



Integrating Cinemeducation into Ophthalmology Teaching: Promoting Eye Donation Awareness among Undergraduate Medical Students

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ABSTRACT:

Background: Blindness is a global public health concern, with corneal blindness comprising approximately 0.9% of all blindness cases in India. Eye donations are the only way to get corneal grafts from dead donors for treating corneal blindness. Cinemeducation is an educational tool which uses films to convey complex medical concepts. This study aims to assess the effectiveness and perception of cinemeducation as a teaching/learning method in ophthalmology among undergraduate medical students.

Method: A mixed-method study was conducted among 104 Phase III Part I MBBS students. The intervention included showing of short films on eye donation during small group discussion. A pre-test and post-test questionnaire was employed to assess students' knowledge and awareness. Quantitative data was analysed using SPSS v20.0 with mean and SD. Chi square and independent sample t-test were used. Qualitative feedback was obtained. The Reflections were collected via Google form and thematical analysis was done.

Results: A total of 104 students completed the study, 34.6% were males and 65.4% females. The mean increase in knowledge was 1.7 points and attitude was 0.9% compared to pretest. There was significant increase in knowledge and attitude following cinemeducation session (p value < 0.05). More than 70% students perceived that cinemeducation was an effective learning tool.

Conclusion: Cinemeducation proved to be an effective tool for enhancing knowledge and imparting positive attitude about eye donation among medical students. It can be incorporated into competency based medical education curriculum to teach public health topics.

INTRODUCTION

India is a developing country facing numerous public health challenges, including various eye-related ailments that affect individuals across all age groups. Blindness is a global concern. In India, corneal blindness contributes to approximately 0.9% of total blindness cases.¹ India stands out as a global priority due to having the highest population of individuals affected by corneal blindness in the world.² Agricultural injuries are the main predisposing factor for infectious keratitis.³ Blindness caused by corneal diseases can be managed through a

surgical procedure called keratoplasty, in which the damaged cornea is removed and replaced with a healthy cornea from a dead donor.⁴ With the artificial cornea still undeveloped, human corneas are currently the only available option. Donating one's eyes is a the most generous act that offers the gift of sight to another person.⁵ The Transplantation of Human Organs and Tissues Act, 1994 passed by the Indian Parliament provides for the regulation of removal, storage and transplantation of human organs and tissues for



therapeutic purposes and for the prevention of commercial dealings in human organs and tissues.⁶

At present, approx. 1.1 million people are corneal blind in India and more than 100,000 corneal transplants are required annually. The current annual corneal transplant number is just 25,000.⁷ Therefore, collecting eyes from dead donors must be a primary focus if we are to make meaningful progress in reducing corneal blindness. The only way to increase the number of corneal transplants is by boosting eye donations after death.⁸ Medical students, as future primary healthcare providers, play a crucial role in raising awareness among the general public, many of whom remain uninformed.⁹ Enhanced awareness within the medical community will undoubtedly contribute to greater public understanding and is expected to lead to an increase in eye donations, ultimately helping more individuals affected by corneal blindness.¹⁰

'Cinemeducation' refers to the use of films or movie clips as a tool to teach medical concepts. Incorporating movies into medical education effectively engages the affective domain, encourages reflective thinking, and connects learning to real-life experiences.¹¹ The National Medical Council of India has also recommended the use of short films and videos in its recent guidelines for the 'Foundation Course' for newly admitted MBBS students. This approach is part of the revised "Competency-Based Medical Education" (CBME) curriculum, which was implemented across the country in 2019.¹² This study is done to assess the effectiveness and perception of cinemeducation as a teaching-learning method in ophthalmology among undergraduate medical students.

METHODOLOGY

A mixed-method study was conducted among 104 Phase III Part I MBBS students at a private medical college in Hubballi, Karnataka, from 1st August to 31st December 2024. Students who remained absent during the sessions were excluded from the study.

Ethical approval was obtained from the Institutional Ethics Committee for Human Subjects' Research of the medical college (Ref. No. JGMMCIEC/71/2024). Written informed consent was obtained from all the study participants, with confidentiality assured and voluntary participation emphasized.

Content validity of the questionnaire was checked by two medical education experts. A pilot test was conducted with 20 second year medical undergraduate students for clarity and timing and the tool was revised following peer feedback. The quantitative component employed a quasi-experimental pre-post study design without any control group. A self-administered pre-designed and structured questionnaire was used to collect 10 knowledge-based items and 10 attitude-based items. Responses were scored using a binary system: 1 point for correct/affirmative responses and 0 for incorrect/negative or "don't know" answers.

