ICUs carry a high risk of developing exposure keratopathy and 43% of our participants gave the correct response. While low blinking rate, inadequate lid closure and AC room were reasons for developing exposure keratopathy only 12%of the study population choose that response. Highest response on management of exposure keratopathy was lid taping (58%). Among the participants 35.1% underwent training on eyecare/administration of eye medications and 72.3% among them felt it was useful in given eyecare to the patients. Among the 73.87% who gave appropriate responses on the right direction of applying tape in closing eyes properly was opted by only 44.6%.

Table 1: Questions on knowledge and responses.

Questions on knowledge	Knowledge (%)	Responses	Response (%)
1.What do you think are the possible eye complications in ICU patients?	75.66	Inadequate lid closure	6.8
		Inadequate lid closure + exposure keratitis	31
		Inadequate lid closure+exposure keratitis+lid oedema	62
2.Among admitted patients who are at a higher risk of exposure keratopathy?	86.48	ICU	64
		Surgery ward	6.8
		Pediatric ward	12
		Medicine ward	20.3
3.Among ICU patients who are at a higher risk of developing eye complications?	66.2	Ventilated and sedated	43
		Semiconscious	12
		Unconsious	44.6
4.Reason for developing exposure keratopathy in ICU patients	54.05	Low blinking rate	12
		Inadequate lid closure	13.5
		Low blinking rate + inadequate lid closure	29.7
		Low blinking +inadequate lid closure+ AC room	12
		Inadequate lid closure+AC room	16
		AC room	16
5.Management of exposure keratopathy includes?	61.26	Lubricants only	12
		Lubricants + lid taping	13.5
		Lid taping	58
		Surgery	13.5
		Lid taping+ surgery	1.3
6.Have you undergone any special training in eyecare/ administration of eye medications?	35.1		
If yes, whether it has helped in giving eyecare to patients	72.3		
7.What is the right direction of applying adhesive tape for closing the eyes?	73.87	Across lids	40.5
		From upper lid to cheek	44.6
		Bandage entire eye	16

Attitude

The 50% of the study participants scored between 6-7 marks (good attitude) and 44.6% between 4-5 marks (average) (Figure 4).

Out of the seven questions under attitude the maximum positive response (90.54%) was for the question on the effect of eye care in preventing eye disorders and 67.6% of the participants felt that it had the highest importance.

Least positive response was for the question on what will be done on seeing a patient with incomplete eyelid closure (65%). Though 37.8% of ICU staff responded that they would start lubricants on seeing a patient with incomplete eyelid closure, only 29.7% thought it was necessary to inform the ICU doctor and 1.3% would ignore it. Majority of participants (85.5%) found that it was necessary to perform hand hygiene before and after giving eyecare to the patient and many (77.02%) of them also responded that it was necessary to do routine eye examination in ICU patients. 81% of the participants stated that while performing nursing care procedures like tracheal suction/ sponge bath it was necessary to give eye protection. Most of the participants responded that giving eyecare for ICU patients and nursing staff education in terms of eyecare carry high level of importance on preventing eye disorders (Table 2).

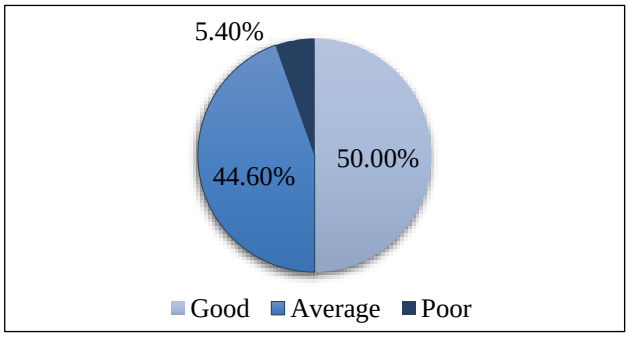

Figure 4: Attitude.

Table 2: Questions on attitude and responses.

