Research Evidence Evaluation

Res. Evid. Eval. **2** (2011) 7-8

Research Evidence Evaluation
http://www.resevideval.org

Reasoning Style in Clinical Decision Making

Carly Hutchins and L. Lee Glenn[1]

College of Nursing, East Tennessee State University, Johnson City, Tennessee, USA

Abstract
Bjørk and Hamilton (2011) concluded that there was a prevalence of quasi-rational reasoning with oscillation in nurses. Although the study had many strengths, a re-evaluation of the study findings indicates that insufficient evidence was provided to draw these conclusions.

A recent study by Bjørk and Hamilton (2011) that was published in *Nursing Practice and Research* has main conclusions that states "nurses reported the use of quasi-rational models during CDM", and"our findings support the prevalence of nurses' oscillation between analysis and intuition," However, these conclusions were not supported by data provided in the study for two reasons: First, the questionnaire used may have low measurement validity and be unable to truly differentiate between different categories of reasoning or detect oscillation between intuition and analytic reasoning. Second, the findings may be confounded by missing data.

First of all, the 24-item Nursing Decision Making questionnaire does not appear to have adequate measurement validity. The authors state that the validity was not established but imply that it might be valid because it comes from a 56-item version that had construct validity. The study on the 56-item version (Lauri, Salantera and Chalmers) only stated that the construct validity was statistically significant but did give the critical correlation coefficients (factor loadings or item-to-factor correlations), which are needed to judge the construct validity. Furthermore, the 24-item or 56-item instruments appear to be incorrectly categorized by reasoning type (intuitive, analytic, or intermediate). For example, in the 24-item version of the questionnaire, the possible range for scores is from 24 (pure analytic reasoning) to 120 (pure intuitive reasoning), with an arithmetic midpoint of 72. Based on the S.D. provided, two-thirds of the nurses in the study had a score between 66 and 75, which is a very narrow range that is very close to the midpoint score. None of the nurses had scores below 45 or above 88, which shows that nurses did not ever use intuitive and analytic reasoning alone, but 100% of nurses always used both at work. This misinterpretation is due to how the categories (intuitive, analytic, and intermediate) were artificially created by intentionally using quartiles as the cut-off scores. By doing this it always places the middle 50% into a category named quasi-rational, and the ones above or below this into categories of intuitive and analytic reasoning, respectively, for the population on which the questionnaire was developed. Although nurses

[1]Corresponding Author: Carly Hutchins, 331 Sam Jenkins Road Gray, TN 37615, USA. Email: hutchinsc@goldmail.etsu.edu.

placed in the intuitive category may have used more intuitive reasoning that those placed in the intermediate (quasi-rational) category, it is misleading to characterize them as reporting that they use the quasi-rational model of CDM more often than either the analytic-systematic or intuitive-interpretative models. The nurses never reported the latter types of reasoning. It was erroneously inferred from a misinterpretation of the scores and the incorrectly categorized scores.

With regard to missing data, the number of unanswered questions considered acceptable was extremely high. Returned questionnaires were used even if 40% of the questions were unanswered because participants often did not see the last page of the questionnaire. Although the number questionnaires with more than 40% of answers missing was provided (3.6% of sample), the number that were missing 1% to 40% was not provided, leaving the reader with the impression that this number was quite substantial. There were only six items for each stage of the decision making process with three reasoning type categories (intuition, analytic, or intermediate), indicating that there were only two questions for each reasoning type category. If 40% of the responses were replaced by overall mean values in a substantial number of the returned questionnaires, this effectively reduces the questionnaire to nearly one question for each stage and reasoning type, which compromises the findings.

There is evidence that the above shortcomings caused problems in the study. The authors should have obtained closer to 50% of respondents in the quasi-rational category rather than the 72% that they obtained because the cut-off scores for inclusion in this group on the 24-item version of the questionnaire was based on quartiles. This means that the 24-item questionnaire was tested on a group of nurses at some point and the cut-off scores were intentionally adjusted so that 50% were in the quasi-rational group. No explanation was offered as to why almost three-quarters were in this group, however, we would suggest it was due to low measurement validity and missing data. Other evidence comes from the key finding in Table 2 of the study that analytic reasoning was used least in the data processing stage of clinical decision. The opposite was found in the previous study using the 56-item version of the questionnaire. Although this was explained by potential differences in questionnaire instructions between the two studies and by stating that a direct comparison between the two versions of the questionnaire are not possible (after arguing for an equivalence of the two questionnaires in the methods section), the measurement validity and missing data problems may be the most likely explanation.

Another issue is the idea that oscillations between intuitive and analytic reasoning as described by Hammond (2000) were found in the study sample. Hammond (2000) showed that a back-and-forth alternation between intuitive and analytic thinking during stressful situations, and those oscillations would be in the quasi-rationale categories as defined in this study. However, the present study only categorized participants into static categories and did not show any evaluation about an alternation in time between intuitive and analytic thinking in any stage of the decision making process. Therefore, the conclusion that nurses were found to oscillate goes far beyond the data.

The study has many strengths, including an enormous sample size (2,095), relatively good participation rate (46%), thorough literature review, excellent statistical correlation and regression analysis tables, and organized structure. Despite these strengths, the evidence of weaknesses with validity, missing data, and sample suitabilility, the conclusion that there is a prevalence of quasi-rational reasoning with oscillation in nurses is not sufficiently supported. Therefore, this evidence should not be trusted by individuals, clinics, hospitals, or government policies until better evidence it obtained on this critical issue.

ACKNOWLEDGEMENTS

The authors have no financial or other form of conflict of interest that would affect the objectivity of this evaluation.

REFERENCES

[1] I.T. Bjørk, I. T. and G.A. Hamilton. “Clinical Decision Making of Nurses Working in Hospital Settings,” *Nursing Research and Practice* vol. 2011, 1-8, 2011.

[2] K.R. Hammond, *Judgments Under Stress*, Oxford University Press, Oxford, 2000 [ISBN-13: 978-0195131437].

[3] S. Lauri, S. Salantera, and K. Chalmers et al., “An exploratory study of clinical decision-making in

five countries," *Journal of Nursing Scholarship,* vol. 33, no.1, pp. 83-90, 2011.