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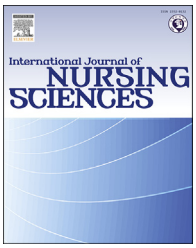

Original Article

Psychometric validation of satisfaction with simulated clinical learning experience evaluation – corrections (SSCLEE-C)

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ABSTRACT

Purpose: This study sought to modify a 19-item instrument designed to measure nursing students' satisfaction with a simulated learning experience for use in a correctional system to measure nurse satisfaction with simulated learning experiences; and to establish validity for the modified instrument. No measures were available for use in a correctional setting, and few instruments were available to measure nurse satisfaction with simulation experiences.
Design/methodology: One hundred and ninety-eight correctional nurses responded to the original 19-item five-point Likert scale instrument. These data were used for an exploratory and confirmatory factor analysis.
Findings: A 3-factor solution accounting for 62% of the variance. The 3 factors: Fidelity, Objectives, and Problem solving were supported by simulation theory. The 9-item CFA exhibited desirable psychometric properties: Root mean square error of approximation (RMSEA) = .046; Akaike Information Criterion (AIC) = 76.95; Comparative Fit Index (CFI) = .984. The model $\chi^2 = 30.95$ (ns). Alpha reliability estimates of the three factors were 0.70, 0.70 and 0.81.
Originality/value: The Satisfaction with Simulated Clinical Learning Experience Evaluation – Corrections (SSCLEE-C) is the only instrument available for ongoing assessment of correctional nurse satisfaction with simulated clinical learning experiences.

1. Introduction

Simulation has been used as an effective means of educating healthcare teams for nearly half century [15]. A unified approach to advancing the science of simulation design with improved research methods, rigor, and funding has been endorsed by the National League for Nursing, the Institute of Medicine, the American Medical Association, the International Association of Simulation and international groups

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such as Clinical Learnings and Society of Simulation in Healthcare [2,6,7].

The aims of this paper are [1] to report on the modification of a 19-item End of Semester Student Simulated Clinical Learning Experience Satisfaction Survey (ESS) [11] which had been used to assess nursing student satisfaction with simulated learning experiences; and [2] to report the psychometric validation of the newly developed 9-item Satisfaction with Simulated Clinical Learning Experience Evaluation- Corrections (SSCLEE-C) instrument. Few instruments were identified for use to measure nurse satisfaction with simulated learning and no instruments were found that had been used in correctional settings.

Simulation was one of several educational modalities introduced into a newly designed and implemented Correctional Nurse Competency Program© (HRSA # D11HP22212-01-01; IRB# X13-060; [13]). The Correctional Nurse Competency Program© (CNCP) is an evidence-based competency program designed specifically for nurses who work within prisons and jails. Following educational experiences, nurses demonstrate their learning through clinical scenarios commonly found in these settings in a state of the art mobile simulation education laboratory [14]. Through an academic-practice partnership supported by the HRSA grant (# D11HP22212-01-01), faculty experts in education and simulation pedagogy, guided correctional health nurses in the development of clinical scenarios for simulations. Measuring the satisfaction with this experience was a component of the evaluation plan for this new program and newly created simulation activities.

1.1. *Adapting ESS for correctional settings*

The 19-item ESS [11] designed to measure nursing student satisfaction with a simulated learning experience had a Cronbach's $\alpha = 0.96$, but no additional information on the instrument's psychometric properties was published, or, available with telephone follow-up. Given the limited satisfaction measures available, the CNCP© team decided to utilize this instrument as a starting place, acknowledging the need for modification and validation in the correctional system.

The NLN/Jeffries Simulation Framework (2016) provided theoretical support for this instrument development project. This framework has five components: facilitator, participant, educational practices, outcomes, and simulation design organized under three interactive domains: educational practice, outcomes and simulation design characteristics. As will be shown, the 9-items remaining following our analysis and the labeled domains of the instrument were theoretically aligned with one domain of the framework: simulation design characteristics.

As specified by the Jeffries Simulation Framework (2016), simulation design characteristics include: objectives, fidelity, cues, reflective thinking, and problem solving. CNCP© learning objectives and scenario content identify the expected processes and outcomes for participants. Fidelity of a scenario is equivalent to the reality of the simulation. The closer a simulation is to reality, the higher the fidelity of the simulation (Jeffries, 2012). Information provided in the scenario to guide a participant's actions are planned and labelled as cues. Reflective practice is an enhanced by the debriefing component of the simulation. Debriefing allows participants to explore their actions with a trained facilitator [3]. Reflecting on ones actions fosters an environment to change the behavior [5]. Problem solving, the last component of simulation design characteristics, is a participant behavior response to situations built into the scenario. The challenges built into the scenario should be reflected in the learning objectives of the simulation to prompt appropriate actions and provide the basis for measurement.

1.2. *Procedures*

Authorization to perform the study was obtained from the University's Office of Research Compliance (IRB# X13-060; HRSA, grant # D11HP22212).

1.3. *Sample*

A convenience sample of nurses (n = 198) employed by the state correctional system were eligible to participate. Participation in responding to the program evaluation measures was voluntary, however, participation in the CNCP© was mandatory. De-identified and aggregated data is reported to protect the identity of participants. Being that the convenience sample was driven by the availability of participants, an a priori power analysis was not conducted. However, for a model with 3 latent factors and 8 or more indicators, a sample size of approximately 110–120 provides the desired statistical power of p = .80 [17].

1.4. *Data analysis*

Data were analyzed using the SPSS 18.0 statistical package [16]. Univariate statistics were used to describe the sample. All data were examined for accuracy of data entry. Missing data was individually analyzed for significance. Imputations were not needed for the analysis due to a minimal number of missing data fields.

Adaptation of EES for Corrections

The 19- item EES instrument utilized a 5-point Likert scale with responses ranging from strongly disagree [1] to strongly agree [5], with higher scores indicating higher degree of satisfaction with simulated learning. Analyses conducted resulting in the 3-factor 9-item instrument which was labelled the Satisfaction with Simulated Clinical Learning Experience Evaluation – Corrections (SSCLEE-C) is described in detail under the results section. SSCLEE-C is scored using a 5-point Likert scale from strongly disagree [1] to strongly agree [5] with higher scores indicating higher degree of satisfaction.

2. Results

2.1. *Demographics*

Of the 198 participants, 148 (82%) participants were female, white (n = 131, 70%) and between 40 and 49 years of age