Original Article

Effectiveness of the PedOncoNurs Web-Based Education Module for Sustainable Education of Pediatric Oncology Nurses: A Randomized Controlled Trial Protocol

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Abstract

Objectives: This study will aim to develop and evaluate the effectiveness of the PedOncoNurs web-based educational module for the sustainable education of pediatric oncology nurses.
Desing: This is a prospective, randomized, controlled pre-test-post trial protocol.
Setting: Responses will be collected online across secondary and tertiary pediatric oncology units.
Participants: A total of 104 pediatric oncology nurses will be randomly assigned to either intervention or control group. Inclusion criteria include active employment in pediatric oncology nursing for at least six months. Participants will be recruited between July 2025 and July 2026.
Intervention: Nurses in the intervention group will receive access to the PedOncoNurs digital educational modules for a period of six months. The control group will not receive any additional training during the same period.
Primary Outcome Measures: Primary Outcomes include assessments of nurses' educational needs, knowledge levels, and satisfaction with educational at baseline, three months, and six months.
Results: As of this protocol submission, no participants have been enrolled. Data collection will begin in January 2025. The feasibility, accessibility, and pilot study results show that the developed PedOncoNurs website can contribute to the development of nurses.
Conclusions: This trial will assess the effectiveness of a web-based educational module in enhancing pediatric oncology nursing education. Findings may inform future strategies for accessible and sustainable professional development in pediatric oncology.
Trial Registration: Clinical Trials.gov Identifier: NCT06562517
Patient and Public Involvement Statement: Patients and the public were not directly involved in the design, conduct, or reporting of this study. However, the development and refinement of the PedOncoNurs educational platform were guided by expert input from pediatric oncology nurses and educators who serve as frontline providers in the care of children with cancer. Feedback from these stakeholders, obtained during the pilot usability phase, informed the final structure and content of the platform to ensure its relevance and practical applicability in clinical settings.

Key Words: nurse, oncology, education sustainability, website, technology

Introduction

Nurses, the largest group of healthcare professionals worldwide, play a critical role in the treatment process. Pediatric oncology nurses require advanced knowledge and clinical skills to provide specialized care (Day et al., 2014). These nurses maintain continuous communication with children and their families and assume key responsibilities in care planning, treatment continuity, and symptom management throughout the 24-hour care process (Day et al., 2014; Radhakrishnan et al., 2022). Given the complexity of pediatric oncology care, these nurses must receive comprehensive and up-to-date education to deliver safe, evidence-based, and high-quality care to children with cancer. However, numerous studies have highlighted ongoing educational gaps and emphasized the need for more effective educational strategies for pediatric oncology nurses (Challinor et al., 2014; Sandeberg et al., 2023; Yelne et al., 2025). Addressing educational deficiencies is critical to maximizing treatment outcomes and ensuring optimal nursing care for pediatric oncology patients (Challinor et al., 2014).

Traditional teaching methods in nursing have demonstrated considerable limitations, particularly in terms of accessibility, scalability, and long-term sustainability (Du et al., 2022). The growing global demand for continuing education, the persistent shortage of qualified nurse educators (Nardi & Gyurko, 2013), and the rapidly evolving scope of nursing knowledge all underscore the urgent need for more flexible and sustainable educational solutions (McNelis et al., 2018). In this context, web-based distance education has gained increasing recognition as a practical and enduring alternative, offering scalable and accessible learning opportunities that complement or replace traditional approaches (Tenorio et al., 2024). A systematic review by Du et al. (2022) supports this perspective, indicating that blended nursing education improves learners' long-term knowledge and skill performance more effectively than conventional methods and yields a higher cost-benefit ratio. Further evidence of the effectiveness of digital learning is provided by a systematic review conducted by Männistö et al. (2020), which found that information technologies, such as videos, webinars, and online learning modules, significantly enhance the knowledge, competencies, satisfaction, and problem-solving skills. Similarly, Baalharith et al. (2022) emphasized the value of information technology in creating supportive learning environments that engage nurses with content relevant to their specific clinical situations and provide personalized, self-paced learning experiences that allow nurses to connect new knowledge to their own clinical practice. Wiener et al. (2015) further highlighted the importance of ensuring easy access to such educational resources, recommending web-based platforms as an effective solution. Another study by Nadeau, Bilodeau, and Daoust (2020) demonstrated that a web-based educational program significantly improved pediatric oncology nurses' preparedness and confidence in managing distress symptoms in palliative care, highlighting the potential of digital platforms for sustainable and effective knowledge transfer in pediatric settings.

