Measuring the Reliability of the Braden Scale II© for Pressure Injury Risk Assessment

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Background

- Developed in 1988, the Braden Scale© is the global gold standard for predicting pressure injury (PI) risk. Medical nomenclature surrounding PIs has changed over time necessitating an update to the original Braden Scale©.
- The Braden Scale II© is a derivative of the Braden Scale© which has had extensive psychometric validation.
- Inter-rater reliability (IRR) is the degree to which measurements can be consistent between clinicians. This is vital as the need to be able to score the same patient accurately leads to proper monitoring and care provided to patients, decreasing risk of pressure injury.
- Intraclass Correlation Coefficient (ICC) is a statistical measurement of reliability suggesting similar results produced within a group using set data.
- Phase I of our study was previously completed to measure IRR of many raters using a single case study in both a registered nurse (n=17) and student nurse (n=9) cohort. Results demonstrated excellent reliability for both cohorts using that methodology.
- Phase I also measured the efficacy of the training module used to train clinicians and was found to be effective for both students and licensed clinicians.

Purpose

The purpose of Phase II of this study was to measure IRR using ICC of three raters across heterogenous clinical scenarios.

Methods

- To complete IRR testingof the Braden Scale II©, a convenience sample of three registered nurses was recruited.
- Participants were provided a copy of the Braden Scale II© and asked to score 30 case studies.
- ICC estimates ant their 5% confidence intervals were calculated using SPSS Subscription statistical package (SPSS Inc, Chicago, IL) based on a mean-rating (N=3), absolute agreement, 2-way random effects model.

Results

- The ICC for single measures was .865 (95%CI .831-.894) which reflects good reliability.

ICC Comparison

Cohort	RN (n=17) Phase I	Student (n=9) Phase I	RN (N=3) Phase II
Case Studies Evaluated	1	1	30
ICC (95%CI)	.99(.98-.99)	.99(.98-.99)	.865(.831-.894)

Conclusions

- The updates to the original Braden Scale© did not negatively affect the internal consistency of the tool.
- The virtual training approach used in Phase I to educate participants about scoring the Braden Scale II© provides the necessary elements needed to ensure accurate scoring of the tool for both student and registered nurses and may be the reason this group had a higher ICC than Phase II participants.
- When testing IRR, it is important to use both methodologies (many raters with single studies and few raters with many studies) to ensure generalizability of findings to a larger clinician population.

Implications

ICC evaluation evidenced excellent reliability in the Phase I study for both cohorts, each of which had large sample sizes for this type of study. This suggests the training module used was effective for both experienced nurses and nursing students. Phase II findings, testing a small sample of raters with heterogenous scenarios, demonstrated good reliability. Lower ICC in the Phase II cohort may be due to lack of training and/or fatigue in scoring so many studies. Clinicians using either version of the Braden Scale© should receive training to ensure the highest reliability in clinical care.

References:

1. Koo, T.K. & Li, M.Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. Journal of Chiropractic Medicine; (15),155-163. doi.org/10.1016/j.jem.2016.02.012