



VA RecSys for Post-Intensive Care Syndrome (PICS) intervention

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Downstream Applications



Cultural Heritage



Visual Art Recsys
Engines



Art Therapy



Healthcare

Intensive Care Unit (ICU) Experience of patients



- Delirium
- Post-Intensive Care Syndrome (PICS)

Post-Intensive Care Syndrome (PICS)



80% of patients released from the ICU suffer from
Post-Intensive Care Syndrome (PICS)

LONG-TERM IMPAIRMENT



PHYSICAL



MENTAL



COGNITIVE

- Anxiety
- Depression
- Post-Traumatic Stress Disorder (PTSD)

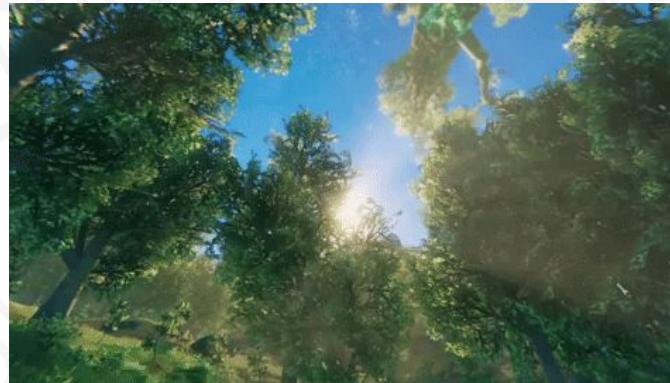
Psychotherapy

78 Weeks

Average time for significant improvement



Post-Intensive Care Syndrome (PICS) Treatments



- Therapeutic effects of visual nature experiences → Positive distraction

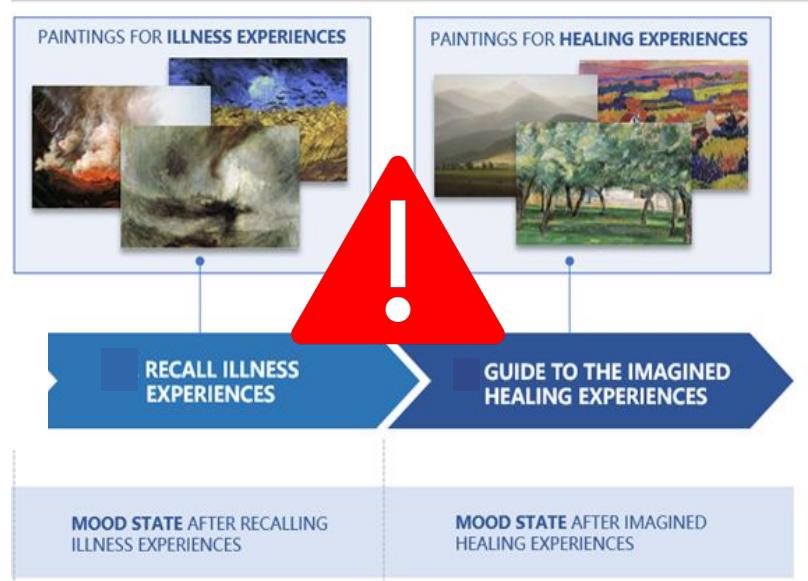
Strong link between nature and wellbeing