Web-based education programs can increase nurses' knowledge and competence on relevant care topics (Hockenberry et al., 2020a). In many developed countries, specialized educational is provided in the fields of oncology and pediatrics; however, in underdeveloped and developing countries, there is no standard specialized educational (Sullivan et al., 2020). Unfortunately, the inadequacy of these educational programs in these countries may prevent childhood cancer patients from receiving advanced care but may cause health inequalities. For this reason, it is very important to strengthen pediatric oncology nurses in terms of education and to develop platforms that will provide education continuity in low and middle-income countries. An accessible and sustainable web-based standard education program will enable nurses to become more competent in pediatric oncology and increase the quality of care. In Turkiye, a middle-income country, there is currently no standardized curriculum for pediatric oncology nursing. To address this gap, we developed PedOncoNurs, a web-based educational module aimed at supporting the sustainable education of pediatric oncology nurses. This protocol outlines a randomized controlled trial

designed to evaluate the effectiveness of the PedOncoNurs module.

Methods

Study aim: This study will aim to evaluate the effectiveness of the PedOncoNurs web-based education modules, developed to support the sustainable education of pediatric oncology nurses in Turkiye.

Research hypotheses: H1: The PedOncoNurs web-based education modules will increase pediatric oncology nurses' educational needs scores.

H2: The PedOncoNurs web-based education modules will increase the knowledge level of pediatric oncology nurses on childhood cancers and care.

Study Design: This protocol study will use a prospective, randomized, controlled, pre-test-post-test design. The Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT) checklist will be utilized to ensure adherence to protocol standards (Chan et al., 2013), while the Consolidated Standards of Reporting Trials (CONSORT) guidelines will inform the research design and implementation (Schulz et al., 2010). An embedded process evaluation mapped to the RE-AIM framework is included to assess implementation outcomes, including acceptability, fidelity, and satisfaction (Table 1) (Glasgow et al., 2019). The trial has been registered with the US National Library of Medicine at ClinicalTrials.gov. (NO: NCT06562517).

Study Setting: This study will be conducted with pediatric oncology nurses working in Turkiye between July 2025 and July 2026. Nurses will be recruited from the Turkish Oncology Nurses Society.

Study Participants: The study population will be nurses working in pediatric oncology clinics in Turkiye between July 2025 and July 2026. The research will be carried out through online platforms. The online link created through the Google survey will be sent to the nurses. Pediatric oncology nurses who meet the sample criteria will be interviewed on the phone to provide information about the purpose and scope of the study. If the nurses volunteer, links to the questionnaires will be sent so they can fill out the forms.

G*Power 3.1.9.2 software was used to analyze the sample's size (Faul et al., 2007). Because there is no similar study, the study's effect size will be medium enough to calculate the sample size. Based on the medium effect size (f: 0.25), 80% (1 – β error) power, and 95% (α error) confidence level, it is calculated that the sample size should be taken as 43 nurses for each group (86 in total). Considering the data losses, the number of samples will increase by 10%, resulting in 52 pediatric oncology nurses for each group, reaching 104 nurses.

The inclusion criteria for participation in this study required that nurses be voluntary participants, currently employed in a pediatric oncology clinic, and possess a minimum of one year of professional experience in pediatric oncology.

Exclusion criteria were defined as a lack of proficiency in internet literacy or the incomplete submission of data collection forms.

Randomization: The study will randomly assign 104 pediatric oncology nurses to groups. An independent statistician and a researcher responsible for the assignment, who was not involved in the study, will participate in the randomization and assignment process. It aims to control selection bias and maintain the study systematically by ensuring the confidentiality of randomized assignments and randomization. Since the awareness of the participant and practitioner cannot be prevented in the research, the researcher and participant will not be blinded.

Intervention Group: The group will use the digital educational modules developed for six months of sustainable pediatric oncology nursing education.

Control Group: No intervention will be carried out on the nurses in this group. After the research is completed, access to the website will be provided to the nurses in the control group.

Nurses will be randomly assigned to intervention or control groups using the random numbers table obtained on the computer (www.random.org). The data obtained from the research will be coded as 'A' and 'B' by the researcher and transferred to the computer. An independent statistician will analyze the data to avoid bias in the data evaluation. Thus, the statistician will be blinded.