Questions on attitude	Attitude (%)	Response			Response (%)
1. Do you think it is necessary to perform hand hygiene before and after giving eyecare to the patient?	85.13	Yes			85.13
2.Do you think it's necessary to do routine eye examination in ICU patients?	77.02	Yes			77.02
3.When you see a patient with incomplete eyelid closure you will	67.56	Ignore it			1.3
		Infrom ICU doctor			29.7
		Start lubricants			37.8
		Do lid taping			5
		Inform ICU doctor +start lubricants			16
		Inform ICU doctor+start lubricants +do lid taping			8
		Start lubricants+do lid taping			6.8
4. Do you think it's necessary to give eye protection while performing nursing care procedures like tracheal suction/ sponge bath?	81.08	Yes			81.08
5. How much importance does eyecare have for patients admitted in ICU?	75.67	High 78.4	Moderate 10.8	Low 10.8	
6. How much effect does nursing staff education in terms of eyecare have on preventing eye disorders?	81.08	47.3	37.8	14.9	
7. How much effect does eyecare have on preventing eye disorders among ICU patients?	90.54	67.6	28.4	4	

There was no significant correlation between knowledge score and attitude score.

Practice

Majority of the participants (54.1%) scored between 8-14 (average) (Figure 6).

A total of 78% was scored for the question on last assessment of lid closure and 66% responded that they assessed lid closure in their last duty and question on the method of cleaning the eyes of the patients scored the least (56%) where 40% responded that would clean the eyes of the patients with distilled water while 10% would use tap water. Eyelid closure would be assessed hourly by 59.5%, cleaning would be done hourly by 50% and 37% would instil eyedrops 3hourly or 6hourly. 59.5% have done taping of eyes for incomplete eyelid closure (Table 3).

Attitude among NSICU staffs (n=15) was good in 100%, but was only 66.7% among MICU staffs and 55.6% among NICU staffs.

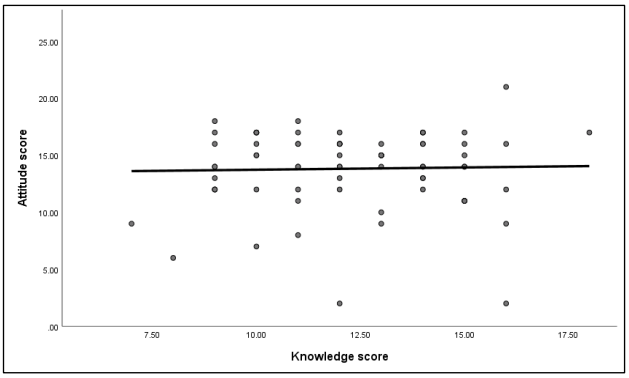

Figure 5: Scatter plot showing correlation between attitude Vs knowledge score.

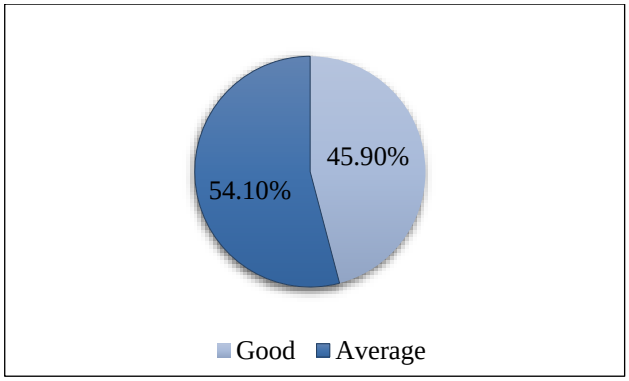

Figure 6: Practice.

Table 3: Questions on practice pattern.

Questions on practice pattern	Practice %	Response	Response %
1. When did you last asses lid closure of your patient?			
Last duty	78	Last duty	66
1 week back		1 Week	15
1 month back		1 Month	9.5
Others		Others	9.5
2. How frequently do you asses eyelid closure?			
Hourly	76	Hourly	59.5
3 hourly		3 Hourly	20
6 hourly		6 Hourly	10
12 hourly		12 Hourly	5
3. How frequently will you instil eyedrops in patients with exposure keratopathy			
Hourly	56.8	Hourly	27
3 hourly		3 Hourly	37
6 hourly		6 Hourly	37
12 hourly		12 Hourly	27
4. How do you clean the eyes of ICU patients?			
With normal saline gauze	55.9	Normal saline	38
With tap water		Tap water	10
Distilled water		Distilled water	40
None		None	5
5.How frequently do you clean the eyes of ICU patients?			
Hourly	73.4	Hourly	50
3 hourly		3 hourly	25
6 hourly		6 hourly	10
12 hourly		12 hourly	15
6. Have you done taping of eyes for incomplete eyelid closure?			
Yes	59.5		
No			
7. Do you follow a fixed eye care protocol?			
Yes	60.8	Protocol by ICU doctor	12
No			
if yes,			
The protocol is put into practice by the ICU In-Charge doctor		Own experience	18.5
From your own experience /training		From colleagues/senior staffs	28.4
From colleagues/ senior nursing staffs			