Art as a visual therapy outside hospital settings

- To treat PTSD

Art as a visual therapy for PICS Treatment



PICS Survivors

Unique ICU experience



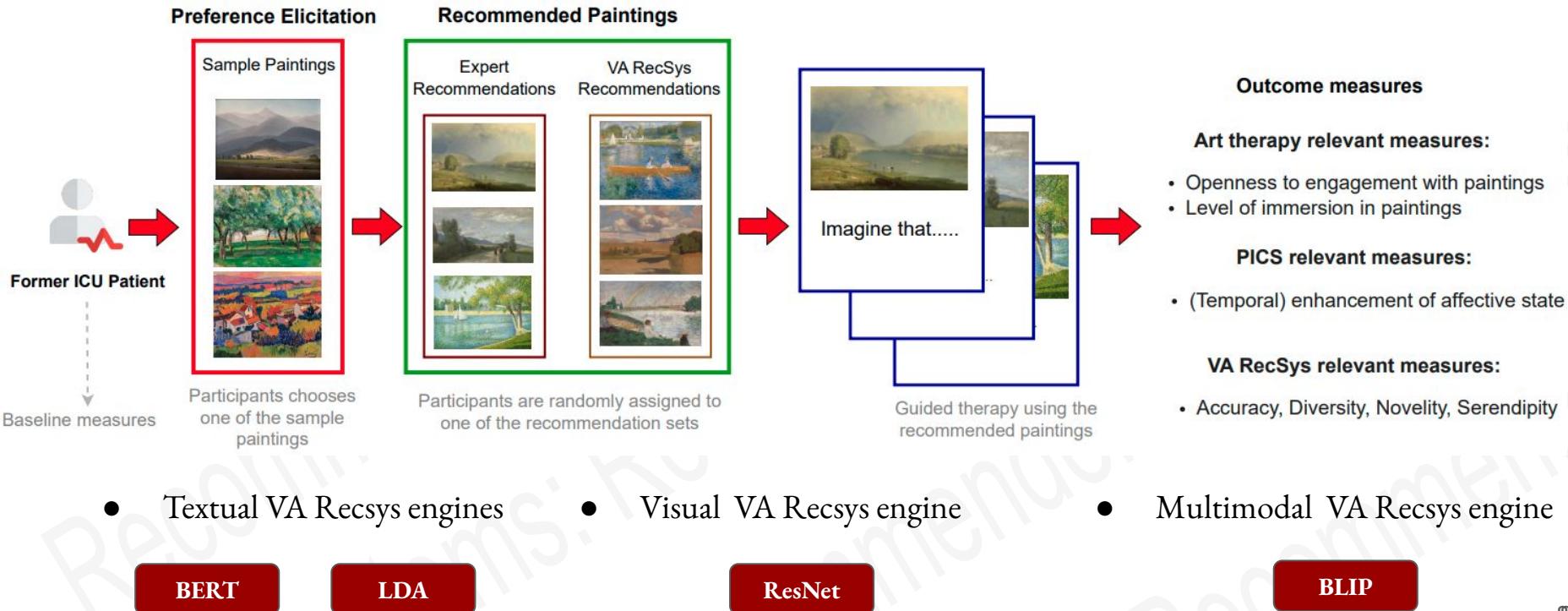
Clinicians

- limited art knowledge
- Large size of exploration space



● Personalized VA RecSys

Art therapy approach for PICS prevention and treatment



Ensuring a safe and sensitive Deployment: Pilot test

Expert evaluation of VA RecSys engines

		Fusion BLIP	Image ResNet	Text BERT	Text LDA
Expert 1 (Affective Design, ICU research, +10)	Painting 1	2	3	1	1
	Painting 2	3	2	3	1
	Painting 3	2	3	2	1
Expert 2 (Affective Design, +10)	Painting 1	3	2	2	1
	Painting 2	3	2	1	2
	Painting 3	2	4	2	1
Expert 3 (Affective Design, +10)	Painting 1	2	4	1	1
	Painting 2	1	1	2	4
	Painting 3	2	3	1	1
Expert 4 (ICU Nurse, +10)	Painting 1	1	4	2	2
	Painting 2	4	2	3	3
	Painting 3	2	3	2	1
Total		27	33	22	19

They were shown 3 paintings from each of the VA RecSys engines for all sample paintings



"There are ruins and destructions which are quite negative."
(E2)



"It reminds of a storm, and an overly abstract style is not recommended for healing paintings." (E1)