The intervention involved 20-minute screening of short films on eye donation using three movie clippings from 'Dhanak' (Hindi film, 2015), 'Sujakha' (Hindi short film, 2011) and 'The Eye' (English film, 2023) followed by small-group discussions during ophthalmology teaching session. A pre-test was administered before the session, and a post-test immediately after. Feedback on the session effectiveness was collected using a questionnaire on the five-point Likert scale. For the qualitative component, medical students submitted written reflections on the learning experience via pre-designed and structured Google Form

Quantitative data were coded and entered in MS Excel and analyzed using IBM SPSS software v20.0. Descriptive statistics were presented as mean \pm SD or median (min-max). The Chi-square test was used to compare proportions, and the independent sample t-test was used to assess mean differences. A p-value $<$ 0.05 was considered statistically significant. Thematic analysis was applied to the qualitative data.

RESULTS

A total of 104 undergraduate medical students participated, of whom 36 (34.6%) were males and 68 (65.4%) were females. All students completed both the pre-test and post-test questionnaires. Sixteen students were excluded from the analysis, because they either did not meet the inclusion criteria or failed to complete the post-test.

As seen in **Table 1**, The cinemeducation session led to a significant increase in both knowledge and attitude scores of the medical students. The mean knowledge score of (8.27 \pm 1.63) in the post-test was significantly higher than the pre-test score of (6.57 \pm 1.78) p-0.0318. The mean attitude score in the post-test was also significantly higher (7.22 \pm 1.37) when compared to the pretest scores of (6.30 \pm 1.68) p-0.0373.



Table 1: Mean scores of Knowledge & Attitudes of undergraduate medical students before and after the Cinemeducation session (n=104)

Domain	Pre-test Cinemeducation before Mean \pm SD	Post-test Cinemeducation after Mean \pm SD	P - Values
Knowledge scores	6.57 \pm 1.78	8.27 \pm 1.63	0.0318
Attitude scores	6.30 \pm 1.68	7.22 \pm 1.37	0.0373

The feedback responses of undergraduate medical students is presented as percentages on a radar graph. More than 50% of students agreed that cinemeducation session was an interesting tool, it enhanced the understanding of the subject, it is effective in learning soft skills and it has positive professional impact. (Figure 1)

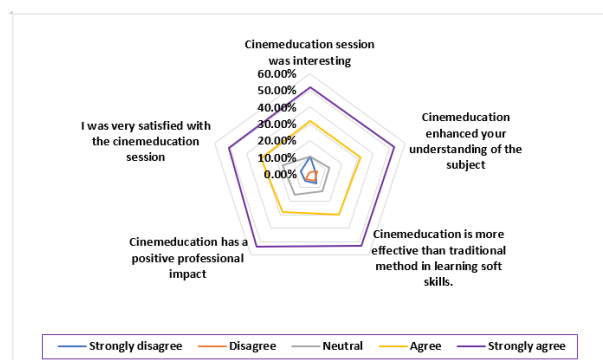


Figure 1: Radar graph of the students' feedback regarding effectiveness of Cinemeducation

The qualitative analysis of reflections was done to determine the student's views regarding cinemeducation

as a teaching learning tool. As observed in Table 2, Feedback analysis indicated that over 50% of medical students found the cinemeducation session to be an engaging tool. Qualitative analysis of student reflections revealed three key themes such as,

Firstly, Cinemeducation as an effective Teaching Learning Method: This theme highlighted increased awareness (74%) and enhanced learning (65%) regarding eye donation. More than half (53%) of students also perceived it as an effective learning tool.

Secondly, Cinemeducation as an engaging Teaching Learning Method: Students reported that cinemeducation promoted critical thinking (79%) and was interesting (78%). Additionally, 38% felt actively engaged during the session.

Thirdly, Cinemeducation as an IEC (Information, Education, and Communication) tool for the Community: A significant proportion of students believed cinemeducation could effectively spread awareness (77%) and promote eye donation (73%). Nearly two third (60%) also suggested its use in community outreach programmes.

Table 2: Reflections of undergraduate medical students as themes, sub- themes and percentage of responses (n =104)

Themes	Sub themes	Number	Percentage
Cinemeducation as an effective teaching/learning method	1. Enhance their learning	78	65%
	2. Effective way to learn	63	53%
	3. Became aware about eye donation	89	74%
Cinemeducation as an engaging teaching/learning method	1. Interesting session	93	78%
	2. Felt more engaged	45	38%
	3. It promotes critical thinking	59	79%



Cinemeducation as an IEC* tool for the community	1. Promoting eye donations	8	73
		8	%
	2. Spreading awareness	9	77
		2	%
	3. Conduct cinemeducation session in public places	7	60
		2	%

As seen in figures 2 and 3, A comprehensive constructional plan for integrating cinemeducation into medical education revealed its multifaceted nature as a pedagogical tool. Macro-thematic analysis identified two primary pathways: cinemeducation significantly increased students' awareness regarding eye donation and elicited positive affective responses. These attitudinal shifts are conducive to positive behavioural changes and foster deeper emotional connection, both were instrumental in promoting eye donation.

