Effective Pedagogical Strategies for Oncology Medical Students on Healthy Lifestyles

Dr. Vikram Mehta[1], Dr. Pooja Reddy[2]

[1] *Director of Neurosurgery, Mumbai Institute of Health Sciences, Maharashtra, India.*

[2] *Director of Neurosurgery, Mumbai Institute of Health Sciences, Maharashtra, India.*

Received: 17/September/2024; Revised: 22/October/2024; Accepted: 19/November/2024; Published: 30/December/2024

Abstract

The paper highlights the significance of instructional elements in a physician's training and practical endeavors. An Oncology physician engaged in teaching, medical care and testing, and ethics-driven outreach should utilize modern technology for education. The research uses a competence-based strategy to examine practice-oriented and person-centered strategies for training medical experts. This research used several study techniques: research review and analysis in psychology and education, synthesis, simulation, contrast, and generalization. The inference is drawn that the worldwide objective for advanced oncology medical schooling is to justify contemporary new pedagogical methods developed through a personality-oriented perspective. These approaches are quite successful in fostering healthy habits.

Keywords: Pedagogical Strategies, Oncology, Lifestyles, Healthcare.

1 INTRODUCTION

Since the end of the 20th century, two worldwide psychology and pedagogical concepts have significantly impacted medical education and the education of specialized professionals (Miranda et al., 2021). The initial aspect pertains to the potential for overseeing a physician's education while enhancing their medical discernment and technology proficiency. The second approach is based on the humanistic paradigm, emphasizing the humanizing nature of medical training and the notion of human honesty, which is undervalued by the natural scientific philosophy.

The instruction of Oncology at the undergraduate stage exhibits global inconsistency and significant disparities among medical schools (Gonzalo-Encabo et al., 2022). As a multidisciplinary specialty, oncology exposes medical learners to several facets of cancer through the course of study. Various clinical subjects are instructed independently within internal medicine and surgery during medical school's third to sixth years. The dispersion of undergraduate studies is particularly pronounced in Europe due to the lack of a standardized module or curriculum among medical colleges, even within the same nation (Marić et al., 2024). Significant disparities exist among Mediterranean, Baltic, Central, Northern, and Northern-Eastern European nations in instructing the six primary disciplines: medical cancer treatment, surgical cancer treatment, radiation, general oncology, hematology, and palliative care.

Two prevailing concepts have highlighted the necessity to integrate the advancement of clinical reasoning, cognitive skills, emotional intelligence, and value-oriented aspects of character, alongside establishing medical and educational frameworks for professional growth and enhancing a physician's religious and moral culture (Abu-Ras et al., 2022). The Philosophy and Psychology division at the State University College of Medicine and Dental has developed and integrated a practice-oriented method into teaching.

Based on the assessment, the tendencies that evolve into regularities are as follows:

- A results structure is an integrated plan for organizing the educational procedure and engaging learners and teachers.
- The practical introductions of education for oncology pupils and instructing physicians emphasize the assessment and evaluation of training outcomes as foundational to professional ability, conceptual and practical readiness, and accountability in professional practice.
- Utilization of active and dynamic instructional and oncology educational methodologies.
- Improvement of integration concepts in oncology medical trainees' education and physicians' instruction to foster vocational thought from the preclinical phase through the clinical phase and into individual practice.

Incorporating value-meaning, instructive, and social elements in the instruction of medical professionals within a comprehensive educational framework, which adheres to the United States State Education Regulations, training programs, methodological guidelines for hands-on instruction, and the distinctive characteristics of simulation and problem-solving tasks encountered during training.

The primary trends in educational methods include:

- The ongoing advancement of the continuing competent education structure.
- Increased implementation of innovative learning methods and practice-oriented and learner-centered training modalities to enhance oncology students' original mathematical thinking.
- The creation of an online information-centric educational atmosphere.
- The utilization of a consolidated database for testing, evaluations, and grading materials.

2 BACKGROUND

Oncology Curriculum

The kind and total hours of instruction at their home institutions and their assessment of any clinical experience within their educational programs (Michel et al., 2021). The statistics reveal that diverse teaching modalities in oncology are mandatory for the majority (75%) of pupils, yet the total instructional hours ranged from fewer than 12 to over 65 hours. Nearly fifty percent of the students regarded their time in the clinic as good.

Assessment of the Course

The study of the questionnaire's key topics revealed that most pupils regarded the level of education provided by the course as extremely high, with a median rating of 3.61 for the year. The workshop provided participants with quality instruction that enhanced their understanding of cancer treatment (scoring 3.51) and their ability to manage cancer (scoring 3.62). The participants reported significant engagement with faculty members (scoring 3.61) and assessed the instructional material as sufficient and suitable (score 3.63). The structure and leadership of the course received a score of 3.59, while the learning and lodging amenities were rated at 3.58.