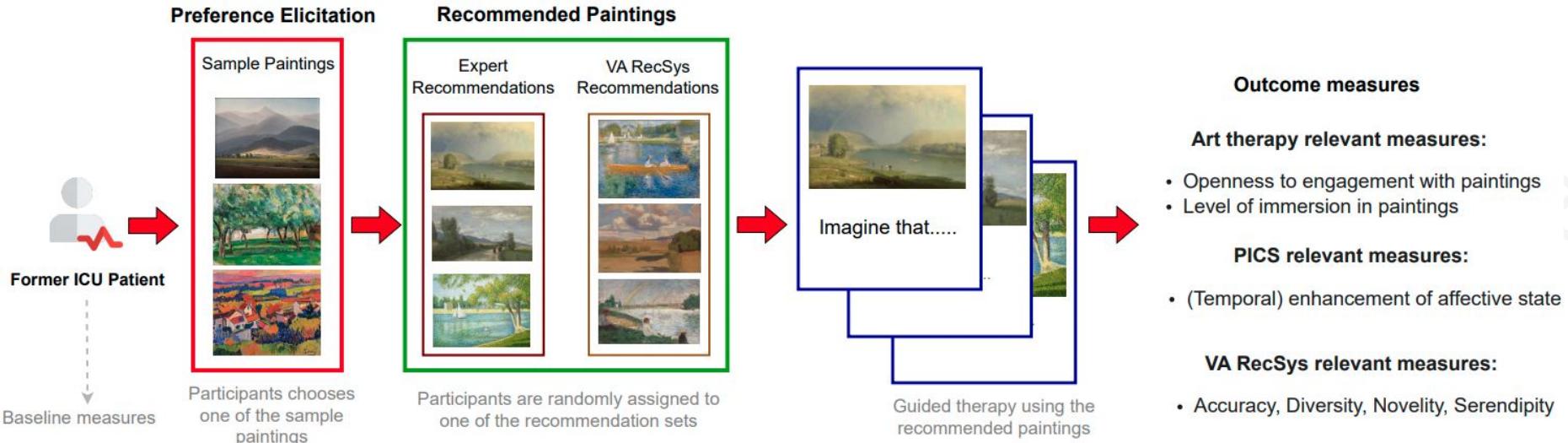
Ensuring a safe and sensitive Deployment: Pilot test

Expert evaluation of VA RecSys engines

Sample Paintings	Expert		Visual		MultiModal	

Top-2 recommendations for each sample painting from expert-validated engines.

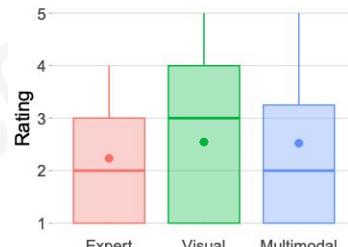
User Study: Guided Art Therapy with Post ICU patients



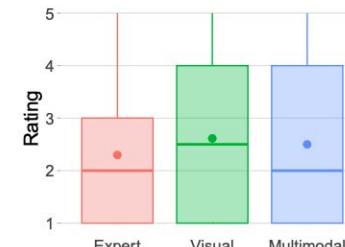
- N = 150 (between-subjects design) former ICU patients
- 50 per engine (Expert, Visual and Multimodal)

User Study: Guided Art Therapy with Post ICU patients

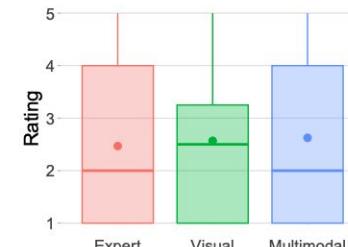
Art Therapy & Va RecSys relevant measures



