Introduction

- Simulation has been used to train mental health professionals in various clinical skills.
- Due to the interpersonal nature of the mental health field, simulations need to create emotional and complex interactions that feel real to the participant.
- The Computer Simulation Assessment Tool (CSAT) was developed as an interactive online tool for psychiatric simulations.
- For difficult tasks, performance is thought to increase with arousal, but decline when levels of arousal become too high.
- In addition to self-report of affective engagement, galvanic skin response (GSR) has been linked to neural activity in areas implicated in emotion and attention.
- This pilot study tested if web-based psychiatric simulations differing only in the valence of the presentation (i.e., still pictures vs. acted video) led to differences in performance, retention, and/or emotional engagement.

Methods

Participants were assigned to high valence (affectionately intense video) or low valence (affectionately flat audio and a still image) CSAT conditions. Both groups began with a CSAT (neutral content) to orient them to the actor and interface. Next, they completed a clinical simulation featuring a safety assessment. Finally, all participated in a cognitive debriefing with an investigator.

Instruments

- **CSAT**: The simulation featured a veteran presenting at high safety risk. Participants act as clinicians and select actions from drop-down menus. They are then directed to clips of these actions being acted out. All selections are recorded. Decoy actions were embedded along with required actions. Both conditions had a time limit of 13 minutes.

Methods (cont.)

**FIG 1. Study Conditions**

- **Instruments (cont.)**

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**Debriefing Surveys**

The debriefing consisted of written and verbal components. The written (open-ended and multiple choice) was used to assess their retention of key facts about the patient in the simulation, while the verbal was used to assess feelings regarding the simulation experience.

**Galvanic Skin Response**

GSR was measured in microsiemens (μS) using two bipolar finger electrodes connected to an AD Instruments GSR Amp. The electrodes were attached to two fingers on the left hand.

Analyses

GSR waveforms were analyzed offline using AD Instruments PowerLab and LabChart v5. For each clip, a tonic (adjusted baseline) level and maximum response were recorded using two raters. Statistical analyses were conducted using SPSS v17.

Results

**TABLE 1. Participants Demographic Characteristics**

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Low Valence (%)</th>
<th>High Valence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Low: 6 (30%)</td>
<td>High: 7 (35%)</td>
</tr>
<tr>
<td>Profession</td>
<td>Low: 2 (10%)</td>
<td>High: 3 (15%)</td>
</tr>
<tr>
<td>Nurse</td>
<td>Low: 2 (10%)</td>
<td>High: 3 (15%)</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>Low: 2 (10%)</td>
<td>High: 3 (15%)</td>
</tr>
<tr>
<td>Psychologist</td>
<td>Low: 3 (15%)</td>
<td>High: 3 (15%)</td>
</tr>
<tr>
<td>Social Worker</td>
<td>Low: 1 (5%)</td>
<td>High: 1 (5%)</td>
</tr>
</tbody>
</table>

**Engagement & Performance: Preliminary Findings During Simulation**

- **FIG 5. Engagement & Required Items**

<table>
<thead>
<tr>
<th>Clips Retained During Written Debriefing: (Open-Ended)</th>
<th>Low: 62.4% (Avg. Clips Viewed: 18.4)</th>
<th>High: 71.7% (Avg. Clips Viewed: 13.3)</th>
</tr>
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</table>

**FIG 6. Engagement & Follow-up**

- **FIG 7. Engagement & Symptom Retention**

Conclusions

- While the sample size was small, several trends emerged:
  - Higher valence participants showed better retention overall.
  - The high valence simulation led to higher levels of self-reported and autonomic engagement than the low valence version, although these measures of engagement did not correlate.
  - Participants self-reporting more emotional engagement trended toward recommending more intensive levels of follow-up care, while autonomic arousal was not related.
  - There may be an optimal level of autonomic arousal related to selecting required items, as suggested by the curvilinear relationship in Fig 5.
  - With regard to the patient’s symptoms, more autonomic arousal trended toward greater improvement.

References