VIRTUAL REALITY-BASED CANCER TREATMENT DECISION AID

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Background

Challenge in Treatment Decision-Making:

- Specifically challenging for older adults with cancer.¹⁻²

Current Decision Aids Formats:

- Predominantly available in web and booklet formats.³⁻⁵

Limited Utilization of Virtual and Augmented Reality
Virtual/augmented reality in decision aid

Examples:

• VR-based videos for advanced care viewing to aid in advanced care planning decision-making, such as life-sustaining treatment \(^6\).  
• Breamy, an AR-based prototype that offers 3D visualizations of diverse oncoplastic procedures \(^7\).  
• VR-enhanced radiology technology aimed at improving communication in colorectal cancer surgery \(^8\).
Project goals

Goal:
• Design a VR-based treatment decision-making aid to support older cancer patients in making well-informed decisions.

Expected Outcomes:
• Empower patients with the necessary knowledge for informed treatment decision-making.
• Enhance confidence in treatment decision-making.
• Mitigate decisional regret.
• Improve the overall quality of life during treatment.
Design Process

Preparation stage

• Dissertation work
• Clinical shadow and patient interview
• Collect resources from American Cancer Society

Design stage

• Tools: Unity, Blender, C#, Meta Quest 2 - Development Headset
Overview Design

Decision aid

Personalize the aid

Module 1
Symptom profile

Module 2
Supportive resources

Module 3
Patient stories
Final product [Display room + Chat room]
Display room
Personalize the treatment decision aid
Symptom profile module

High risk symptoms

Fatigue
Hair loss
Pain
Insomnia

Symptom Trajectories over one year

Baseline 1 month 3 months 6 months 9 months 12 months
Supportive resources module (During treatment)
Supportive resources module (After treatment)
Patients’ stories module – select the patient
Patients’ stories module – enter the chat room
Patients’ stories module – select story topics
Limitations and Future Work

Limitations

• Not specifically tailored for older adults
• Not fully personalized
• Only includes limited resources and story topics
• Users interact through controller (press or select)

Future Work

• Assess the acceptance of the aid among older adults
• Develop a prediction model based on a large dataset and integrate it into Unity
• Expand the collection of supportive resources and patient stories
• Implement voice input functionality to enhance user interaction
References


THANK YOU

Comments and Questions