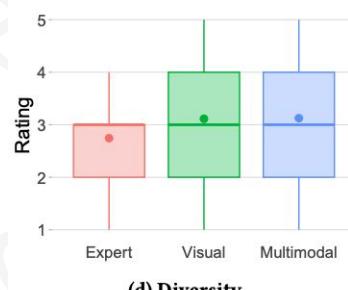
(a) Immersion



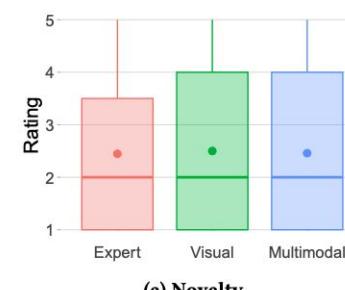
(b) Engagement



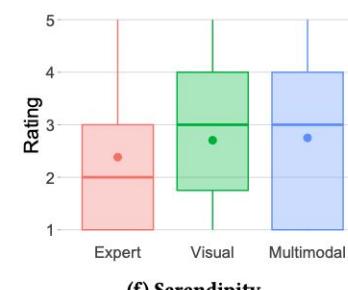
(c) Accuracy



(d) Diversity



(e) Novelty

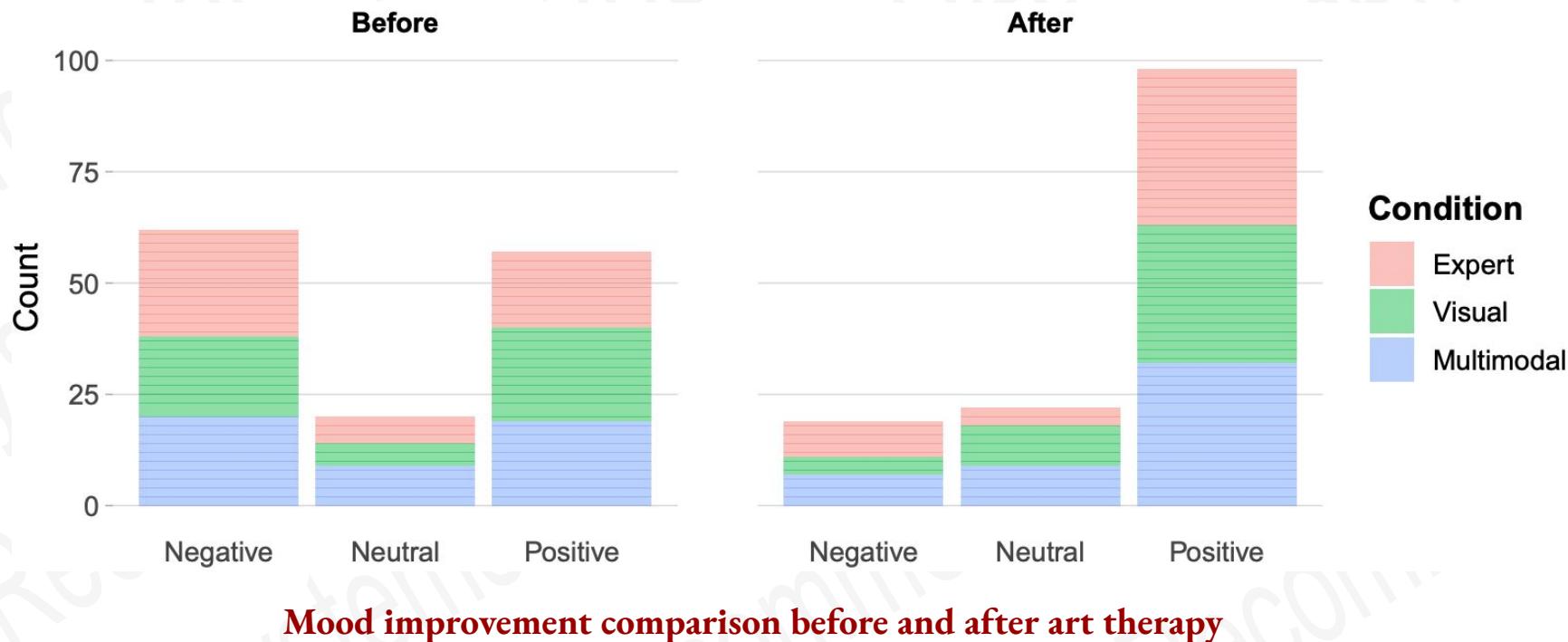


(f) Serendipity

Distribution of user ratings (Dots denote mean values.)

