

"Translational Research at the Bedside - Testing Psychometrics Nausea and Vomiting Scales."



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Disclosures

- Funding was provided by the hospital foundation
- Permission was granted by Gary Morrow for use of his tool.
- The research team did not receive any payment for the study
- The study was approved by the Western Institutional Review Board®



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Thinking differently...current paradigm

“There are *not* two sciences. There is science, and the application of science, and these *two* are linked as the fruit is to the tree.”

Louis Pasteur (Grady, 2010)



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What we will discuss & learn?

- Operationally define translational research for the Nausea Vomiting project.
- State key points of translational research at the bedside.
- Describe enhancement of RN knowledge with involvement in research.
- Identify how *“knowledge”* of research is enhanced when RNs at the bedside participate in EBP and Research projects.



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Operationalize: Translational Research

- *“Translational research transforms scientific findings or discoveries from basic laboratory, clinical, or population studies into new clinical tools, processes, or applications.*

***Thus,** improving patient care and promote public health. The intent is: build the bridge from ‘ bench to bedside.’ (Grady, 2010)*



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Translational Research/EBP

- *Isn't it one an the same?*
- The history of this term is more prevalent in past decade...the terms popularized in 2002 AMA
- Found to be essential in moving science forward for better outcomes
(Fontanarosa, P., & De Angelis, 2002)



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Where did the N/V scale originate?

- From the Staff Registered Nurses (RNs)
- They communicated frustration at the use of the pain scale which was also used for nausea and vomiting (N/V).
- **Yes....**that is what was done, it was even in the policies that way.....!
- *Novel idea to have a unique scales for these symptoms with descriptors!*



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Actual Story

RN's have the ideas/questions

- Research idea at the bedside
- Nurses asking: *Is there a better tool for N/V?*
- Nurses reporting – we are not able to gauge N/V s/s using scales without descriptors
- ROL - Nurses describe to CNS and other RNs what they thought would be a better tool!



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Nausea 0-5

| | Measure | Descriptions |
|----------|--------------------|--|
| 0 | None | No nausea |
| 1 | Anticipated | Nausea is <i>anticipated</i> and prophylaxis medications may be given. |
| 2 | Mild | Nausea reported. Able to tolerate food or medications by mouth. |
| 3 | Moderate | Nausea persisting. Lacks appetite. Able to eat small meals occasionally. |
| 4 | Great | Nausea ongoing. No appetite. Unable to tolerate food/medications by mouth. |
| 5 | Severe | Nausea with Dry Heaves reported |



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Vomiting 0-5

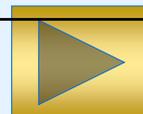
| | Measure | Descriptions |
|----------|--------------------|--|
| 0 | None | No vomiting |
| 1 | Anticipated | Vomiting is <i>anticipated</i> and prophylaxis medications may be given. |
| 2 | Mild | 1 -2 episodes in 12 hours, small amount of emesis. |
| 3 | Moderate | 3-5 episodes in 12 hours. Vomiting persist. |
| 4 | Great | 6 episodes in 12 hours. |
| 5 | Severe | ≥ 7 episodes in 12 hours, intractable, incessant, retching with emesis. |



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Morrow tool (MANE)

1. Are you experiencing Nausea right now? ? (If no, skip to 4.)

_____ Yes or _____ No _____

2. How long have you been experiencing Nausea?

_____ Hour(s)

3. How would you describe your Nausea at its worst?

(1) Very mild, _____ (2) Mild, _____ (3) Moderate, _____ (4)
Severe, _____ (5) Very severe, _____ (6) Intolerable.



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Morrow tool (cont.)

4. Are you experiencing vomiting currently? ? (If no, skip to 7)

_____ Yes or _____ No_____

5. How long is the Vomiting lasting?

_____ Hour(s)

6. How would you describe your Vomiting at its worst?

(1) Very mild, _____ (2) Mild, _____ (3) Moderate, _____ (4) Severe, _____
(5) Very severe, _____ (6) Intolerable

7. Did you take medication for nausea and / or Vomiting?

_____ Yes or _____ No



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Nurses Use Methodology Design

Patients at risk were placed in 3 groups selected in the study

- Group 1, Cancer patients
- Group 2, Admitted with diagnosis of N & V
- Group 3, Control Group – not expected to have the s/s.



