



Awareness and practice patterns of intensive care unit nurses towards eye care in a tertiary health care centre in Kolar

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Abstract

Introduction: Patients admitted to the ICU are susceptible to ocular pathologies like chemosis, exposure keratopathy, lagophthalmos, etc. The ICU staff may overlook eye care procedures due to their busy schedule in treating life threatening conditions. Thus a standard eye care protocol will help streamlining eye care in ICUs.

Methodology: A group of 75 ICU nurses were given a semi structured questionnaire to assess their knowledge and practice patterns in eye care, in a tertiary health care center in Kolar, and the results were analyzed.

Results: This study had 61.2% were females and 38.8% were males. Age, gender, experience in ICU, educational qualification and type of ICU showed no statistically significant association with awareness of the ICU staff. Age, gender, experience in ICU showed no significant association with of the ICU staff. 42.8% of the participants who had a diploma certificate had adequate practice patterns or more than those with a degree. This was found to be statistically significant ($p < 0.05$). This study also showed that the practice patterns of 37.5% of PICU staff was better than the staff of other ICUs, however it was not statistically significant.

Conclusion: Eye care in ICUs should be more effective, time saving, easy to apply and cost effective. As there are many patients admitted to the ICU and limited number of Ophthalmologists, it is impractical for them to conduct a routine examination for all ICU patients. However, if nurses are trained adequately, they can screen for ocular complications and triage, so that only those requiring special care can be referred to ophthalmologists.

Keywords: Eye Care, ICU, nurses awareness, nurses practice

1. Introduction

Patients who are admitted in the Intensive Care Unit (ICU) are mostly unconscious, comatose or in a condition requiring mechanical ventilation and are usually susceptible to various comorbidities which might not be directly related to their medical diagnosis, like bed sores, aspiration pneumonia, sepsis and exposure keratopathy [1]. Ocular pathologies that occur in them include chemosis, conjunctivitis, corneal abrasion, exposure keratopathy, dry eye, microbial keratitis, lagoon phthalmos and endophthalmitis [2].

The most common etiology maybe the use of sedatives and Neuro muscular blockers which inhibit active contraction of the orbicularis oculi muscle, resulting in incomplete eyelid closure, corneal exposure, and dryness. Thus the incidence of exposure keratopathy varies from 3.6% to as much as 60% in such patients [1].

The staff working in the ICU mainly focus on life threatening conditions thus overlooking simple procedures like eye care [3].

A universally accepted protocol does not exist for eye care in critically ill patients. Protective eye care measures include simple cleaning of eyes with sterile gauze soaked with normal saline, artificial tears or ointments, prophylactic antibiotics, eye patches, moisture chambers and tarsorrhaphy in extreme cases. In conclusion, the best eye care practice should be effective, time-saving, easy to apply, and cost effective, to eliminate corneal damage and further

complications [2].

The healthcare staff in the ICU cater to specific needs of patients on mechanical ventilation. Therefore, their knowledge regarding ocular complications and its preventive measures are important to control eye related complications [4].

Due to a mismatch in the number of patients admitted to the ICU and limited number of ophthalmologists, it is impractical to expect routine eye examination for all patients. Thus, training nurses to screen ocular complications can result in them identifying eye complications and referring them to an ophthalmologist when required [5].

2. Methodology

This study was conducted among staff nurses in the Medical, Surgical, Critical and Paediatric Intensive Care Units of a Tertiary Health Care Hospital in Kolar from October 2019- December 2019. It was a hospital based cross sectional study conducted in a span of 2 months. With an expected proportion of 0.267, 10% precision and a desired confidence level 95% the required sample size was 75.¹

A semi-structured questionnaire based on the one published by Vyas *et al.*, [1] Güler *et al.* [2]. was chosen and modified in-house for the present study.

The questionnaire was self-administered and demographic data was collected anonymously on the age, gender, educational qualification, work experience in ICU and type

of ICU they are working.