The 120 students who assessed the class through the span of 2013, 2018, and 2020 assigned it a high rating for educational quality, with a median rating of 3.71. Notably, various elements of the program (general level of schooling, facilities/venue, leadership and organization, and enhancement of knowledge) and the overall mean rating were superior in 2013 compared to prior years ($p < 0.007$). The 2018 assessment of materials for learning quality exhibited the same trend ($p = 0.061$). These insights demonstrate that advancements in administrative and educational matters have been realized through innovative engagement and participant input (Anthony Jr, 2024).

Assessment of Faculty

To evaluate each speaker comprehensively, the following criteria were considered: presentation excellence, slide excellence, relevancy of the program's goals, and the extent to which the lecture addressed the needs of the learners (Serebrenik & Cassee, 2024). The average evaluation score of every faculty member ranged from 3.45 to 3.65 over the years. Courses on particular disease categories received higher evaluations than the introduction courses. Notably, case speeches systematically applied alone during the 2018 semester received a high score of 3.72.

Impact of Course on Pupils' Career Choices

On the final day of the course, every oncology pupil was asked about their intentions to pursue a career in oncology. Of 120 pupils, 46% responded affirmatively, while 51.2% considered it probable (Rallis et al., 2021). Merely 3.6% were unequivocally negative. Regarding specialty choice, medical oncologists ranked 62%, followed by Surgery Oncology at 20% and cancer treatment at 7%.

3 DATA ANALYSIS

Only pupils who participated in all six instructional sessions were included in the final evaluation. The gathered data was systematically arranged and tallied in Microsoft Excel 2016, with statistical evaluation. The data was examined utilizing suitable statistical methods and displayed through various diagrams, tables, and graphs. The average and standard deviation were computed for the quantitative information. The categorical variables were represented as proportions. A paired t-test was employed for pre-post assessment; the unilateral t-test was utilized to evaluate two independent descriptive factors; and the Analysis Of Variance (ANOVA) was applied to assess multiple independent parametric

factors. The Dunn-Bonferroni testing was employed to rectify other causes of inaccuracy. Figure 1 illustrates the complete progression of the research.

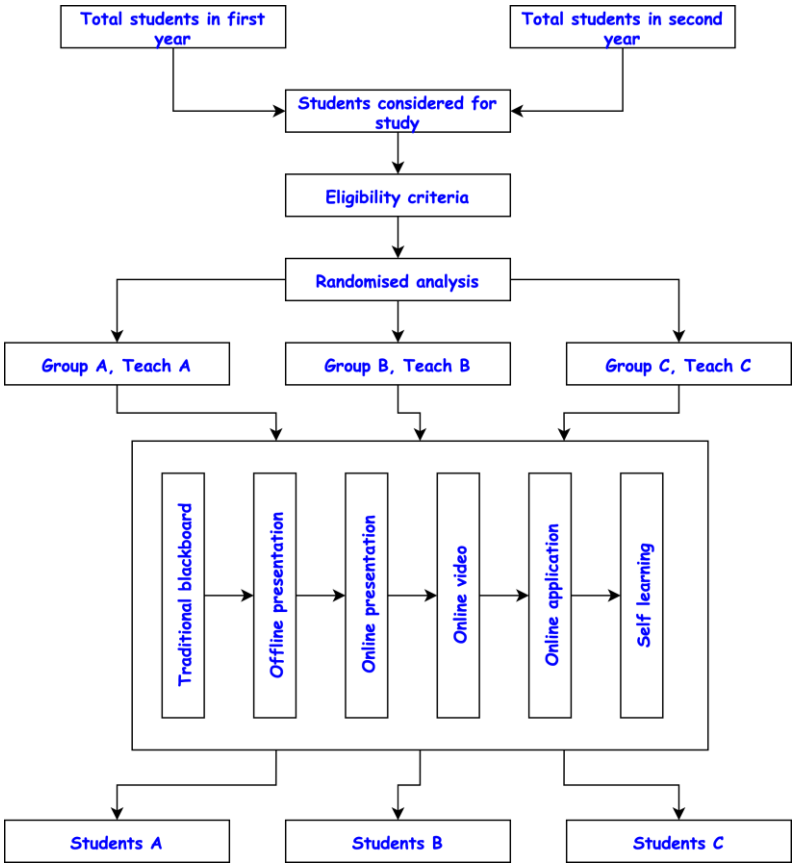

Figure 1: Study Methodology

Results

Figure 2 juxtaposes the average pre-test and post-test results across several instructional methodologies. All instructional techniques, except online delivery, demonstrated a substantial enhancement in post-test scores relative to the pre-test results ($p<0.05$).