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Study Conceptual Model N/V scales

FRAMEWORK

Subjects ID
by Bedside
RN

Symptom N/V
experienced
& reported

Ask permission
& assess w/
scales

Two RNs
record pt
response

Analysis

Results



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Instruments

- Three instruments were used:
 - Halpin (HNV) tool with descriptors,
 - Morrow (MANE) Tool (1984)
 - Demographic data sheet.



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Psychometric properties of the MANE

- Had been tested in previous studies:
 - Carnrike, Brantley, Bruce, Faruqui, Gresham, Buss, and Cocke (1988), Morrow (1992), Rhodes & Mc Daniel (2001). The test–retest reliability has ranged from 0.61-0.78.
 - The construct validity has ranged from 0.72 – 0.96 (Rhodes and McDaniel, 2001).



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Comparability of the groups

- Demographic and medical background data were cross tabulated with the groups' numbers to assess the comparability of the three groups.
- Chi square tests were non-significant for ethnicity, gender, coronary artery disease, hypertension, diabetes, congestive heart failure, and other medical surgical diagnosis and risk for PONV.
- *On admission, the groups differed in terms of nausea, As expected!*



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Concurrent Validity

- Calculated between Morrow's drug efficacy rating and changes in Halpin ratings.
- These gains scores were then correlated with Morrow ratings of drug usefulness, where 1 meant "very useful" and 4 meant "*doesn't seem to help*".
 - The gains in **Halpin Nausea** ratings had a significant correlation ($r = -.281$, $p = .019$, $n = 69$) with Morrow ratings of drug effectiveness.
 - The **Halpin Vomiting** change scores varied in the expected direction, but the correlation was not significant ($r = -.201$, $p = .097$, $n = 69$).



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Concurrent Validity

- The highly significant correlations were between the Halpin N/V scales and the respective Morrow scales that indicated whether or not the subject was presently experiencing nausea or vomiting.
- Correlation between the Halpin nausea scale and Morrow nausea scale and Morrow worst nausea ratings were significant at time 1 ($r=.318$, $p=.038$, $n=43$).
- Some of the other correlations were high but not significant because of the low number of cases



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Sensitivity HNS

- A two-way analysis of variance with repeated measures on nausea scores indicates that there was a significant group effect ($F(2,160)=29.131$, $p<.001$), meaning that the groups differed in their feelings of nausea,
 - a significant time effect ($F(1,160)=14.465$, $p<.001$) meaning that there were differences between time 1, 2, and 3,
 - and a significant time by group interaction effect ($F(2,160)=7.306$, $p=.001$) meaning that feelings of nausea is jointly determined by both belonging to a specific group and the time period when nausea was measured.



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Predictability of scales re: PONV

- *One of the questions that we asked was, is there a relationship between gender and risk for postoperative nausea and vomiting (PONV)?*
- A multiple regression was conducted to determine if the predictor variables of (PONV, history of smoking, motion sickness, nausea on admission) are related to the gender of the patients.
- Results showed that history of PONV and motion sickness were related to the gender of the patients ($F=8.307$, $df=2$, $p=. p < .001$).



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Sensitivity HVS

- For the vomiting scale, the group factor was significant ($F(2, 160) = 5.933$, $p < .001$), as was the time factor ($F(1, 160) = 6.509$, $p = .012$), but the group by time interaction was not significant, ($F(2, 160) = 1.414$, $p = .246$).
- As was the case with the nausea scale, belonging to a specific group was a determinant on the feelings of vomiting.