Most of the questions were in yes/no/don't know format and the questions were divided into 2 parts, one, assessing their awareness and one, their practice patterns. The questionnaire was scored with Likert scale. Every right answer was awarded +1, wrong answer -1 and neutral answer 0. The total score for knowledge and practice was calculated as follows-Inadequate <60%, Adequate 60 - 80%

and Satisfactory >80 %.

3. Results

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. P value <= 0.05 were considered as statistical significance.

Of the 75 subjects who answered the questionnaire, 74 answered all the questions and 1 chose not to participate.

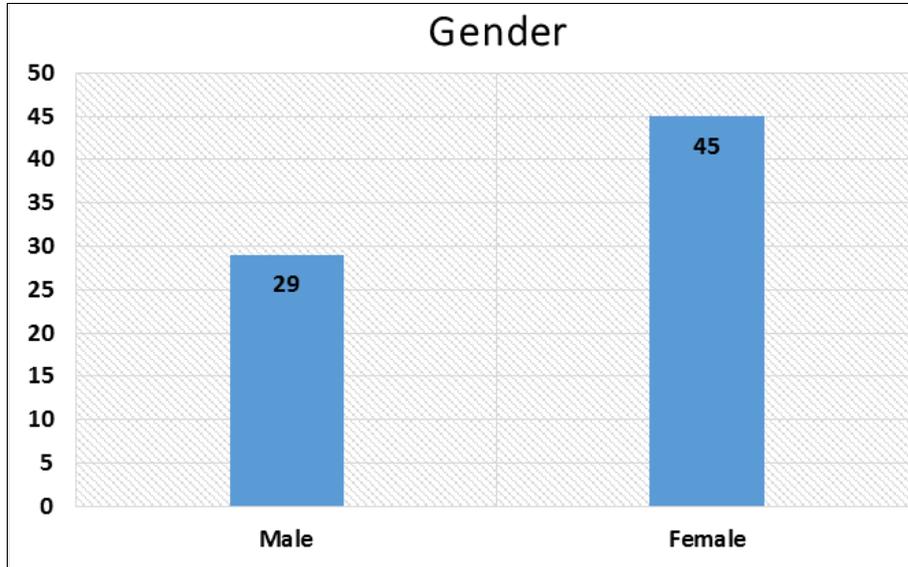


Fig 1: Gender Distribution

In this study, 61.2% of the participants were Females and 38.8% were Males. Majority of them 59.7 %, belonged to

the younger age group <25years of age and 40.3% were older than 25years.

