Design and Development of a Mobile Chemotherapy Drug Guide (CemoHem) for Oncology Nurses: A Feasibility Study

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INTRODUCTION/AIM

❖ This study focuses on the design, development, and feasibility evaluation of CemoNurs, a mobile chemotherapy drug guide tailored for oncology nurses.

❖ The application provides comprehensive information on drug preparation, storage, administration methods and duration, dosage calculation, side effects, patient education, and symptom management.

❖ **AİM:** This study aims to design, develop, and evaluate the feasibility of a mobile chemotherapy drug guide (CemoNurs) tailored for oncology nurses. CemoNurs includes drug preparation, storage methods, administration routes, administration duration, dosage calculation, side effects, patient education, and symptom management

METHODS

✓ This feasibility study was conducted between August 1, 2023, and August 1, 2024, with 34 oncology nurses from the Turkish Oncology Nursing Society.

✓ The Standard Protocol Items: Recommendations for Interventional Trials checklist was utilized. RE-AIM framework was included to assess implementation outcomes.

✓ The evaluation framework integrates usability, effectiveness, acceptability, and feasibility.

✓ Information form, CemoNurs Evaluation Form, Mobile Application Usability Scale, Satisfaction Scale, and semi-structured interview form were used for data collection.

RESULTS

The nurses' mean age was 32.79 ± 6.55 years, 91.2% female, and most had over ten years of professional experience.
The evaluation of CemoNurs' usability demonstrated high acceptance and effectiveness among oncology nurses.
Most (94.1%) found the application easy to use, and all participants reported that the information was understandable and clinically relevant. Additionally, 85.3% considered the drug guide content sufficient, while 91.2% confirmed that the application met clinical needs. Cost-effectiveness was universally recognized, and 97.1% indicated they would continue using the application.
The Mobile Application Usability Scale results further supported these findings, with 91.2% of nurses scoring above 200 and a total mean usability score of 246.76 ± 38.13.

94.1% of the nurses stated that the application was easy, 100% said that the information in the application was understandable, 100% stated that it was suitable for clinical practice and 85.3% stated that the content of the drug guide in the application was sufficient.

Based on the CemoNurs Evaluation Form results, 91.2% of the nurses reported that the application met their clinical needs, 100% reported that it was cost-effective, and 97.1% reported that they could use the CemoNurs application continuously

KEMOHEM Usability Test	Yes		No	
	n	%	n	%
Is the KEMOHEM application easy?	32	94.1	2	5.9
Is the information in the KEMOHEM application understandable?	34	100	0	0
Is KEMOHEM suitable for clinical practice?	34	100	0	0
Is the content of the KEMOHEM medication guide adequate?	29	85.3	5	14.7
Does the KEMOHEM application meet the clinical need?	31	91.2	3	8.8
Is the KEMOHEM application cost-effective?	34	100	0	0
Would you use the KEMOHEM application continuously?	33	97.1	1	2.9

It was found that most of the nurses (31/34; 91.2%) had a mean score of 200 or more on the Mobile Application Usability Scale. It was determined that the total mean score of the nurses' Mobile Application Usability Scale was 246.76 + 38.13.

Usability of CemoNurs
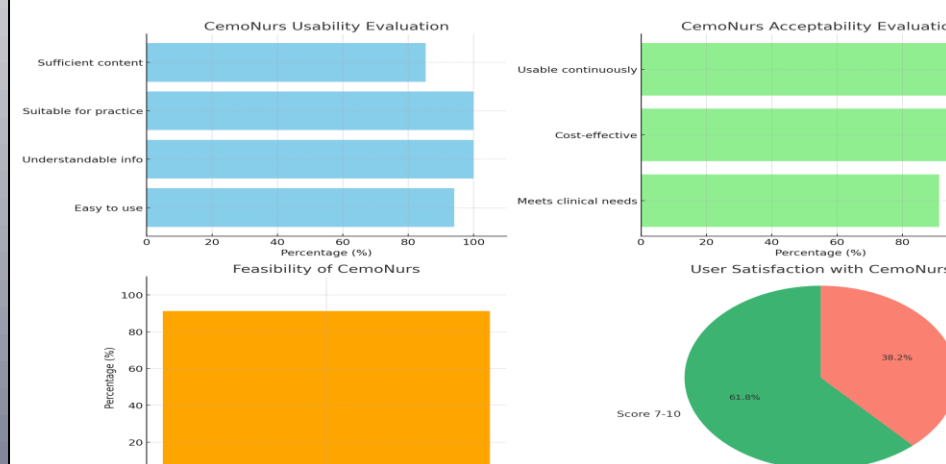
Acceptability of CemoNurs

Feasibility Results of CemoNurs

Efficiency of CemoNurs
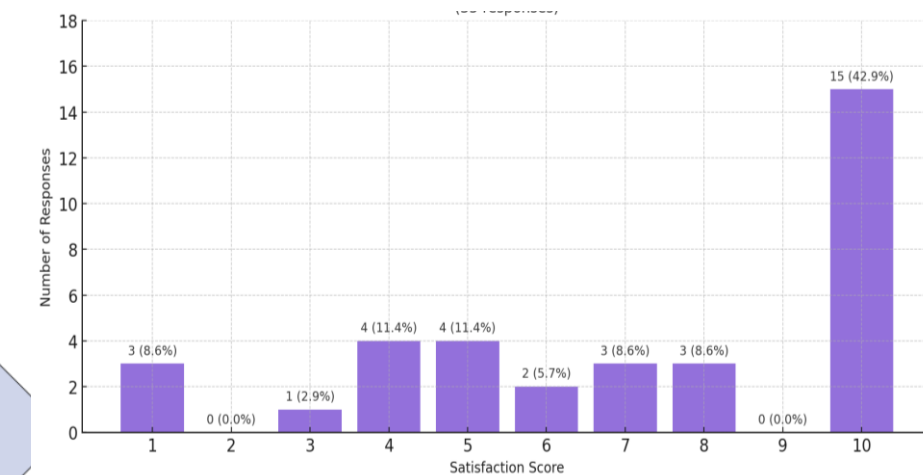
Nurses suggested several improvements for the CemoNurs app. These included clearer instructions for subcutaneous drug preparation to prevent skin toxicity, explicit drug dosages based on diagnosis and BSA, and the addition of a BSA calculator. They also recommended grouping toxicities by protocol and organizing drugs alphabetically by type. Key areas needing enhancement included oncologic emergencies, detailed drug stability and storage information, comprehensive side effect lists, and dose adjustment guidelines for renal or hepatic impairment.

CONCLUSION AND RECOMMENDATION

This feasibility study suggests that CemoNurs is a practical, accessible, and effective mobile tool for oncology nurses, enhancing their chemotherapy-related knowledge, attitudes, and clinical practice. **Implications for practice**: CemoNurs as a digital intervention promises to improve patient safety and standardize nursing care by addressing critical chemotherapy education and administration gaps.

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