Table 1. Implementation Outcome Measures Based on the RE-AIM Framework

Setting	RE-AIM domain	Data collected	Timing
Primary Outcome	**EFFECTIVENESS**		
Pediatric Oncology Nurses	Knowledge Level on Childhood Cancers and Care	Multiple-choice test scores from digital modules	Baseline, end of each module, and six months
Secondary Outcomes	**EFFECTIVENESS**		
Pediatric Oncology Nurses	Educational Needs	Pediatric Oncology Nurses' Educational Needs Scale	Baseline, three months, six months
Pediatric Oncology Nurses	Satisfaction with the Educational Module	Satisfaction Scale	At the end of six months
REACH	**REACH**		
Pediatric Oncology Nurses	Percentage of Nurses Accessing the Website	Log data from the website	Weekly monitoring, audit at six months
Pediatric Oncology Nurses	Percentage of Completed Modules	Log data from the website	Audit at six months
ADOPTION AND MAINTENANCE	**ADOPTION AND MAINTENANCE**		
Pediatric Oncology Nurses	Fidelity to Protocol	Log data from the website	Weekly monitoring, audit at six months
Pediatric Oncology Nurses	Usage Consistency	Log data from the website	Audit at six months
IMPLEMENTATION	**IMPLEMENTATION**		
Pediatric Oncology Nurses	Acceptability and Satisfaction	Satisfaction Scale, Semi-structured interviews	At the end of six months
Pediatric Oncology Nurses	Documentation of Educational and Knowledge Gains	Log data and test scores from digital modules	Ongoing audit at six months

RE-AIM: Reach, Effectiveness, Adoption, Implementation, Maintenance

Implementation outcomes: Implementation outcomes will include the effectiveness, satisfaction, and sustainability of the PedOncoNurs web-based educational module for pediatric oncology nurses.

These outcomes will be evaluated using tailored assessment tools, including the Pediatric Oncology Nurses' Educational Needs Scale, the Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers, and the Care and Satisfaction Rating Tool. Additionally, the core components of the educational module and the contextual factors influencing its implementation will be identified to inform the development of future large-scale randomized controlled trials.

Data Collection Tool for Nurses: Descriptive characteristics of nurses will be obtained with the 'Nurse Information Form'. The Pediatric Oncology Nurses' Educational Needs Scale will be used to evaluate nurses' educational needs. The "Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care" will be used to evaluate the knowledge level of nurses about the modules.

Nurse Information Form: The researchers created the form. It consists of 10 questions regarding the socio-demographic characteristics of pediatric oncology nurses who agreed to participate in the study (age, gender, education level, clinic they work, their position at the clinic they work, period of their professional experience, experience at their current clinic, the resources they use to get information about the care of children with cancer, the topics regarding the care of

children with cancer they would like to be educated on and the tools they use for internet access).

Pediatric Oncology Nurses' Educational Needs Scale: The scale was developed by Akdeniz Kudubeş et al. in 2023. The scale consists of 42 items and is scored as a five-point Likert scale (Never =1 point; Rarely points; Sometimes=3 points; Often points, and Always points). The scale consists of five sub-dimensions: disease, chemotherapy, and its side effects, other treatments and their side effects, palliative care, and supportive care. From the scale, a minimum of 42 points and a maximum of 210 points can be obtained. The increase in the total score of the scale and the mean score of the sub-dimensions indicates that the education needs of the nurses regarding that sub-dimension have increased. In this study, the Cronbach's alpha coefficient for 'Illness' was 0.978, 'Chemotherapy and Side Effect' was 0.978, 'Other Therapy and Side Effect' was 0.974, 'Palliative Care' was 0.967, 'Supportive Care' was 0.985, and the total score was 0.990. It was shown that the scale is reliable and consistent with all evaluation items of the scale.

The Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care: The digital education modules will create test questions to evaluate the knowledge levels of pediatric oncology nurses on childhood cancers and care. Nurses must complete a 20-question multiple-choice test at the end of the educational module to assess their knowledge of each module. Nurses who score 60 and higher on the questionnaire will switch to the other module. The test questions will be prepared after the contents of the digital education modules are created. To evaluate the content validity of the prepared questions, expert opinions will be obtained from 5 academics who experts in pediatric oncology nursing are.