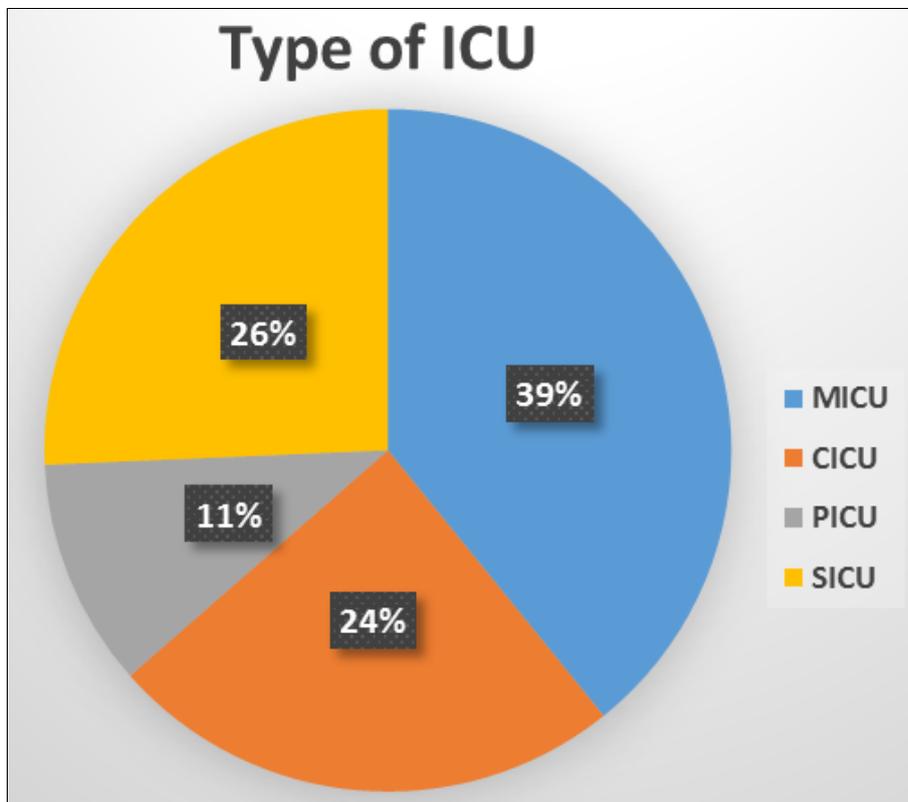


Fig 2: types of ICU

A majority of them belonged to Medical ICU, 38.8%; 26% to Surgical ICU,

24% to Critical ICU and 10.4% belonged to the Pediatric ICU

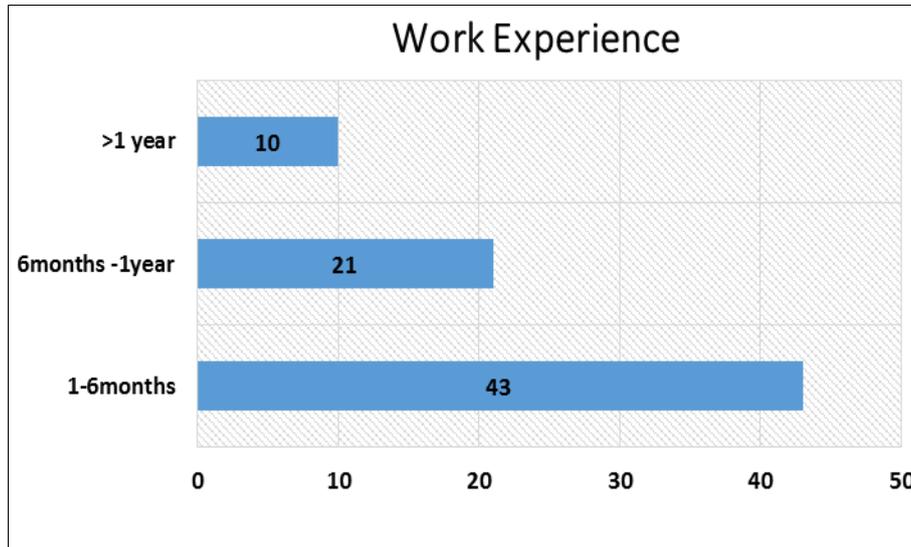


Fig 3: Work experience of the ICU staff

Majority of the subjects, 56.7%, had a working experience of 1-6months, 29.8% had an experience of 6months to 1 year and the remaining worked for more than a year in any

of the ICUs. Results of our study were formulated based on 2 criteria, i.e., Awareness and Practice patterns of eye hygiene according to various demographical data.

Table 1: Awareness of the staff

		Awareness			p Value
		Inadequate <60%	Adequate (60-80)%	Satisfactory >80%	
Gender	Female	23	11	11	0.256
	Male	10	12	7	
Age	18-25	15	15	11	0.293
	25-50	18	8	7	
Educational Qualification	Degree	29	22	16	0.597
	Diploma	4	1	2	
Experience in ICU	> 1 year	5	3	2	0.335
	1 - 6months	20	10	13	
	6 months to 1 year	8	10	3	
Type of ICU	Critical ICU	7	6	5	0.370
	Medical ICU	14	7	8	
	Paediatric ICU	1	4	3	
	Surgical ICU	11	6	2	

This study showed that majority of Male participants, 90.4% had adequate awareness or more when compared to females. Study also showed that the 63.4% of younger age group (18-25years) had adequate awareness or more when compared to 45.5% of the older group (>25 years). This study showed that a majority of participants, 56.7%, who had a degree in nursing had better awareness when compared to those who had a diploma. The study showed that 61.9% of those

working from 6months – 1year had adequate awareness or more when compared to the other participants. The staff from PICU had adequate awareness or more compared to the other ICUs.

