



# **Will Raising Faculty Salaries Help Alleviate the Nursing Faculty Shortage?**

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# Presentation Topics

- Research questions
- Prior studies
- Data sources and measures
- Statistical analysis
- Results
- Discussion





# Research Rationale

- o A shortage in nursing faculty is believed to be a major threat to overcoming the nursing shortage.
- o Is low faculty salary one of the reasons for this shortage?



## Prior Research

- Economic theory indicates that it may be possible to alleviate labor shortages with wage increases
- Studies of the response of the nursing workforce to wage increases have been equivocal
- The response of nursing faculty workforce to salary increases is unknown



# Prior Research

- Decreased workload or increased flexibility may draw nurses to education, but...
  - Faculty workloads are increasing
  - RN education mobility is limited
  - Advancing education costs money and time that may not be recouped from faculty salaries.



# Study Design

- Assess the influence of faculty salary on RN participation in nursing education
- Predict the impact of faculty salary increase on the supply of nurse educators
- Data is analyzed using:
  - Standard labor supply model
  - Stratified samples based on
    - Hours of work



# Data Source and Sample

- **National Sample Survey of RNs (NSSRN) from the U.S. DHHS, BHP**
  - Year 2000 data
- The sample included RNs with:
  - BD in nursing and higher
  - *or* BD prior to nursing education
  - *or* additional degree after basic nursing ed





# Measures

- **Response variable**
  - RN working in a nursing education setting or not
- **Explanatory variables**
  - Wages
  - Hours worked per year
  - Level of education (GD or not)
  - Demographic characteristics
    - age ● marital status ● children ● gender ● ethnicity ● race
    - region of residence

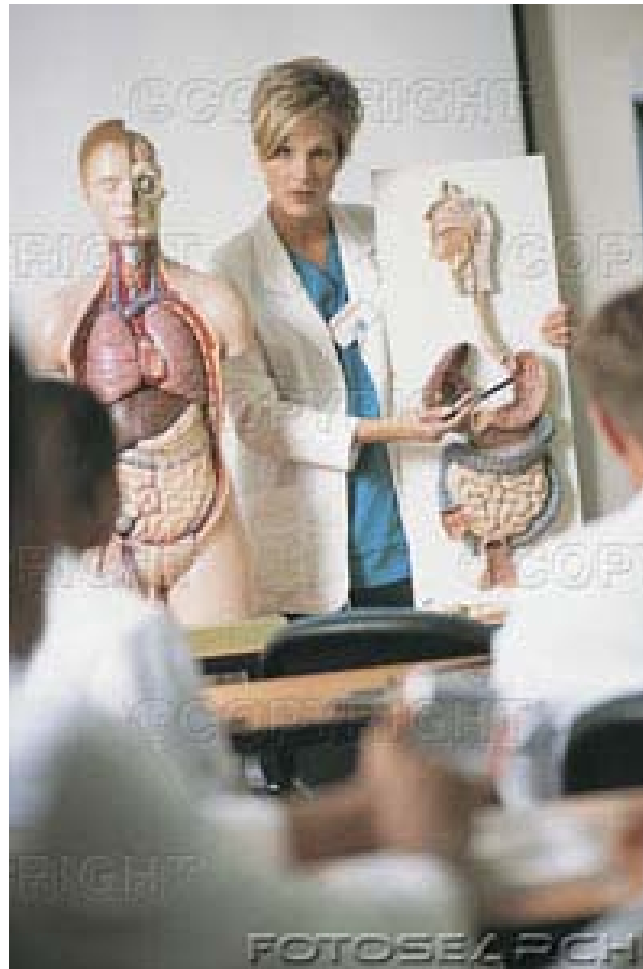


# Procedures & Statistical Analysis

- Imputed wages for non-working RNs
  - Model was run using ordinary least squares (OLS)
- Logistic regression of the binary nursing education variable on the explanatory variables
  - Models were run unstratified, and stratified for hours worked per year



# Results





# Results: Descriptive Statistics

|                         | N      | %     |
|-------------------------|--------|-------|
| <b>Work Setting:</b>    |        |       |
| Nursing Education       | 585    | 3.34  |
| Other or None           | 16,907 | 96.66 |
| <b>Highest Nsg Ed:</b>  |        |       |
| BSN                     | 13,902 | 79.57 |
| MSN or doctorate        | 3,572  | 20.42 |
| <b>Wage Categories:</b> |        |       |
| \$5.00-\$13.99          | 623    | 3.56  |
| \$14.00-\$17.99         | 1,841  | 10.52 |
| \$18.00-\$21.99         | 3,545  | 20.27 |
| \$22.00-\$25.99         | 4,731  | 27.05 |
| \$26.00-\$29.99         | 3,162  | 18.08 |
| \$30.00 or more         | 3,590  | 20.52 |



# Results: Descriptive Statistics

| Variable Name     | Mean    | St. Dev. | Min.   | Max.    |
|-------------------|---------|----------|--------|---------|
| Age in years      | 43.54   | 10.74    | 21     | 87      |
| Hours Worked/Year | 1,754   | 512      | 2      | 4,896   |
| Hourly Wage       | \$25.40 | \$8.52   | \$5.00 | \$96.15 |



