Effects of a Pre-Treatment Virtual Reality Educational Video on Anxiety and Perceived Self-Efficacy for First time Chemotherapy Patients

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Background/Significance

- Preparing for chemotherapy treatment is often fraught with anxiety due to unknown factors surrounding treatments.

- Virtual reality (VR) could be a promising and innovative technology immersing patients in their therapy environment before their first day of treatment.

- Limited evidence supports the use of customized VR videos as an educational reinforcement tool aimed at decreasing anxiety and improving feelings of self-efficacy before chemotherapy treatments commence.

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Study Purpose

- The purpose of this study is to examine the effects a pre-chemotherapy educational virtual reality video has on anxiety levels and feelings of self-efficacy for first time chemotherapy patients

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Methods

Study Design

- Single group, quasi experimental design

Intervention

- 16-minute customized pre-chemotherapy VR video

Outcome Variables

- Anxiety
- Self-efficacy
- Patient satisfaction
- Patient experience

Measurements

- Sociodemographic information
- Vital signs
- State Trait Anxiety Inventory (State only)
- Cancer Behavior Index (Brief form)

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Population/Setting

First time chemotherapy patients

Treatment at HFGCC

Inclusion/Exclusion Criteria

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Enrollment

Total patients screened (N=213)

Patients ineligible for study (N=89)

- Previous chemotherapy
- Immunotherapy only
- Cognitive or visual disabilities
- Non-English speaking

Eligible patients not enrolled (N=124)

- Transportation issues
- Concurrent radiation therapy
- No interest
- Could not reach to pitch study
- Burdensome to participate in a study

Patients enrolled into the study N= 35

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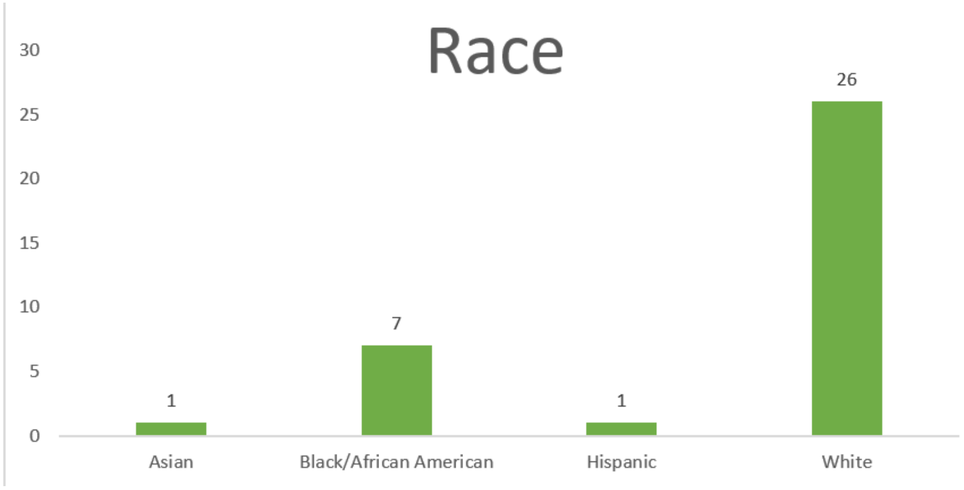
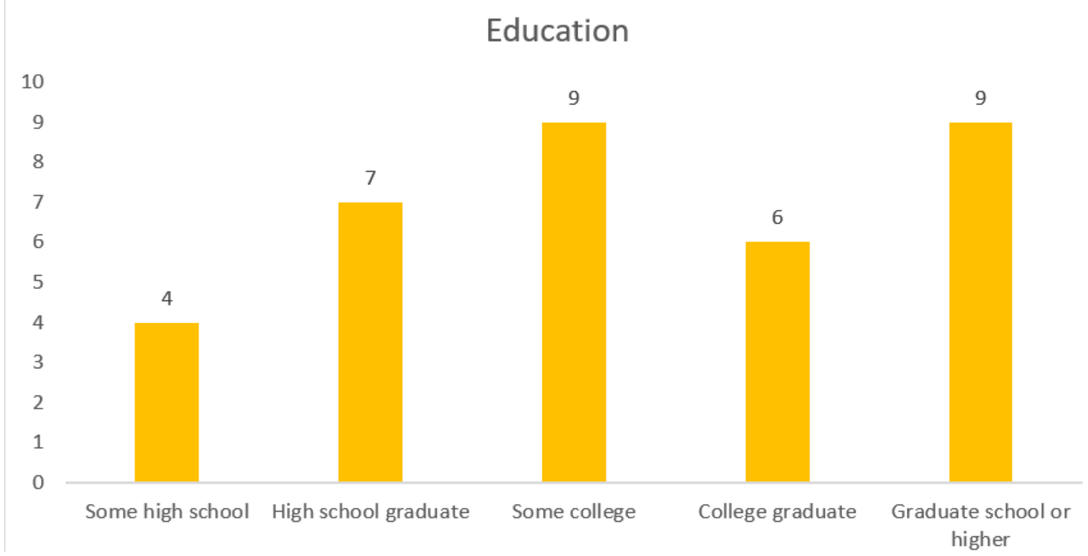
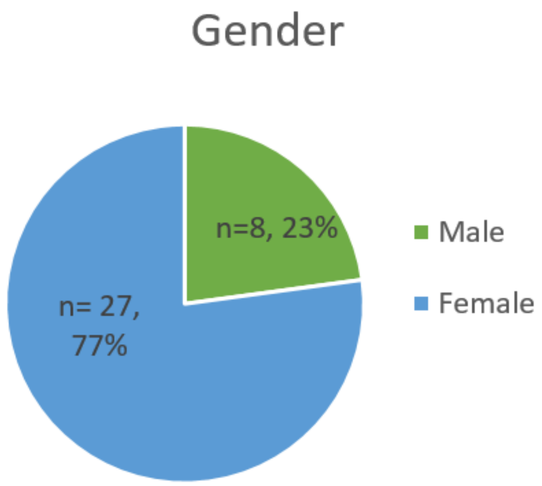
Sociodemographic Results