Age, gender, experience in ICU, educational qualification and type of ICU showed no statistically significant association with awareness of the ICU staff.

Table 2: Practice Patterns of the staff

		Practice			P value
		inadequate <60%	Adequate (60-80)%	Satisfactory >80%	
Gender	Female	40	4	1	0.266
	Male	23	6	0	
Age	18-25	34	6	1	0.624
	25-50	29	4	0	
Educational Qualification	Degree	59	7	1	0.050*
	Diploma	4	3	0	
Experience in ICU	> 1 year	9	1	0	0.510
	1– 6 months	34	8	1	
	6 months to 1 year	20	1	0	
Type of ICU	Critical ICU	17	1	0	0.334
	Medical ICU	25	3	1	

	Paediatric ICU	5	3	0	
	Surgical ICU	16	3	0	

This study showed that 20.6%, of males, had better practice patterns than 11.1% of females.

42.8% of the participants who had a diploma certificate had adequate practice patterns or more than those with a degree. This was found to be statistically significant ($p < 0.05$).

20.93% of subjects with experience between 1-6 months had better practice patterns than the rest. This study also showed that the practice patterns of 37.5% of PICU staff was better than the staff of other ICUs, however it was not statistically significant.

4. Discussion

In this study, a low level of knowledge was seen in the ICU nurses, mostly because eye care is not a lifesaving issue in the ICU. The study also shows a gap between the updated literature based on evidence and a nurse's knowledge about eye care. Therefore creation of awareness among the nurses in the form of lectures and audio visual aids was important in improving the knowledge of the nurses.

In this study 61.2% of the participants were females and 38.8% were males. One of the most important factors discouraging men in enrolling into the nursing profession is that it is associated with a "female" image. This caring image of the profession symbolizes femininity. Studies have shown that the image of nurses as female makes it more difficult for men to enter the profession^[19].

In a similar study conducted by Fashafsheh, *et al.*,^[2] the number of males and females were almost the same with a slight increase in male.

This study showed that males had more knowledge and better practice patterns than females even though it wasn't statistically significant. Similar results were seen in the study conducted by Fashafsheh, *et al.*,^[8] where in there as no significant difference in knowledge and practice between the gender. Studies done by Yousefi, Nahidian, & Sabouhi,^[10] McHugh, Alexander, *et al.*,^[11] Azfar, Khan & Alzeer^[12] and Gu'ler, Eser & Egrilmez^[13] also show that there was no significant difference in terms of gender.

Our study showed that there was no statistically significant difference in the awareness and practice patterns based on the age of the participants. This result is similar to those found in studies done by Fashafsheh, *et al.*^[8], Yousefi, Nahidian, & Sabouhi^[10] and Huang, Chuang & Chiang^[14].

The present study showed no significant difference in the experience of nurses in ICU and its effect on their awareness and practice patterns. Studies conducted by Chan, *et al.*^[8], Vyas S *et al.*^[1], Huang *et al.*^[14] and Fashafsheh, *et al.*^[8]. On the contrary, in a study conducted by Suchitra & Devi^[15] showed that years of experience correlated with increase in knowledge, attitude and practice patterns.

43.45% of participants in our study had adequate knowledge or more. This result was similar to the study done by Fulbrook, Albarra, Baktoft & Sidebottom⁸. The overall mean knowledge found in their study was 66%. Similar results were also found in a study conducted by Fashafsheh, *et al.*^[8].

Regarding the practice patterns of nurses, 85.13% of nurses in our study had inadequate practice patterns. Similar studies were found in a study conducted by Koutzavekiaris *et al.*^[16]. The practice patterns of nurses are important with respect

to the patient's treatment regimen, patient's safety, length of stay in ICU, cost of treatment and quality of life post discharge of the patient. The study conducted by Fashafsheh, *et al.*^[8] showed similar results where the practice patterns were inadequate in 44.7% of the nurses in theory study, which was considered extremely low and unsatisfactory.