Satisfaction Rating Tool: The researchers developed this tool, which consists of ten items, each designed to measure satisfaction on a scale from 0 to 10, with 0 indicating no satisfaction and 10 indicating the highest level of satisfaction with PedOncoNurs educational modules.

Theoretical/ Conceptual Framework: Within the framework of this study, the Cancer Nursing Education Framework, developed by the European Oncology Nursing Society (EONS) Education Working Group and updated in 2022, is used as a basis for the development of the education modules on the website. This educational module consists of eight parts. The Education Framework can be tailored and adapted to country-specific needs to support the education and development of nurses. In this study, five modules were created for the needs of pediatric oncology nurses. MODULE 1: Childhood Cancers, MODULE 2: chemotherapy and its side effects, MODULE 3: Other treatments and their side effects, MODULE 4: Palliative care, and MODULE 5: Supportive care.

Development of the PedOncoNurs Website: The PedOncoNurs website was developed as part of a structured and collaborative effort to address the lack of a standardized curriculum in pediatric oncology nursing in Turkiye. Recognizing the educational gap in this specialized field, the project aimed to create a sustainable, accessible, and pedagogically sound web-based training platform tailored to the needs of pediatric oncology nurses.

The content development process began with the construction of five educational modules based on the European Oncology Nursing Society's Cancer Nursing Education Framework. These modules covering childhood cancers, chemotherapy and its side effects, other treatment modalities, palliative care, and supportive care were carefully adapted to reflect national clinical practices and cultural contexts. A panel of pediatric oncology experts reviewed the draft content for relevance and clarity, contributing to its content validity. Feedback from this panel led to iterative revisions to ensure that each module met professional and educational standards. In parallel with content development, the technical infrastructure of the website was designed to prioritize usability and learner engagement. The platform featured a user-friendly interface compatible with various devices and browsers, enabling 24/7 access regardless of location.

