

Strengthening Pediatric Oncology Capacity Through Online Learning: Insights from an Inaugural Course for Physicians in a Low-Resource

Anushe Mohsin Feroze¹, Naeem Jabbar¹, Shafaq Sultana², Sadia Muhammad¹, Syed Ahmer Hamid¹

1.Indus Hospital and Health Network, Karachi, Pakistan
2.Indus University of Health Sciences, Karachi, Pakistan

Introduction:

- Most childhood cancer cases occur in LMICs, where survival is substantially lower than HICs.
- Childhood cancer outcomes are poor in LMICs because of multiple factors including delayed diagnosis and referral, which maybe due to limited healthcare professional training and ineffective referral systems.
- This study evaluated a newly developed blended-learning pediatric oncology course for physicians in Pakistan by assessing changes in self-perceived knowledge, end-of-module examination performance, and course evaluation.

Method:

- A pre-and-post interventional study evaluated a pilot pediatric oncology course at Indus Hospital and Health Network.
- Twenty physicians were enrolled in the course that included pediatric and pediatric oncology residents and medical officers.
- A five-point Likert scale assessed participants' self-perceived knowledge before and after each module, end-of-module examinations assessed their performance, and a course evaluation form gathered participants' feedback on the course content, structure, and delivery

Results:

- Seventeen physicians successfully completed the course and were included in the analysis.
- Overall performance in the end-of-module examinations demonstrated good knowledge acquisition across all modules.(Fig.1)
- Participants reported substantial improvement in their knowledge across all learning objectives after completing the course, with average effect sizes exceeding the threshold for a large effect ($r > 0.50$) in every module: leukemia (0.74), lymphoma (0.78), neuro-oncology (0.79), solid tumors (0.75), supportive care (0.83), and palliative care (0.73).
- End-of-course feedback was positive, particularly on the clear learning objectives, course organization, manageable workload, recorded lectures, interactive sessions, and exams.(Fig.2)

Fig. 1 Module-wise Distribution of Exam Grades.

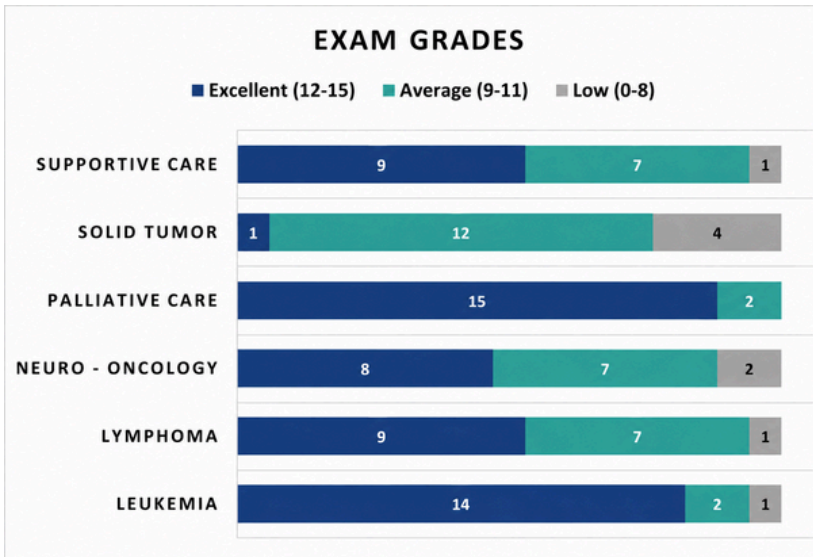
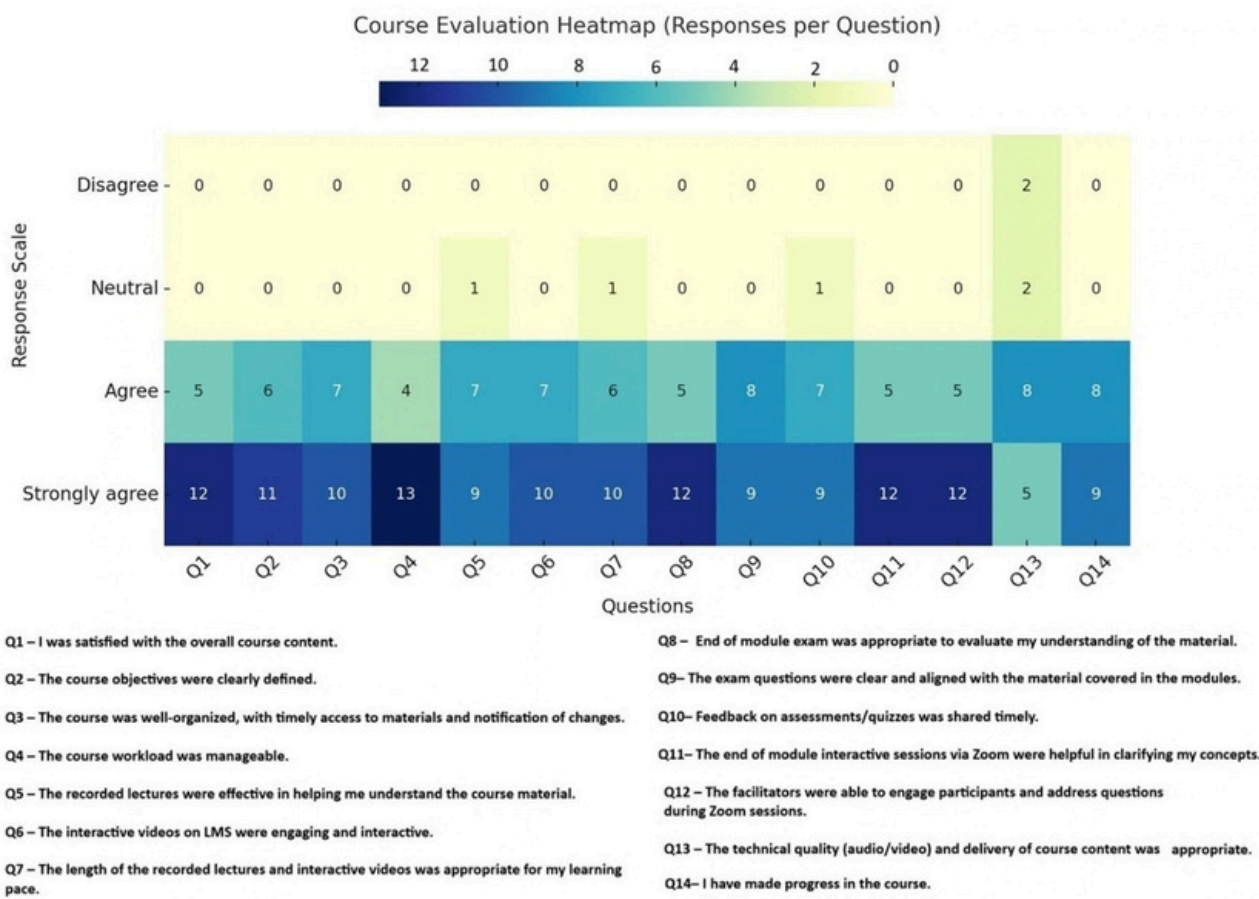


Fig.2 Course Evaluation Heatmap.



Conclusion:

- The inaugural e-learning pediatric oncology course improved participants perceived knowledge and confidence, highlighting the value of structured online training for capacity building in LMICs.
- Enhanced multidisciplinary programs could further support earlier diagnosis and better management of childhood cancers by strengthening physicians' pediatric oncology knowledge and awareness.