This study showed that those nurses who had a 2 year diploma degree had statistically significantly better practice patterns when compared to those with a three year degree certificate, however there was no change in the awareness patterns. This may be due to intensive training practices in the diploma certificate course when compared to that of the degree course. Contrasting results were found in studies conducted by Meherali, Papiro, Ali & Javed^[17] where in the knowledge was better in those staff with a special course in intensive care training when compared to the others. In studies conducted by Huang *et al.*^[14] and Fashafsheh, *et al.*⁸, no difference was seen based on their educational status and awareness and practice patterns.

Analysis showed that the leading cause for lack of eye care delivery is shortage of staff, followed by lack of time, lack of knowledge and low priority. Similar reports were seen in studies conducted by Vyas S. *et al.*^[1] where the lack of time was the most common barrier for eye care. Cunningham and Gould concluded that the barriers for eye care should be explored before implementing eye care protocols in ICU patients.

This study also showed that the awareness and practice patterns were better in, but not statistically significant, in the paediatric ICU staff when compared to the others indicating that maybe they undergo basic training in eye care management when compared to the others. The advantage of this is that it will improve that quality of life in these young children post discharge. Results from the study conducted by Vyas S. *et al.*^[1] showed that the nurses in CICU had lower levels of knowledge and awareness compared to that of the staff in MICU. They concluded that the reason for this might be that the nurses in critical ICU were more focused on the cardiac status of the mechanically ventilated patients and thus not concentrating on the eye care.

5. Limitation of the study

1. Lack of data on the incidence of exposure keratopathy in the participating ICUs is the main limitation.
2. Use of a pre-test and post – test questionnaire, and its comparison would have helped us assess the impact that our awareness program has created on their knowledge and practice patterns.
3. The use of a semi- structured questionnaire. A structured questionnaire with a psychometric analysis has been published in an article by Ebadi *et al.*, which will be of better use in such studies in future^[18].

The strength of the study was the participation of a relatively large number of nurses in each super specialty Intensive care Units. To the best of our knowledge, this is the first such study assessing the knowledge and practice patterns of ICU nurses regarding eye care, conducted in Karnataka.

6. Conclusion

Eye care in ICUs should be more effective, time saving, easy to apply and cost effective. The health care officials in the ICU are more focused on life threatening conditions and thus might ignore eye care.

Hence simple educational initiatives, awareness programs, creating checklists and making protocols can improve the nurse's knowledge and influence their practices to improve eye care delivery.

As there are many patients admitted to the ICU and limited number of Ophthalmologists, it is impractical for them to conduct a routine examination for all ICU patients. However, if nurses are trained adequately, they can screen for ocular complications and triage, so that only those requiring special care can be referred to ophthalmologists.

7. Abbreviations used

1. CICU: Critical Intensive Care Unit
2. ICU: Intensive Care Unit
3. MICU: Medical Intensive Care Unit
4. PICU: Paediatric Intensive Care Unit
5. SICU: Surgical Intensive Care Unit