DISCUSSION

Majority of our study participants had average knowledge and 50% among them showed good attitude. Average practice patterns were shown by most of our study participants. Most of the staffs were BSc graduates but only 35% underwent eye care training and 60% followed a fixed eyecare protocol. Our study showed no significant correlation between knowledge score and attitude score.

A study by Mahani et al showed a positive correlation between good knowledge and attitude by ICU staffs in certain eyecare techniques which was in contrast to our study.[3] Even though our study showed that only 20.3% had good knowledge, 50% had good attitude which was similar in results to a study by Alghamdi et al that showed positive finding in the perception of nurses on the sub total knowledge score.[4] ICU nurses' level of knowledge concerning eye care of mechanically ventilated patients ranged between adequate and inadequate and did not reach satisfactory level in their study.

Watts et al pointed out about ORBIS, an international organization which recognizes that the nurse's role is critical to achieving their mission of preventing blindness through education and hence emphasis should be given on nurse education.[5]

In our study 78.3% of the participants had average knowledge with the highest level of knowledge for the question on highest risk for developing exposure. Jaafar et al with Ebadi et al stated that the total mean of score of nurses' knowledge in their studies was poor because specialized intensive care courses mainly focus more on the assessment and management of life threatening conditions rather than eye care.[6,7] While, Gamelia et al stated in his study factors which aggravate chemosis was correctly answered by 80% of the staffs.[8] Highest knowledge level was for the question on risk factors for incomplete lid closure in a study by Khalil et al, similar to our study.[9]

The maximum positive attitude was shown by NSICU staffs (good in 100%) and the most positive response among the questions on attitude was for the one on the effect of eye care in preventing eye disorders in our study. A study conducted by Sayed et al showed the highest positive response for the question on willingness in providing eyecare for patients on mechanical ventilation.[8] 60% of General ICU staff had not undergone eye care training in their study whereas 35% of our study participants had undergone training.

In a study by Ebadi et al, there was a significant positive correlation between nurses' age and their eye care attitude.[7] This can be due to more clinical experience in older nurses, which leads to a positive attitude towards eye care in ICU patients. On the other hand, the younger nurses should be given appropriate training in eye care. No such correlation was found in our study probably because most of our study participants had experience between 1-5 years.

Ebadi et al also showed that age group between 26-35 showed a positive attitude, thus stating that the newer teaching skills acquired during their course could have helped the staffs focus more on the eyecare along with the over all condition of the ICU patients.[7]

Study by Khalil et al reported that half of the nurses didn't wash their hands before touching the patients in their study.[13] The researcher attributed this observation to the absence of written eye care protocol for nurses. He stated that there was unsatisfactory level of practice regarding eye care for critically ill patients although they have got satisfactory level of knowledge about eye care in intensive care units. In our study, 85.13% of the staffs responded that they performed hand hygiene before and after giving eyecare to the patients though the knowledge level was good only among 20.3% this might be because majority of them showed good attitude and average practice patterns and 60.8% of them followed a fixed eye care protocol.

In a study by Sayed et al, 2% of the staffs had responded 'very high' regarding the effect pre and post-procedure hand washing have on preventing or reducing the incidence of eye disorders, and 4% of them gave priority to eye care in patients receiving mechanical ventilation.[8]

In a study by Vyas et al, less than a quarter nurses responded by saying that they were unaware of the high potential for exposure keratopathy whereas 62% of our staffs were aware about exposure keratopathy, inadequate lid closure, and lid edema as possible ocular complications in ICU patients.[15] In their study only about 50% nurses checked eyelid closure and took steps to prevent exposure keratopathy. The lack of a protocol-based approach to eye care and the fact that the knowledge of risk has not influenced practice patterns of these nurses suggested that simple educational initiatives and awareness programs coupled with a protocol-based approach are required to improve the knowledge of nurses in their settings. However, our study showed that 66% checked eyelid closure in their last duty and 59.5% assessed it hourly and 60.8% followed a fixed protocol. The good practice pattern showed by ICU staffs in spite the average knowledge could be due to the fixed protocol being followed in ICU.

