

## VIRTUAL PATIENTS REDUCE ANXIETY AND ENHANCE LEARNING WHEN TEACHING MEDICAL STUDENT SEXUAL-HISTORY TAKING SKILLS

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**Background:** Sexual history taking provokes anxiety in students and patients. We previously validated the use of virtual patients (VP) to teach and assess content items related to history-taking. The purpose of this study was to determine if a virtual scenario can prepare students for sexual history-taking with real or standardized patients (SP).

**Methods:** After receiving baseline instruction in sexual history-taking, medical students at the Medical College of Georgia (N=19) were videotaped taking a sexual history from either an SP alone (Group 1, N=9) or a VP immediately followed by an SP (Group 2, N=10). In the virtual scenario, a life-sized VP was projected on the wall of an exam room (Figure 1). Students conversed with the VP via a commercially available speech recognition engine. Participants completed an exit survey to assess knowledge, attitudes, and practices regarding sexual history-taking. Blood pressure and heart rate were recorded every two minutes using non-invasive monitors. Student anxiety level was also rated by clinicians (N=4) using a Likert scale. Data=Mean ± SD. Data were analyzed by Students t-test.

**Results:** Consistent with previous studies, there was no difference between student performance on sexual history-taking content when interacting with a VP or SP. In their initial interaction, students taking a sexual history from a VP demonstrated less change in systolic blood pressure ( $\Delta$ SBP) than students taking a sexual history from an SP (Table 1). There was no difference in student-reported or clinician-rated anxiety levels when comparing the two groups. Student comments regarding the VP interaction included “It was good to have a practice run with the VP before I saw a real person,” and “Good for practicing questions ....”

Figure 1- Virtual Patient Scenario



Table 1- Comparison of VP & SP Interactions

Measure	Group 1 (SP only)	Group 2 (VP → SP)	p-value
Pre-anxiety <sup>1</sup>	3.00 ± 1.12	3.20 ± 0.63	NS
Pre-preparedness	1.55 ± 0.73	1.60 ± 0.84	NS
Post-anxiety	4.11 ± 0.60	4.10 ± 0.99	NS
Post-preparedness	4.33 ± 0.50	4.20 ± 0.92	NS
Global anxiety level <sup>2</sup>	2.06 ± 0.63	2.38 ± 1.02	NS
$\Delta$ SBP max <sup>3</sup>	18.88 ± 6.03	5.11 ± 10.30	< 0.05
$\Delta$ SBP mean	9.31 ± 5.98	- 0.47 ± 10.02	< 0.05
$\Delta$ HR max	14.63 ± 10.71	6.44 ± 10.56	NS
$\Delta$ HR mean	7.76 ± 8.24	- 0.47 ± 14.52	NS

<sup>1</sup>Five-point Likert-type scale (1=strongly disagree, 5=strongly agree).

<sup>2</sup>Five-point Likert-type scale (1=least anxious 5=most anxious).

<sup>3</sup>Maximum or mean change in systolic blood pressure (SBP) and heart rate (HR) from baseline.

**Conclusions:** Medical students taking a sexual history for the first time demonstrate less anxiety as measured by  $\Delta$  SBP when interacting with a VP versus an SP. Virtual patients provide a safe and secure environment with the opportunity for repetitive practice for medical students to learn anxiety-provoking tasks such as sexual history-taking before interacting with a real or standardized patient.