8. References

1. Vyas S, Mahobia A, Bawankure S. Knowledge and practice patterns of Intensive Care Unit nurses towards eye care in Chhattisgarh state. *Indian J Ophthalmol.* 2018; 66:1251-5.
2. Güler EK, Eşer İ, Fashafsheh IH. Intensive care nurses' views and practices for eye care: an international comparison. *Clinical nursing research.* 2017; 26(4):504-24.
3. Alghamdi MA, Ghaleb MA, Aal SAA. Assessment of Intensive Care Nurse Knowledge and Perception of Eye Care Practice for Unconscious and Mechanically Ventilated Patients in Intensive Care Units in Saudi Arabia. *J Nurs Health Sci.* 2018; 4(1):15-22.
4. Cho OH, Yoo YS, Yun SH, Hwang KH. Development and validation of an eye care educational programme for Intensive Care Unit nurses. *J Clin Nurs* 2017; 26:2073-82
5. Kalhori RP, Ehsani S, Daneshgar F, Ashtarian H, Rezaei M. Different nursing care methods for prevention of keratopathy among Intensive Care Unit patients. *Glob J Health Sci.* 2015; 8:212-7.
6. Oh EG, Chu SH, Ko IS, Lee WH, Yoo JS, Kim SS, *et al.* Knowledge, perception & practice of eye care nursing among nurses in Intensive Care Units. *Journal of Korean Academy of Fundamentals of Nursing.* 2007; 14(4):437-45.
7. Demirel S, Cumurcu T, Fırat P, Aydoğan MS, Doğanay S. Effective management of exposure keratopathy developed in Intensive Care Units: The impact of an evidence based eye care education programme. *Intensive Crit Care Nurs.* 2014; 30:38-44.
8. Fashafsheh IH, Morsy WY, Ismaeel MS, Alkaiasi AA. Impact of A designed eye care protocol on nurses knowledge, practices and on eye health status of unconscious mechanically ventilated patients at North Palestine hospitals. *Journal of Education and Practice.* [Internet], 2013, 107-21.
9. Cunningham C, Gould D. Eyecare for the sedated patient undergoing mechanical ventilation: the use of evidence-based care. *International journal of nursing studies.* 1998; 35(1-2):32-40.
10. Yousefi H, Nahidian M, Sabouhi F. Reviewing the effects of an educational program about sepsis care on knowledge, attitude, and practice of nurses in intensive care units. *Iran J Nurs Midwifery Res.* 2012; 17(2):91-95.
11. McHugh J, Alexander P, Kalhoro A, Ionides A. Screening for ocular surface disease in the intensive care unit. *Eye (Lond).* 2008; 22(12):1465-68.
12. Azfar MF, Khan MF, Alzeer AH. Protocolized eye care prevents corneal complications in ventilated patients in a medical intensive care unit. *Saudi J Anaesth.* 2013; 7(1):33-36.
13. Kocaçal GE, Eser I, Egrilmez S. Effectiveness of polyethylene covers versus carbomer drops (Viscotears_) to prevent dry eye syndrome in the critically ill. *J Clin Nurs.* 2011; 20(13-14):1916-22.
14. Huang HT, Chuang YH, Chiang KF. Nurses' physical restraint knowledge, attitudes, and practices: the effectiveness of an in-service education program. *J Nurs Res.* 2009; 17(4):241-8.
15. Suchitra JB, Devi LN. Impact of education on knowledge, attitudes and practices among various categories of health care workers on nosocomial infections. *Indian J Med Microbiol.* 2007; 25(3):181-7.
16. Koutzavekiaris I, Vouloumanou EK, Gourni M, Rafailidis PI, Michalopoulos A, Falagas ME, *et al.* Knowledge and practices regarding prevention of infections associated with central venous catheters: a survey of intensive care unit medical and nursing staff. *Am J Infect Control.* 2011; 39(7):542-7.
17. Meherali SM, Parpio Y, Ali TS, Javed F. Nurses' knowledge of evidence-based guidelines for prevention of ventilator-associated pneumonia in critical care areas: a pre and post-test design. *J Ayub Med Coll Abbottabad.* 2011; 23(1):146-9.
18. Ebadi A, Saeid Y, Ashrafi S, Taheri-Kharameh Z. Development and psychometric evaluation of a questionnaire on nurses' clinical competence eye care in Intensive Care Unit patients. *Nurs Crit Care.* 2017; 22:169-75.
19. Zamanzadeh V, Valizadeh L, Negarandeh R, Monadi M, Azad A. Factors Influencing Men Entering the Nursing Profession, and Understanding the Challenges Faced by Them: Iranian and Developed Countries' Perspectives *Nurs Midwifery Stud.* 2013; 2(4):49-56.