Reviewer’s report

Title: Patterns of Research Utilization on Patient Care Units

Version: 1 Date: 22 October 2007

Reviewer: Marita Titler

Reviewer’s report:

General

This is an interesting article that examines possible contextual factors at the unit level that influence research utilization among nurses working in acute care hospitals, and to identify possible differences between adult and pediatric units. This study is exploratory in nature and is limited by the small number of patient care units included in the analyses and the small number of individuals (15, 19, 22) representing units 3, 5, and 7 respectively. The background section is limited in the scope of the review of the literature, and is missing important implementation studies that include nurses, those studies that address the micro-system, qualitative studies that have generated context specific factors, and studies of nursing practice that elucidate the importance of skill mix, leadership expectations, and communication factors. Characteristics of a model nursing environment are not set forth in the background sections, based on a synthesis of research findings in this area.

This study would be improved by setting forth the explicit research question(s) that were addressed in the study in addition to the overall study purpose. The theoretical framing of the study is helpful but the relationship of the constructs in the theory (personal factors; organizational factors; attributes of the innovation) and the study variables are unclear. Which of the variables in table 2 are related to each of these major constructs? Additionally, Rogers’ work includes an additional construct – communication. Did the authors decide that this component of the theory were not applicable to this study?

Definitions under the study purpose would help guide the reader in understanding the subsequent study methods and analytic plan. Specifically, what is an ideal patient care unit? What are the “displaying features for optimal research use”? What is the definition of optimal research use? Can optimal research use be characterized from self-reports of individual nurses?

Several methodological questions need to be addressed in this paper. First, what were the inclusion and exclusion criteria for the patient care units. What were the demographic characteristics of the patient care units such as bed capacity, skill mix, average daily census, case mix index, full-time equivalent staff for RNs, LPN, and Aides? What were the inclusion and exclusion criteria for nurses who completed the questionnaires? Based on the qualitative data collected for the parent study, are the quantitative findings substantiated. It is unclear why mixed...
methods, (use of qualitative and quantitative findings) were not used to
c characterize the ideal patient care unit.

Major Compulsory Revisions (that the author must respond to before a decision
on publication can be reached)

1. Update/expand the background section to be more inclusive of studies on use
of research findings in practice that include nurses; addressing related research
about context studies from health services research that have demonstrated
several context factors that influence the nature of nursing practice, and set forth
the explicit characteristics of a model nursing unit (page 6).

2. Address the omission of communication from Rogers' theory as you are using
it (the theory) for this study.

3. Help the reader understand the use of Rogers' theory for this study by
describing how the theory was used to guide variable selection and the
relationship among the study variables and the theoretical constructs in the
study. How do each of the subscales from the multiple instruments fit with the
theoretical frame; this will help the reader understand why these
concepts/variables were selected for inclusion in the study. For example, how
does the CCTDI relate to the constructs in the theory?

4. Provide some justification of why mixed methods were not used to represent
the ideal patient care unit and the rationale for focusing on quantitative data only.

5. Please explicitly describe how the variation index relates to the overall purpose
of the study and an explicit research question. An addition of a sentence or two
regarding how such analyses have been used in other studies would be helpful.

6. Since the patient care units are the unit of analyses, please provide the
demographics of the patient care units and the hospitals from which they came.

7. Provide inclusion and exclusion criteria for the individuals who were asked to
complete questionnaires. Also report the proportion (%) of FTEs that the number
of individuals who completed the questionnaires represent? For example, is Unit
3 a small unit with fewer staff than unit 1?

8. Explain why nurses at time two (n=58) were excluded from the analyses given
that the unit of analyses are at the patient care unit level and the researchers
combined responses from two different time points. Please provide justification
for combining responses from two different time points given that units may
change over time?

9. Instrumentation – Organizational support for research use asks questions
regarding the organization, not the patient care unit, and thus it is not clear why
they are included in this paper. Please provide a justification why this variable
was included. The dependent variable in this study is research utilization but the
question included in the Appendix asks how often the individual has used
research .... Does this mean use research methods, use research findings, participate in conduct of research? Please provide a conceptual definition of research use. Also provide a rationale for the weighting of the RU question as the subject answers the question in relation to 1) subjects learning how to respond to the question as contrasted to 2) participants learning more about research utilization over the course of the questionnaire completion. This increasing positive response may be a function of individuals learning how to respond to the question, as noted by educational testing experts, rather than learning more about research use.

10. The investigators provide a detailed analysis to justify aggregating individuals scores to use for unit level measures. Please clarify if the values under the ANOVA heading are means across seven units or means across the individuals – it is unclear what the values for each of the variables under the ANOVA heading represents. Although the analysis in table 2 addresses reliability, it does not include validity values as suggested on page 11. Perhaps the authors could clarify the meaning on page 11 – “Table 2 contains reliability and validity values of the data aggregated at the unit level. As noted on page 12, the relative effect sizes for both the 1) proportion of variance in the individual factor accounted for by group membership, and 2) the relative strength of the aggregated variable at the group level are quite low. This suggests that means of individual scores are not good representations of unit level characteristics. Thus, subsequent analyses at the unit level are compromised.

11. Please provide the unit level scores both categorical and means (SD) of research utilization for each of the seven study units. This could be easily added to table 3.

12. Page 15 – please define how high, medium and low units were defined regarding RU and were these values determined a prior? Please justify use of these values given the low values (0.12 and 0.01) in table 2. Please clarify how the relationships between units, factors in figure 2 and RU scores are drawn from the data – this may require a third dimension be added to the correspondence analysis.

13. The discussion section should be focused on context since the analyses were at the patient care unit level rather than on the individual factors. The discussion also needs to be framed within the theoretical frame that was used for the study. Lastly, the statements regarding context factors in the discussion section are exploratory at best and should be noted as such. Greenhalgh et al have noted the importance of structural factors (e.g. bed capacity) that have not been included in this study and the relatively low number of respondents in 7 units make this study interesting but exploratory in nature. This is noted in the limitations section but should also inform the type of statements made in the discussion section. Lastly, authors should integrate findings with other studies and papers that have addressed context of care and use of research findings in practice. This is not the first study nor the only paper that notes the importance of context factors in use of research in practice. As one example, a number of studies on patient safety and integration of evidence-based patient safety
practice have described the importance of system and context factors in promoting adoption of such practices.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Clarify the y axis on figure 1.
2. Include the test statistic values and p-values on page 14 for the ECS (first full paragraph).
3. Page 14 – provide the names of the two dimensions which captured 2/3 of the variability.
4. Add the low, medium, and high value research utilization scores to table 4.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.