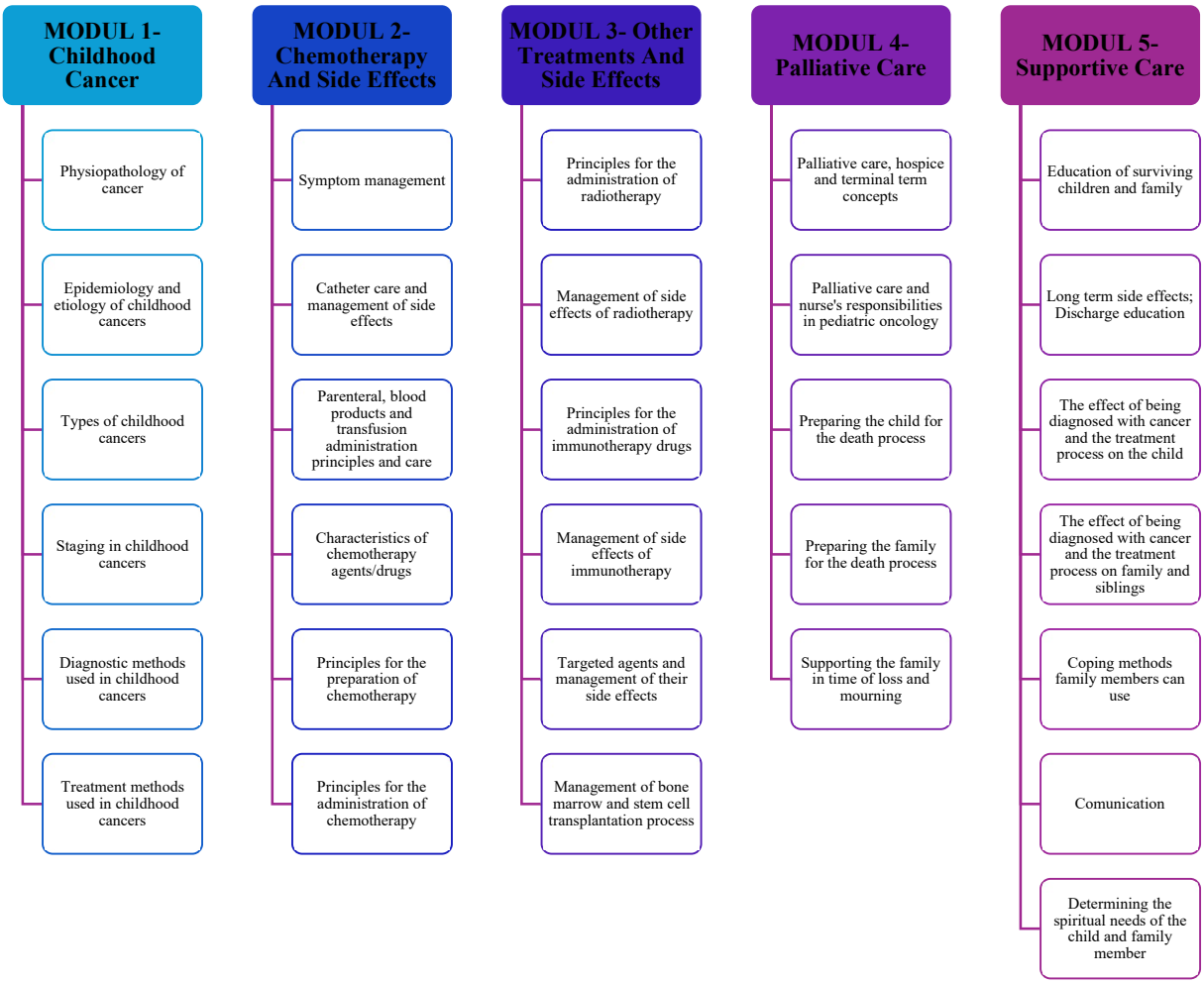

Figure 1. Education module sof PedOncoNurs

Multimedia elements such as instructional videos, animations, infographics, and audio narration were integrated to enhance learning outcomes and accommodate diverse learning preferences. Additionally, the platform allowed learners to monitor their progress through formative assessments placed at the end of each module and to engage with the research team via an integrated support line.

To evaluate the feasibility of the platform prior to large-scale implementation, a pilot study was conducted with 36 pediatric oncology nurses and experts. This phase employed the Website Analysis and Measurement Inventory (WAMMI) and the Atesman Readability Formula to assess usability and comprehensibility, respectively. Results from the pilot study indicated high levels of user satisfaction: 100% of participants found the navigation clear and the content well-structured, while 80% reported fast loading speeds with no technical issues. Experts described the design as visually balanced, innovative, and aesthetically engaging, affirming the platform's instructional suitability. These findings validated the feasibility of the PedOncoNurs platform as a sustainable digital education tool capable of bridging the existing educational gap in pediatric oncology nursing. Further technical and methodological details of the development, feasibility, and acceptability of the PedOncoNurs platform will be described in separate publications.

Study Procedure: Research data will be obtained from 104 nurses working in pediatric oncology clinics in Turkiye between July

2025 and July 2026. The data collection process will be carried out in two stages.

First stage: Nurses will be included in the study according to the randomization list. For five modules, nurses in the control group will be asked to fill out the Information Form, Pediatric Oncology Nurses' Educational Needs Scale, and Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care. No additional intervention will be applied to the nurses in the control group.

Nurses in the experimental group will be asked to fill out the Information Form, Pediatric Oncology Nurses' Educational Needs Scale, and Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care before PedOncoNurs is introduced to the nurses. Nurses will be interviewed via Zoom and informed about the use and content of the site. Nurses will be asked to use the website for six months. The number of nurses who access the website for six months will be recorded. Daily notifications will be sent to remind them to use the website.

Second Stage: The nurses in the experimental and control groups will be sent and asked to fill out the Information Form, Pediatric Oncology Nurses' Educational Needs Scale, and Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care in the third month and the sixth month. In addition to the nurses in the experimental group, a Satisfaction Rating Tool will be used to assess their satisfaction with the website at the end of the sixth month.

Data Analyses: Licensed SPSS (Statistical Package for the Social Sciences) for Window, IBM 28 package program will be used to analyze the data. Mean, standard deviation, frequency, and percentage distributions will be used to evaluate descriptive data. The Shapiro-Wilk test will be used to evaluate the normal distribution of the scale score averages. Scores of Pediatric Oncology Nurses' Educational Needs Scale, Website Analysis and Measurement Inventory, Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers, and Care and Satisfaction Rating Tool will be evaluated with mean, standard deviation, and median. In comparing repeated measures, the Friedman or the two-way ANOVA test will be used according to the distribution of the mean scores. In paired comparisons, the Wilcoxon or Paired-T test will be used according to the distribution of the mean score. Examination of the educational scores of the experimental and control groups in terms of the group, time, and group*time interaction, partial eta square (n_p^2), and power will be calculated in the evaluation of the effect size with two-way analysis of variance in repeated measurements. The results obtained will be evaluated at $p<0.05$ level.