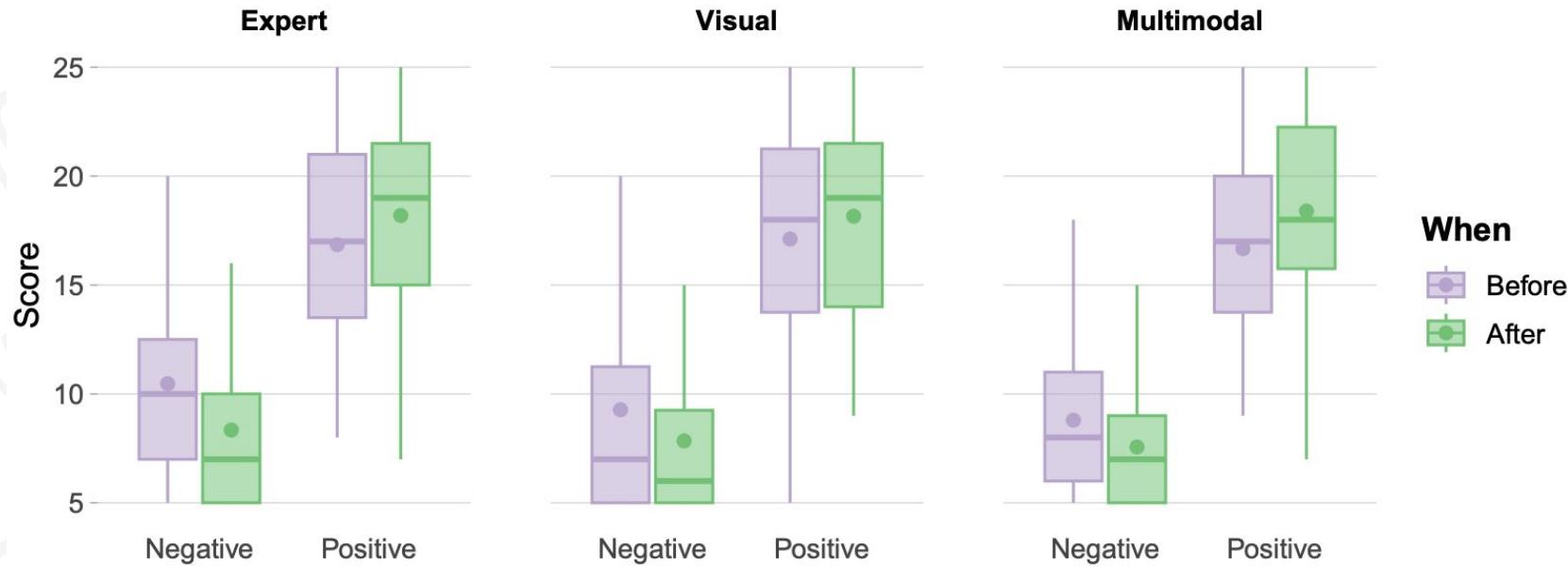
User Study: Guided Art Therapy with Post ICU patients

PICS relevant measures



User Study: Guided Art Therapy with Post ICU patients

PICS relevant measures

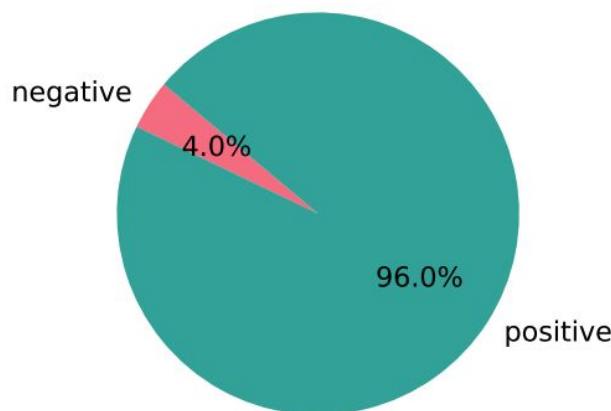


Emotion score changes according to the Positive Affect Negative Affect Schedule (PANAS) Scale.