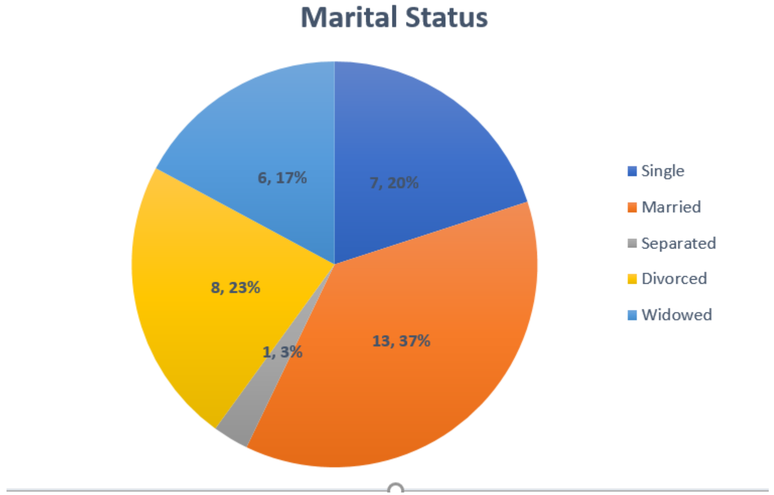
35 patients enrolled

Mean age=61.8, SD=12.5 | Age Range=37- 83









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Anxiety & Self-Efficacy Results

Outcome	Scale Range	Baseline (N=35) Mean	Post-VR (N=35) Mean	Difference	*p* value
Anxiety					
Heart rate	50-120	80.829	77.543	-3.286	<.0001
Blood pressure (MAP)	80-110	98.486	95.229	-3.257	<.0001
State Trait Anxiety Inventory (State only)	20-80	43.46	37.47	-5.72	<.0001
Self-Efficacy					
Cancer Behavior Index-Brief form	12-108	78.51	86.31	7.8	<.0001

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Satisfaction & Experience Results

100% reported the VR video enhanced the chemo education they already had

97% participants were satisfied using VR

Virtual Reality Experience Themes	Relevant Quotes
Relaxing	"I think that this will help newly diagnosed patients feel more at ease."
Informative	"It gave me a good idea of what to expect."
Helpful	"Helps to see what is going to happen."
Enjoyable	"Enjoy. Better feeling about experience to come."
Just okay	"Experience was ok"

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Discussion

- The unknown becomes the known
- Being immersed in the VR environment created a mindful state
- VR created a safe environment to explore their treatment process
- VR video supported patient education
- The VR video was not only educational, but entertainment.

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Limitations

- **Small sample size**
  - We stopped recruiting because of COVID-19
- **Convenience sample**
  - Could have introduced selection bias into our sample
- **No control group**
  - Need a control group to determine causation

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Implications for Nursing

- Limitless possibilities
- Multi-sensory modality to reinforce educational information
  - Stressful time to receive *only* oral and written education
- Few nursing interventions available to reduce anxiety
- Implementing VR requires resources

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Implications for Healthcare

- VR could benefit many patient populations
  - Distraction for painful procedures
  - Educational reinforcement

- VR could benefit clinicians
  - Stress relief
  - Educational training tool

- VR could benefit family caregivers

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Recommendations for Future Research

- Conducting RCT studies evaluating VR has direct effects on desired outcomes
- The possible ways to use and test VR is essentially limitless
  - Could be tested in a variety of patient populations
  - Could be used as an educational tool or a distraction tool
- Studying the effects educational VR videos have on caregivers

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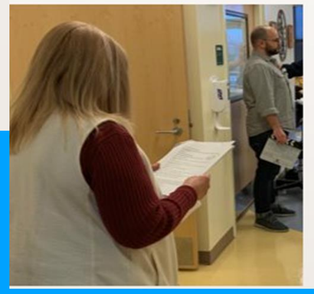
Love & Excellence in Action

- Behind the Scenes ** This video was created pre-Covid in January 2019



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Conclusion

- This study contributed to the limited knowledge about using educational VR videos to aid in chemotherapy treatment preparation.

- Patients who participated in the study enjoyed the experience, felt less anxious, and more confident to face their cancer treatments after watching the customized VR video.

Acknowledgements

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