Ethical Approval: Ethical approval was obtained from the XX University Ethics Committee Committee. Institutional permission was taken from the XX Oncology Nursing Society. Pediatric oncology nurses participating in the study will be informed about the purpose and scope of the study. Verbal and written consent will be obtained from the nurses using a written "Informed Consent Form." Parents will be informed during The survey states that if they do not want to continue, they can leave the study without giving any reason. The study will be carried out following the Helsinki Declaration.

Results

As of July 2025, the study protocol has received ethical approval from the relevant institutional review boards and permissions from the Turkish Oncology Nursing Society. Recruitment for the study began in July 2025 and is expected to continue until July 2026. We aim to enroll 52 pediatric oncology nurses in the control group and 52 in the experimental group, with full access to the PedOncoNurs web-based educational platform. The feasibility, acceptability, and pilot study results show that the developed PedOncoNurs website can contribute to the development of nurses. The information obtained from ongoing data collection studies will allow a comprehensive evaluation of the effectiveness of the PedOncoNurs platform. Final results will be published in high-impact, peer-reviewed journals and disseminated widely through professional networks and pediatric oncology nursing associations.

Table 2. Obtaining the Outputs and Procedure Timetable

Activity/Assessment	Pre-study Screening/Consent	Allocation	Study Intervention (PedOncoNurs)	Third Months	Sixth Month
Eligibility Screen	✓				
Informed Consent	✓				
Allocation		✓			
CONSORT Guideline	✓	✓			
Control Group		✓			
Intervention Group		✓	✓		
Descriptive Characteristics Form	✓				
Pediatric Oncology Nurses' Educational Needs Scale	✓			✓	✓
Knowledge Levels of Pediatric Oncology Nurses on Childhood Cancers and Care	✓			✓	✓
Satisfaction Rating Tool					✓

Discussion

Full access to treatment and supportive care is recommended for the sustainable care of children with cancer (Atun et al., 2020). It is clear that qualified healthcare professionals are needed in pediatric oncology to provide effective care. Pediatric oncology nurses, as coordinators of care, constitute the building blocks of the professional power required to provide care. It is a known fact that specialized education in pediatric oncology nursing is generally unavailable, especially in low-income and middle-income countries (LMICs) (Morrissey et al., 2019). This situation becomes even more important, especially when the high number of patients per nurse is considered. For example, although pediatric oncology nurses in Turkiye have the opportunity to attend courses organized by the Oncology Nurses Association and the Ministry of Health, not all nurses have access to these opportunities.

Inadequate numbers of qualified nurses in the health system can cause disparity in the provision of optimal care. It is a known fact that there are inequalities in the delivery of pediatric oncology nursing care in LMIC (Morrisey et al., 2019). One of the reasons for this is reported by Morrissey et al. 2019 as the inadequacy of orientation programs and the lack of coverage of key educational topics. In a study covering 41 pediatric oncology clinics in Turkiye, it was reported that there was an orientation process for nurses in all clinics, but as one of the global pediatric oncology nursing standards a minimum of 2 weeks of theory/skills educational was not provided in all clinics (Yilmaz & Semerci, 2023). As a long-standing member of the International Society of Pediatric Oncology, Challinor et al. mentioned that there is an urgent need to develop a modular, comprehensive, and accessible curriculum that is relevant to LMIC settings (Challinor et al., 2014).

It is known that digital-based education programs have been developed, and their effectiveness has been demonstrated in various LMICs (Hockenberry et al., 2020a; Hockenberry et al., 2020b). Hockenberry et al. reported that a distance-based nursing education program comprising pediatric oncology principles, chemotherapy administration and symptom management,

and essential care elements courses improved nurses' knowledge, self-competency, and skills (Hockenberry et al., 2020b). The PedOncoNurs Web-Based Educational Module we developed includes the basics of pediatric oncology care as well as the role of the nurse in palliative and supportive care. In addition, the program's continuous access as a web-based program provides a flexible schedule for accessing the educational. This module can be integrated into pediatric oncology nursing orientation programs and meet the formal education needs required for orientation programs in oncology clinics. Sandeberg et al. reported that increased knowledge through continuing education provided to pediatric oncology nurses contributed to increased confidence in interactions with the children and their families (Sandeberg et al., 2023). As in these results, a sustainable educational module can increase the competence of nurses in many areas of care. PedOncoNurs Web-Based Educational Module will also meet the current needs to a large extent with its courses that allow users to self-assess. Since it is web-based, it will be easily accessible and updatable, facilitating widespread use.