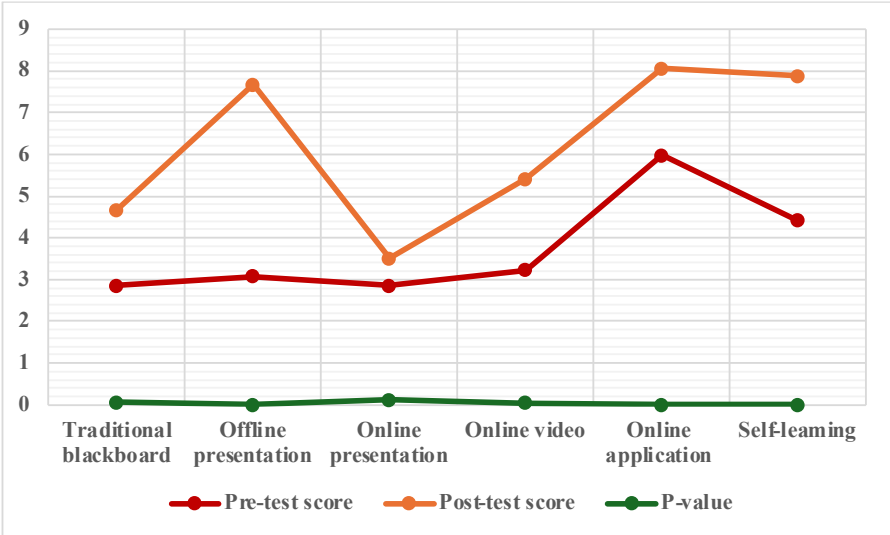

Figure 2: Test Analysis of Different Models

An unexpected follow-up test was administered on the 15th day to evaluate the long-term retention of various teaching approaches. The follow-up examination results were contrasted with post-test results for different types of instruction, revealing a more significant decrease in follow-up test ratings for conventional blackboard, offline appearance, and online video-based oncology studying. At the same time, the decline was not crucial for online application-based and self-learning techniques (Figure 3).

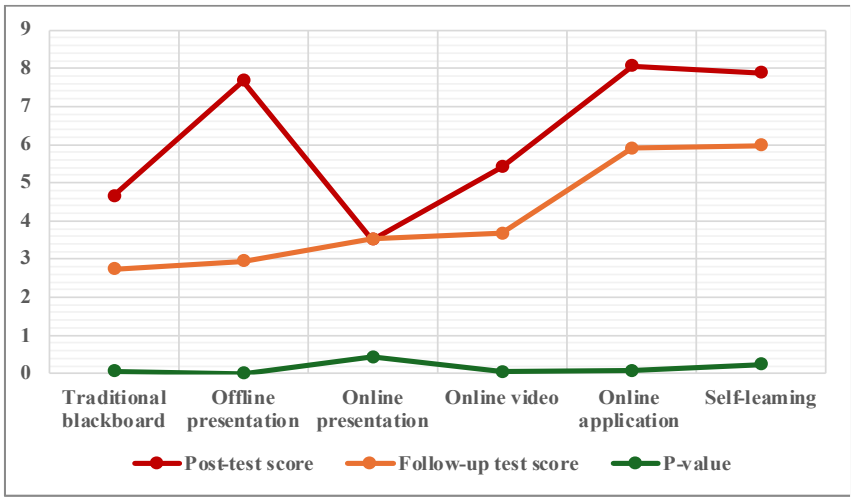

Figure 3: Test Analysis of Different Models

The contrast of pre-test and follow-up test results indicates the efficacy of the method of instruction and learning (Figure 4). While post-test scores markedly increased on the day of instruction for self-learning, online application-based studying, and offline presentation-based examining, it was observed that only the results for independent oncology learning exhibited superior retention in the follow-up examination, suggesting that comprehension and learning at an individual pace yield more excellent retention than instruction from others. Integrating class lectures with self-directed learning and pupil review will certainly enhance retention. Considering this, the National Medical Council (NMC) has established self-directed learning sessions wherein learners evaluate and review their studied subjects.