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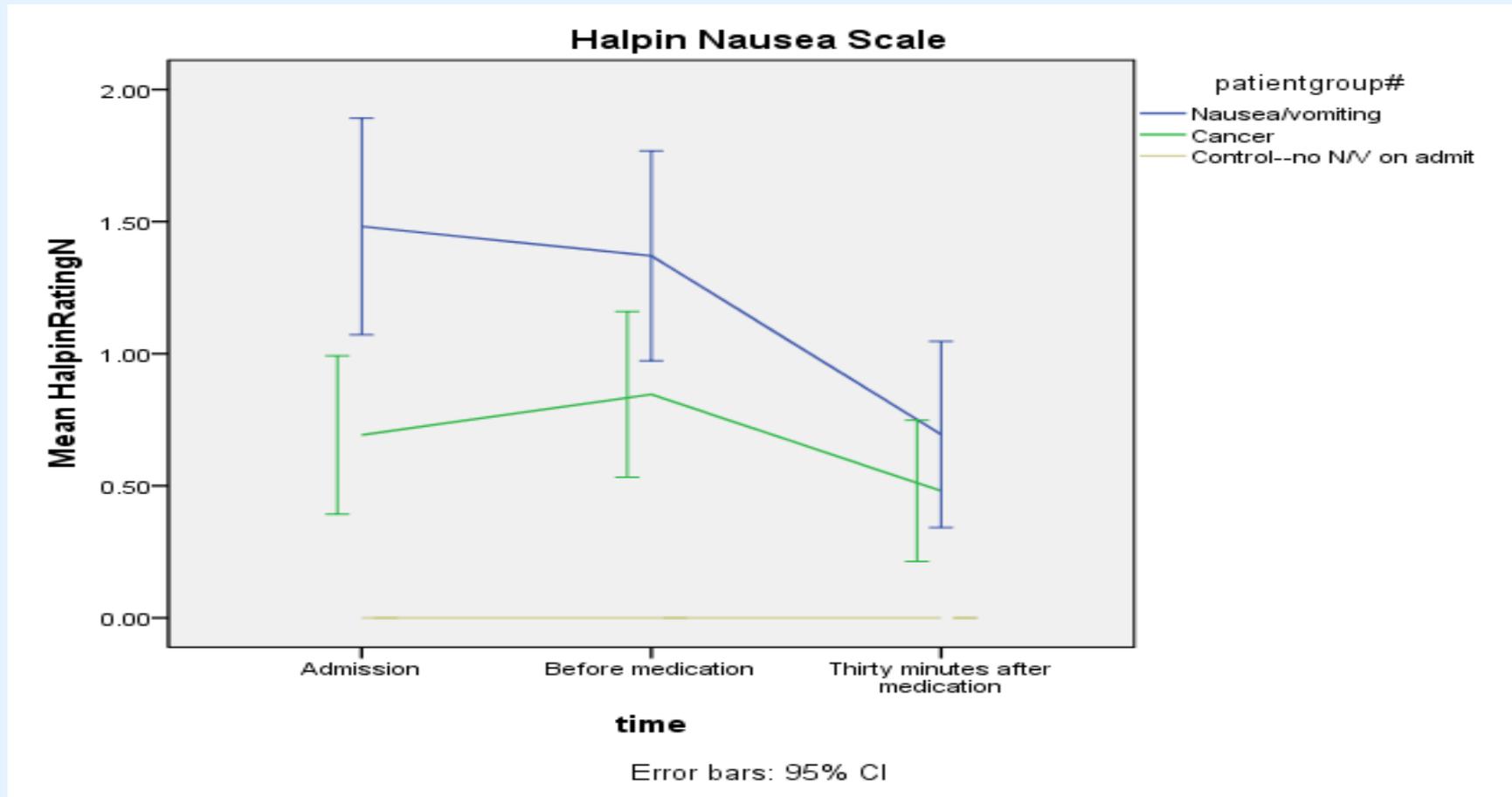
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Figure 2: Group means for nausea ratings at three time intervals