Strengths and Limitations

This study protocol has several strengths. First, it addresses a significant gap in pediatric oncology nursing education, especially in low- and middle-income countries, by proposing an accessible, scalable, and sustainable web-based educational intervention. Second, the study utilizes a rigorous randomized controlled trial design, enhancing the validity and reliability of the findings. Third, the intervention content is grounded in an internationally recognized framework, specifically the European Oncology Nursing Society's Cancer Nursing Education Framework, which has been adapted to meet local needs. This adaptation enhances the relevance and applicability of the educational modules. Integrating a process evaluation aligned with the RE-AIM framework will offer comprehensive insights into the intervention's effectiveness, implementation, and sustainability.

Although, the study has several strengths, it also has limitations. First, since it will be conducted online, it may exclude nurses with limited digital literacy or inadequate internet access, which could lead to selection bias. Second, while randomization is used to reduce bias, it is not possible to maintain blinding for either participants or researchers, which may introduce performance bias. Lastly, the study's follow-up period is limited to six months; as a result, it will not be possible to assess long-term knowledge retention or any sustained changes in clinical practice.

Conclusion: This study protocol presents a structured and comprehensive approach to evaluating the effectiveness of the PedOncoNurs web-based educational module for pediatric oncology nurses. By implementing a randomized controlled trial, we aim to assess the impact of the educational module on nurses' educational needs, knowledge levels, and satisfaction with the learning experience. The findings of this study are expected to contribute to the development of sustainable and accessible educational resources for healthcare professionals, particularly in pediatric oncology settings.

The digital educational module, designed in alignment with the European Oncology Nursing Society's Cancer Nursing Education Framework, addresses essential topics such as childhood cancers, chemotherapy and side effects, other treatments and side effects, palliative care, and supportive care. The systematic evaluation of these modules through various assessment tools will provide valuable insights into the potential of web-based platforms in continuous professional development.

The results of this study may serve as a foundation for future research on integrating technology into nursing education. By enhancing nurses' knowledge and skills, the PedOncoNurs platform can improve the quality of care provided to pediatric oncology patients. Furthermore, the study's outcomes could guide healthcare institutions in adopting similar digital solutions, ultimately contributing to better health outcomes for children with cancer and promoting lifelong learning among nursing professionals.

Implication to Practice: The findings obtained from this study have the potential to significantly affect the continuing education and professional development of pediatric

oncology nurses, especially in settings where resources are limited. This research, which aims to examine the effectiveness of the PedOncoNurs web-based educational module, may reveal the applicability of digital platforms as a sustainable and accessible continuing education tool. Implementation of such technology-based interventions can increase nurses' knowledge, reduce educational gaps, and improve the quality of care provided to children with cancer. Furthermore, the results of this study may encourage healthcare institutions to integrate similar digital education programs into their professional development frameworks, ultimately fostering a more skilled and knowledgeable nursing workforce in pediatric oncology. The PedOncoNurs website can contribute to effective nursing practice and thus contribute to establishing a new standard for educational interventions in pediatric oncology nursing.

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Declarations: During the preparation of this work, the author(s) used an AI-powered translator to ensure the fluency of the article and the use of native English. After using this tool/service, the author(s) have reviewed and edited the content as necessary and take full responsibility for the publication's content.

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Declarations: During the preparation of this work, the author(s) used an AI-powered translator to ensure the fluency of the article and the use of native English. After using this tool/service, the author(s) have reviewed and edited the content as necessary and take full responsibility for the publication's content.

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Highlights

- Addresses the lack of standardized pediatric oncology nurse education.
- Introduces a web-based module tailored for low-resource clinical settings.
- Uses an RCT design to assess knowledge, needs, and satisfaction outcomes.
- Applies the RE-AIM model to ensure scalable and sustainable implementation.
- Supports evidence-based strategies for global pediatric oncology training.

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