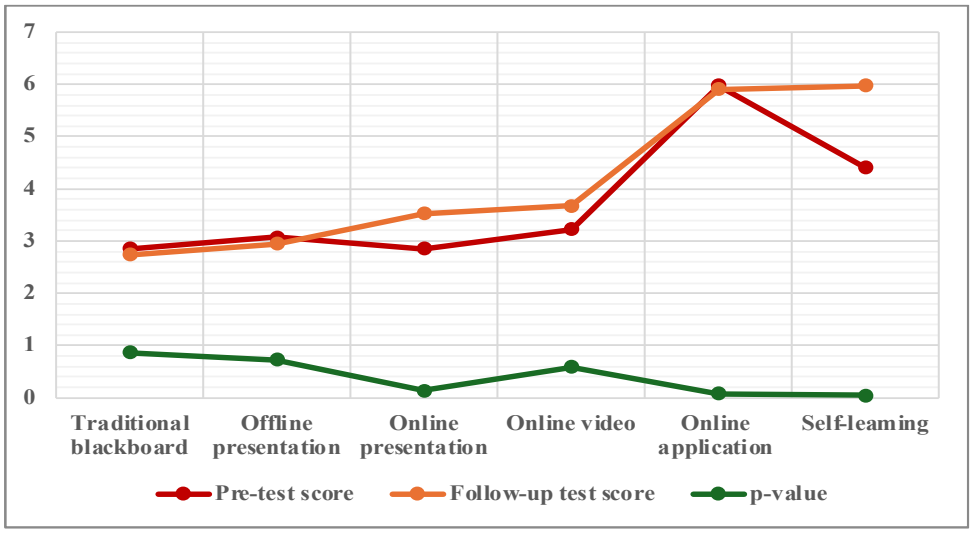

Figure 4: Evaluation Analysis

Limitations

The study addressed themes from pre-clinical subjects, precisely endocrine drugs, and was done among first- and second-year oncology students. The current study did not encompass ideas about the exhibition of clinical abilities, problem-solving, or practical exposure. Alternative pedagogical methods, including simulation-based studying, role play, and presentation, were excluded from this study. Secondly, various instructional modalities were evaluated separately. The impact of the amalgamation of multiple strategies, or blended education, was not assessed. Additional investigation in this field is advised. Third, confounding variables related to the educational setting were not accounted for in the present research.

4 CONCLUSION

The outlined pedagogical elements of education and the activities of prospective specialists and doctors in practice are significant. Physicians should utilize advanced educational technology, specifically practice-oriented and person-centered pedagogy, during their oncology studies. The global objective of oncology higher medical schooling is to substantiate contemporary new teaching methodologies grounded in a student-centered approach. Educational technologies facilitate information dissemination and the acquisition of relevant knowledge, competencies, and skills while offering a framework for developing training programs tailored to diverse populations to foster health-promoting motivation and behaviors. The oncology pedagogical tactics that furnish individuals with essential information, cultivate favorable public perceptions, establish a foundation for comprehending contemporary issues, and advocate for well-being and healthy habits are becoming increasingly significant.

REFERENCES

[1] Miranda, J., Navarrete, C., Noguez, J., Molina-Espinosa, J. M., Ramírez-Montoya, M. S., Navarro-Tuch, S. A., ... & Molina, A. (2021). The core components of education 4.0 in higher education: Three case studies in engineering education. *Computers & Electrical Engineering*, *93*, 107278. https://doi.org/10.1016/j.compeleceng.2021.107278

[2] Gonzalo-Encabo, P., Wilson, R. L., Kang, D. W., Normann, A. J., & Dieli-Conwright, C. M. (2022). Exercise oncology during and beyond the COVID-19 pandemic: Are virtually supervised exercise interventions a sustainable alternative?. *Critical reviews in oncology/hematology*, *174*, 103699. https://doi.org/10.1016/j.critrevonc.2022.103699

[3] Marić, M., Manghnani, V., Niemi, J. K., Niine, T., De Briyne, N., & Jansen, W. (2024). Empowering Veterinary Herd Health Management: Insights into Education, Implementation, and Regulation Across Europe. *Veterinary Sciences*, *11*(11), 528. https://doi.org/10.3390/vetsci11110528

[4] Abu-Ras, W., Senzai, F., Laird, L., & Decker, E. (2022). The influence of religious identity, culture, and values on the practice of American Muslim physicians. *Social Sciences*, *11*(11), 499. https://doi.org/10.3390/socsci11110499

[5] Michel, A., Ryan, N., Mattheus, D., Knopf, A., Abuelezam, N. N., Stamp, K., ... & Fontenot, H. B. (2021). Undergraduate nursing students' perceptions on nursing education during the 2020 COVID-19 pandemic: A national sample. *Nursing Outlook*, *69*(5), 903-912. https://doi.org/10.1016/j.outlook.2021.05.004

[6] Anthony Jr, B. (2024). The role of community engagement in urban innovation towards the co-creation of smart sustainable cities. *Journal of the Knowledge Economy*, *15*(1), 1592-1624. https://doi.org/10.1007/s13132-023-01176-1

[7] Serebrenik, A., & Cassee, N. (2024). Teaching Empirical Methods at Eindhoven University of Technology. In *Handbook on Teaching Empirical Software Engineering* (pp. 179-207). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-71769-7_7

[8] Rallis, K. S., Wozniak, A. M., Hui, S., Nicolaides, M., Shah, N., Subba, B., ... & Sideris, M. (2021). Inspiring the future generation of oncologists: a UK-wide study of medical students' views towards oncology. *BMC medical education*, *21*, 1-10. https://doi.org/10.1186/s12909-021-02506-0