Assessing Nurse Learners’ Stress Using Technology to Measure Physiologic Adaptation within Interprofessional Patient Care Simulation

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METHODS
Nurse faculty created and conducted the SIM-IPE scenarios. Exercise Science faculty monitored learners’ stress indicators during the experience using Omnisense Live (version 4.1.4, Zephyr Technology, Annapolis, MD), applying time-stamp markers to define the scenario time of stress adaptation. The data was automatically recorded throughout the SIM-IPE experience and debriefing periods. Data was stored into a password-protected laptop, and backed up by a university lab password protected intranet.

RESULTS
The Zephyr BioHarness™3 sensor data were analyzed collectively to determine when stress adaptations were more prevalent. Recall that the ANS system is divided into sympathetic nervous system (i.e., heart rate acceleration, blood vessel constriction, increase in blood pressure) and the parasympathetic nervous system (i.e., slows the heart rate, increases intestinal and gland activity and relaxes sphincter muscles). Researchers identified that when the sensor data demonstrated change in heart rate variability, the frequency bands demonstrated a change in neural influence from sympathetic to more parasympathetic controls, thus indicating stress adaptation.

DISCUSSION
Findings revealed that during the semester’s initial SIM-IPE sessions, nurse learners demonstrated an increase in stress indicators while involved in patient care activities. However, over the two semesters’ time, and, after five (5) SIMs, patient care stress indicators were lower, indicating learners adapted to their stress, and, perhaps, were more confident when performing the patient care activities. Learners, as the semesters progressed, appeared to adapt to stress during SIM-IPE patient care activities.

As time progressed, BSN learners demonstrated an increase in stress indicators while involved in patient care activities. However, during peer-to-peer debriefing, stress levels, brought on by peer-to-peer accountability, required communicating their patient care decision-making.

More research is needed on learners’ stress adaptation during peer-to-peer debriefing. SIM-IPE should be integrated across the learning continuum, where learners build knowledge, skills and positive attitudes across practice settings and professions (IPEC, 2016).

CONCLUSION
This study supports the SIM-IPE environment as a safe learning environment to reduce stress and promote teamwork communication. It also demonstrates the value of using technology to measure physiologic responses during SIM-IPE experiences.

REFERENCES