The literature shows that the nurses' lack of knowledge regarding eye care was caused by a number of factors, including inadequate nursing education in the area of eye care, an ineffective evaluation of the nurses' educational needs, ignorance of the significance of eye care for the intensive care unit patients in academic education, and a failure to recognize the need of implementing comprehensive and humanitarian care in nursing faculties.[7,17] Similar to our study, Ebadi et al showed that

the study participants had limited eye care knowledge, but showed a positive correlation to attitude ($p<0.001$).[7] The result showed that nurses' knowledge in eye care of ICU patients was moderate and attitude and practice were good. This study also showed that there was a direct correlation between nurses' eye care knowledge and their eye care attitude and practice, and therefore enhancing their knowledge would also positively influence their attitude and practice which is in contrast to our study that showed no correlation between knowledge and attitude score.

Similarly, Güler et al also described a checklist-based approach in 35 nurses and found a statistically significant difference in the total knowledge scores regarding eye care of unconscious mechanically ventilated patients.[14] Thus, creating protocols and checklists can improve the nurse's knowledge and improve their practices.

We found that among the various ICU staffs assessed it was found that post op ICU staffs and CCU staffs had least attitude, practice and knowledge and NSICU staffs performed the best. This might be due to the low patient load in NSICU compared to post op ICU and CCU, allowing them to give appropriate individual care for each patient. More often than those who were unaware of exposure keratopathy, those who were aware of it examined the closure of their eyelids, used lubricant drops, and wiped their eyes with gauze soaked in saline. This suggests that raising nurses' knowledge might result in better eye care for comatose patients receiving mechanical breathing. Demirel et al provided a straightforward and uncomplicated eye care routine that included using normal saline to clean the eyes, using a topical antibiotic or lubricant, and using vertical thin adhesive tape to close the eyelids in cases of lagophthalmos that were identified.[4] The study focused on nurses' knowledge and perceptions of eye care while working in medical and surgical critical care units with unconscious mechanically ventilated patients.

The information obtained by nurses in ophthalmic care is dependent on their education, job experience, and ongoing training.

Güler et al found that although nurses made certain preventative measures to avoid ocular issues among critically ill patients, there were nevertheless some deficiencies and gaps in the ICU patients' eye care.[14] This can be because some nurses lack the necessary training and experience. As a result, all ICU nurses must get ongoing training in this field in order to be adequately knowledgeable.[4,15] Cho et al further emphasize that continuous education on the most recent eye care techniques and information should be given to experienced nurses, and that eye care education should be intensified for new nurses who are inexperienced in critical care unit nursing.[17]

The limitations to the study were the nursing staffs from the ward and OPDs who weren't included in this study, whose knowledge, attitude and practice couldn't be assessed. Other health care professionals were excluded in this study only nursing staffs from various critical ICU s were included.

CONCLUSION

Emphasis has to be given in nursing education and curriculum to improve their awareness and knowledge regarding the importance of eye care for ICU patients and to efficiently perform duties including good eye care. More attention has to be given to understand the importance of teamwork and for implementing holistic and humanitarian care in nursing faculties. According to the results of our study, nurses need to obtain information about assessing the patient's eye health, the frequency, and site of using eye ointments and drops, and perform preventive care for ocular complications caused by patients' stay in the ICU. Despite knowledge being average among majority of the total staffs, the attitude was good among 50% and practice was good for 54% which marks the importance of "attitude". Thus, with a good attitude, improving the practice pattern and a determined effort in building knowledge with the help of a proper training programme can be achieved.

In order to improve poor knowledge (1.4%) and attitude (5.4%) an awareness program was held among ICU staffs and a new eye care protocol was introduced that brought about remarkable response in their practice.

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