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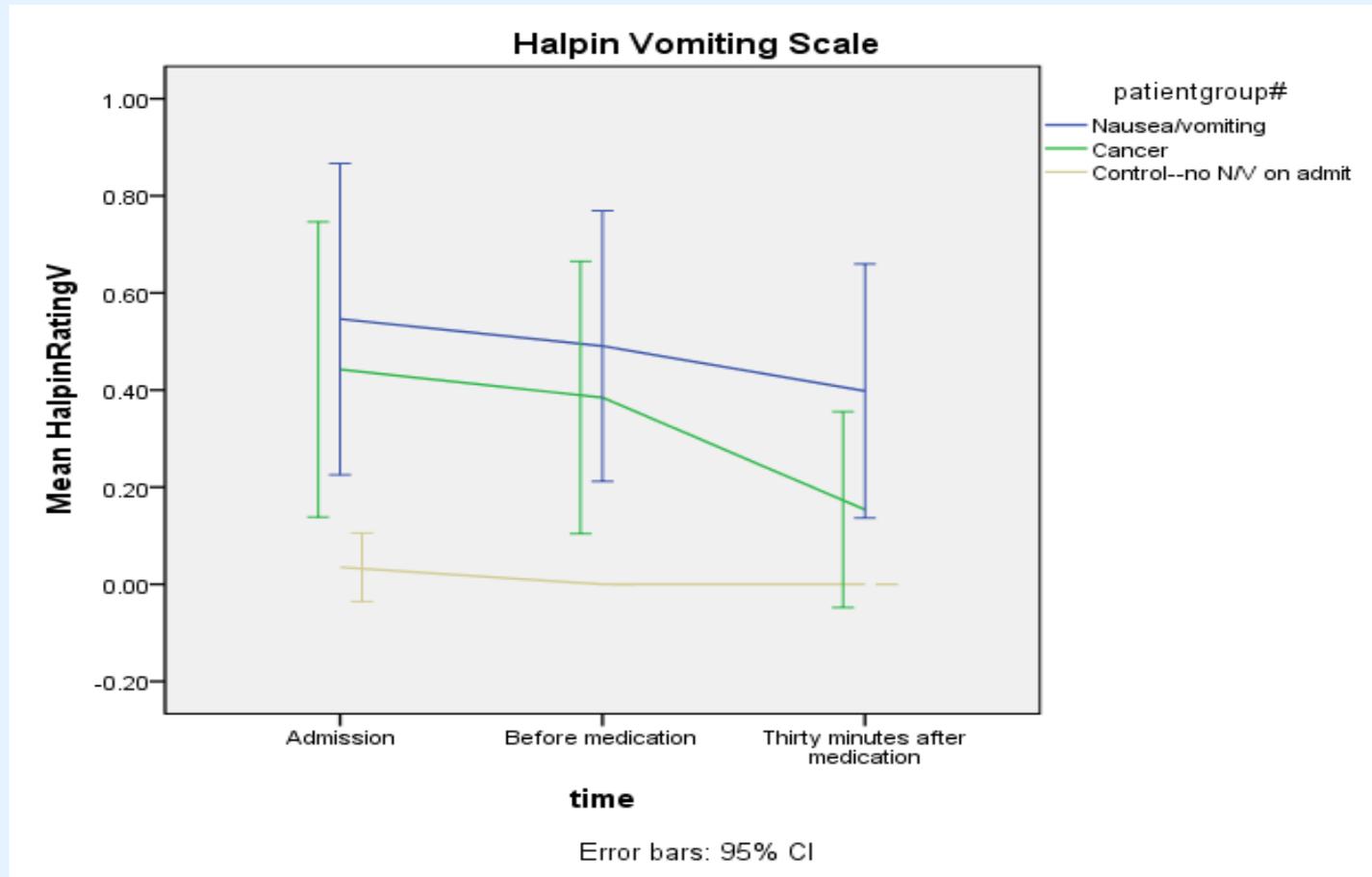
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Figure 3: Group means for vomiting ratings at three time intervals



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Discussion

- The findings of this study show that a simple 6-point rating scale with descriptors of feelings of nausea and vomiting:
 - or with patients undergoing any cancer treatments,
 - or any medical condition where patients experience the unpleasant feelings of nausea and/or vomiting,
 - can be valid and a reliable tool to assess patient's conditions in pre and post operative conditions.



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Implications

- Further study on different age groups
- Although the HNV tool was reported casually as practical and is used in the study hospitals successfully further test are required.
 - A formal specific study to test the tool's practicality and usefulness in clinical application.



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