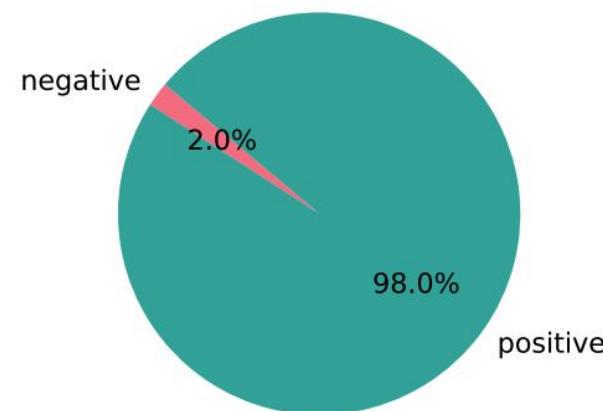
User Study: Guided Art Therapy with Post ICU patients

Participants' Post Therapy Reflection

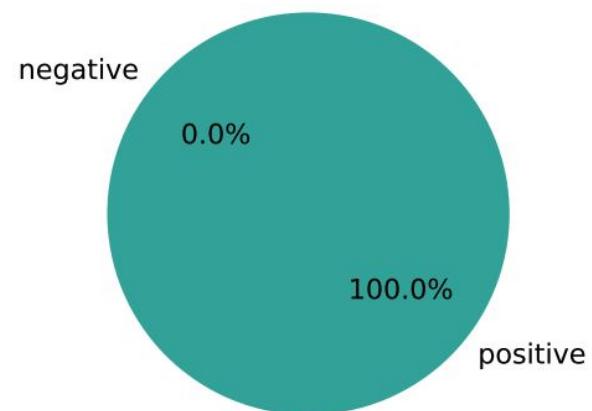
Expert Group Sentiments



Visual Group Sentiments



Multimodal Group Sentiments

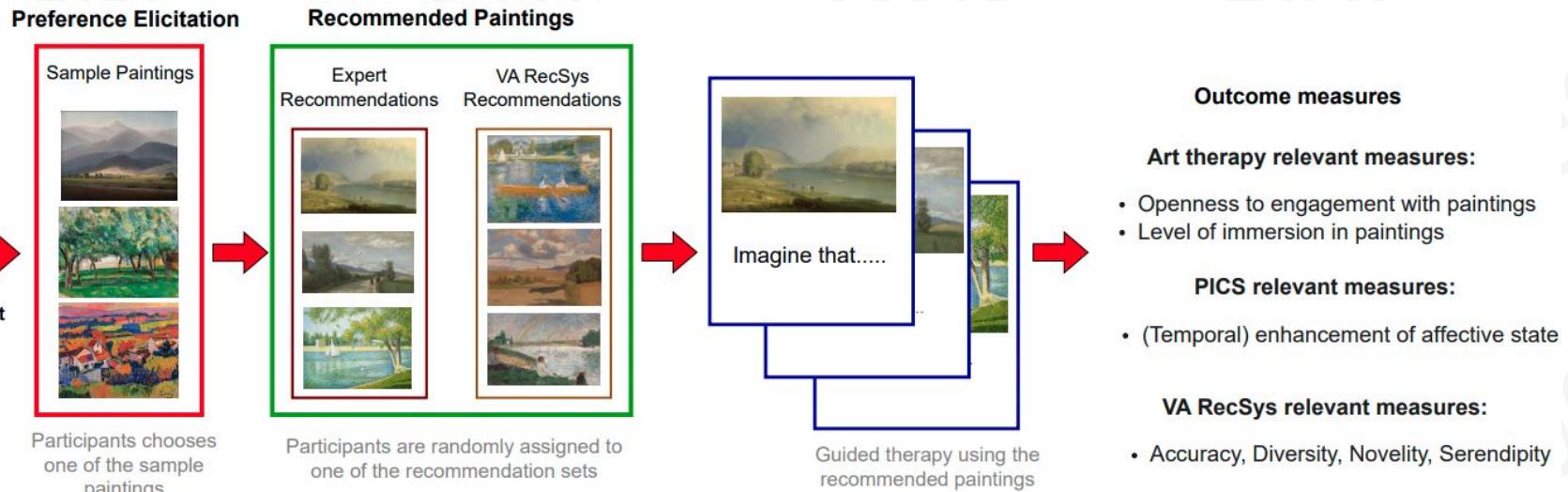