Micro-level thematic analysis highlighted engagement and visual learning as key domains. Students reported feeling emotionally connected and relatable to the scenarios, while visual learning effectively conveyed complex information, improved retention, and dispelled misconceptions. Collectively, these elements contribute to an impactful and transformative learning experience, promoting eye donation among medical students.¹³

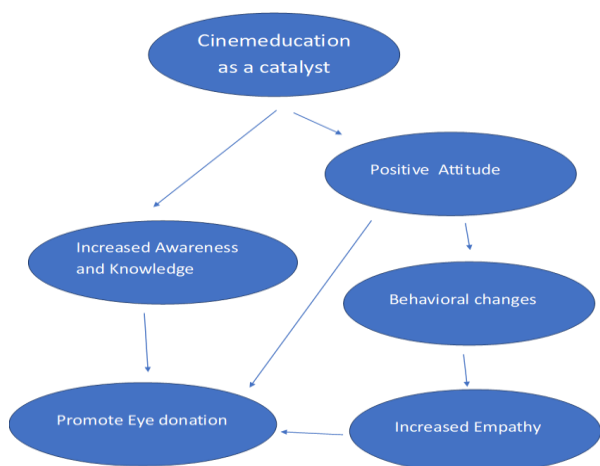


Figure 2: Conceptual framework derived from the qualitative reflections of undergraduate medical students on the use of cinemeducation in eye donation.

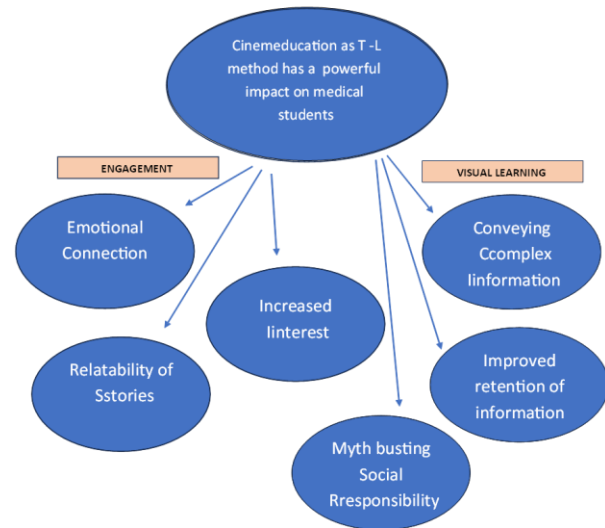


Figure 3: Micro-level thematic map of Cinemeducation used as Teaching/Learning method

DISCUSSION

Given the significance of knowledge and attitude towards eye donation, understanding medical students' perceptions of knowledge and attitude after participating in an interactive educational program can offer valuable insights for medical educators. This study presented a unique opportunity for medical students to engage collaboratively in activities such as watching a film and reflecting individually, which aimed at fostering knowledge about eye donation.

At the Bruce Rappaport Faculty of Medicine in Israel, educators introduced the concept of "trigger films" in 2001. They concluded that short situational films are an excellent tool for provoking active participation of medical students in small group discussions. The films are designed to expose medical students to various aspects of the clinical experience that are often challenging to convey during traditional bedside teaching.¹⁴

Mike Rueb *et al.* designed the M23C approach, a unique combination of showing films and discussion that encourages participants to reflect upon their opinions, perspectives and experiences. They concluded that participating in the M23C amplified the understanding of biopsychosocial aspects of health and illness in students.¹⁵



Nuttha *et al.* were in the view that incorporating case-based scenarios from movies is an engaging and effective approach to help students learn about professionalism.¹⁶

A study done by Salajegheh M *et al.* observed that reflections and group discussions following movie clipping viewings offer opportunities for social interaction and sharing personal interpretations, which in turn encourage active engagement in developing empathy. According to medical students' perceptions, this approach helped them adopt a more holistic view of the patient and emphasized the importance of building meaningful doctor-patient relationships.¹⁷

IMPLICATIONS

Cinemeducation is an effective tool for teaching interdisciplinary subjects like professionalism, medical ethics, and psycho-sociocultural issues. Our study found that selected films were well-suited for integration as a permanent component in teaching relevant competencies, complementing a brief sensitization to topics such as eye donation awareness a pressing need in our REPHRASE country. While cinemeducation is not a replacement for traditional methods, a balanced integration of lectures and films can foster deeper psycho-social and cultural understanding of key public health topics. Future research should focus on identifying and evaluating high-quality films that comprehensively address specific competencies, as cinemeducation holds significant potential for enhancing knowledge, understanding, critical thinking, and empathy.

One of the limitations of this study is that it is limited to a single medical college in Karnataka and reflects the views of only one cohort of medical students in prefinal year this limits the generalizability of the findings.

CONCLUSION

In our study, cinemeducation proved to be an effective tool for enhancing the knowledge and imparting positive attitude among medical students. Our study also found that the selected films were well-suited to be integrated as a permanent component in teaching the relevant competencies, alongside a brief sensitization to the topic. Cinemeducation can serve as a valuable complement to traditional teaching methods, but cannot replace them entirely. A balanced integration of lectures and films is ideal for fostering a deeper psycho-social and cultural understanding of key public health topics. Further research is needed to identify and evaluate high-quality films that comprehensively address specific competencies.

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