Supplement Material #1

We recruited RNs from four 12-hour shifts at two different intensive care unit in May 2020. Of the 39 observed RN shifts, 39.47% caring for one COVID-19 patient, 18.42% for two COVID-19 patients; 18.42% caring for one non-COVID-19 patients, 23.68% caring for two non-COVID-19 patients. Due to the IRB restrictions and the need to protect RN privacy, we could only collect rudimentary data on RNs background as presented in the paper. The differences in aggregated APACHE scores between COVID-19 and non-COVID-19 patients was not significant ($APACHE_{COVID19}=36.0\pm12.58$ *vs* $APACHE_{nonCOVID19}=34.3\pm11.14$; p=0.62)

Participating RNs were equipped with the FDA-approved Everion™ sensors (Biofourmis AG; Switzerland) continuously recording 12 biometric parameters. Here, registered skin temperature (t[C]), galvanic skin stress response (GalvStress), blood pulse wave, energy expenditure (Energy[cal]), number of steps[hr^{-1}], heart rate[min^{-1}], and respiratory rate[min^{-1}][1]. Prior to research initiation, we demonstrated the sensors during the information session with staff. Sensors were assigned randomly among RNs and placed on their forearm per manufacturer's specification. The sensor placement and removal happened within two hours after the onset of the shift. RNs were instructed to wear them at all times during the entire shift. The sensors were collected at the end of the shift. TLX test was administered at the end of the shift during the collection of sensors. The response rate was 97.5%, but only data with both sensor and TLX data are included here.

Following data collection, the sensors were cleaned and prepared for data download. The manufacturer serial numbers corresponding to each biosensor during the data download allowed each nurse's dataset to be distinguished from other nurses collected on the same day. Once the data for each nurse was removed from their respective device of the day, the devices were cleared and cleaned for the following round of data collection. If more than one set of data was collected from one nurse over multiple days, the same device was not necessarily used for consecutive data collections.

1 Keogh, A., Dorn, J. F., Walsh, L., Calvo, F. & Caulfield, B. Comparing the Usability and Acceptability of Wearable Sensors Among Older Irish Adults in a Real-World Context: Observational Study. *JMIR Mhealth Uhealth* **8**, e15704, doi:10.2196/15704 (2020).