Sentiment analysis of user reflections per group

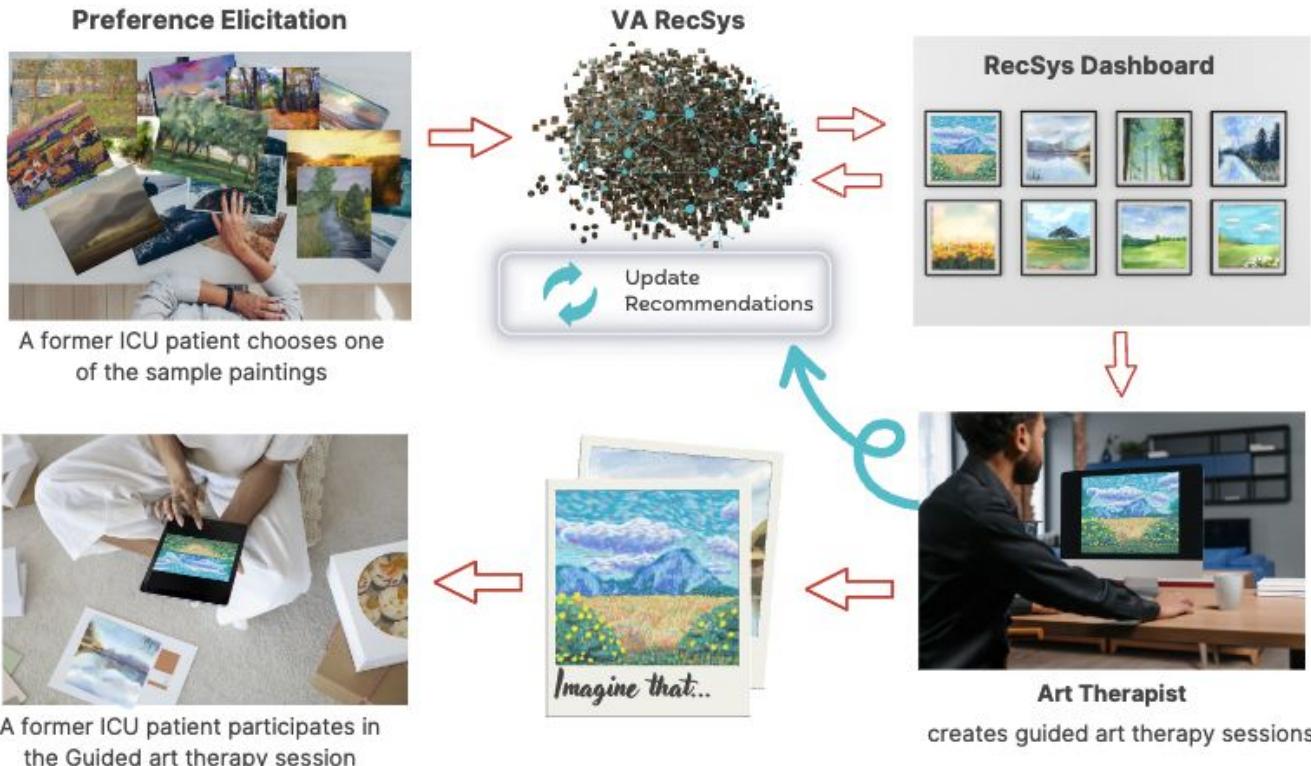
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Qualitative evaluation through Reflexive Thematic analysis (RTA)





Human-in-the-Loop



Potential Beyond PIKS Prevention & Treatment



Philips VitalSky