# Results: Logistic Regression of Working as a Nursing Educator

|                          | Est       | OR    |
|--------------------------|-----------|-------|
| Age                      | 0.04****  | 1.03  |
| Married                  | 0.21*     | 1.23  |
| At least 1 child <6      | -0.24     | 0.78  |
| All children in home > 6 | 0.29**    | 1.34  |
| Highest nursing ed = GD  | 2.41****  | 11.19 |
| Asian                    | -0.77*    | 0.45  |
| Region- Midwest          | 0.52****  | 1.69  |
| Region- South            | 0.47****  | 1.61  |
| Hours of work/ year      | -0.07**** | 0.92  |
| Wages                    | -0.09**   | 0.90  |

\*p<.05; \*\*p<.01; \*\*\*p<.001; \*\*\*\*p<.0001



# Results: Logistic Regression of Working as a Nursing Educator by Hours of Work

|                          | <= 1600 Hours |      | > 1600 Hours |       |
|--------------------------|---------------|------|--------------|-------|
|                          | Est           | OR   | Est          | OR    |
| Age                      | 0.03****      | 1.03 | 0.05****     | 1.05  |
| Married                  | 0.12          | 1.12 | 0.30*        | 1.35  |
| At least 1 child <6      | -0.45*        | 0.63 | -0.09        | 0.90  |
| All children in home > 6 | 0.14          | 1.15 | 0.28*        | 1.32  |
| Highest nursing ed = GD  | 2.24****      | 9.45 | 2.61****     | 13.69 |
| Asian                    | -1.04         | 0.35 | -0.61        | 0.54  |
| Region- Midwest          | 0.55**        | 1.73 | 0.48**       | 1.63  |
| Region- South            | 0.42*         | 1.53 | 0.57***      | 1.76  |
| Hours of work/ year      | 0.03*         | 1.03 | 0.002        | 1.002 |
| Wages                    | 0.12**        | 1.13 | -0.34****    | 0.71  |

\*p<.05; \*\*p<.01; \*\*\*p<.001; \*\*\*\*p<.0001



## Results: Percent Probability of Working as a Nurse Educator Given RN Profiles

| Percent Probability                  | Any Hours      |              |
|--------------------------------------|----------------|--------------|
|                                      | Under-graduate | Graduate     |
| <b>Age 50, married, child &gt; 6</b> |                |              |
| <b>Wages \$14-17</b>                 | <b>1.98</b>    | <b>18.44</b> |
| <b>Wages \$18-22</b>                 | <b>1.80</b>    | <b>17.05</b> |
| <b>Wages \$22-25</b>                 | <b>1.64</b>    | <b>15.75</b> |
| <b>Wages \$26-29</b>                 | <b>1.50</b>    | <b>14.53</b> |
| <b>Wages \$30=&gt;</b>               | <b>1.36</b>    | <b>13.39</b> |



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# Results: Percent Probability of Working as a Nurse Educator Given RN Profiles

| Percent Probability                  | <= 1600 Hours  |              | >1600 Hours    |              |
|--------------------------------------|----------------|--------------|----------------|--------------|
|                                      | Under-graduate | Graduate     | Under-graduate | Graduate     |
| <b>Age 50, married, child &gt; 6</b> |                |              |                |              |
| <b>Wages \$14-17</b>                 | <b>2.74</b>    | <b>21.03</b> | <b>2.11</b>    | <b>22.79</b> |
| <b>Wages \$18-22</b>                 | <b>3.09</b>    | <b>23.17</b> | <b>1.51</b>    | <b>17.33</b> |
| <b>Wages \$22-25</b>                 | <b>3.49</b>    | <b>25.46</b> | <b>1.07</b>    | <b>12.95</b> |
| <b>Wages \$26-29</b>                 | <b>3.93</b>    | <b>27.89</b> | <b>0.77</b>    | <b>9.55</b>  |
| <b>Wages \$30=&gt;</b>               | <b>4.43</b>    | <b>30.46</b> | <b>0.54</b>    | <b>6.98</b>  |



# Results Summary

- Given any number of annual hours of work per year:
  - For every \$4 increase in wages,
    - the odds of an RN working as a nursing educator decrease by 10%
    - the probability of an RN working as a nursing educator decreases by 9%



# Results Summary

- Given  $\leq 1600$  annual hours of work per year:
  - For every \$4 increase in wages,
    - the odds of an RN working as a nursing educator increase by 13%
    - the probability of an RN working as a nursing educator increases by 12.7%



# Results Summary

- Given  $> 1600$  annual hours of work per year:
  - For every \$4 increase in wages,
    - the odds of an RN working as a nursing educator decrease by 29%
    - the probability of an RN working as a nursing educator decrease by 28%



# Results Summary

- The odds of an RN working in nursing education are higher with
  - age
  - no children/older children in the home
  - graduate degree in nursing
  - working in the midwest & south



# Results Summary

- The odds of an RN working in nursing education are lower with
  - younger children in the home
  - being of Asian race



# Discussion: Impact of Faculty Wages on Shortage

- The **lower** probability of working as a nurse educator as wages **increase**
  - indicate that low wages are a predictor of nursing education employment
  - could indicate that wages play a significant role in the faculty shortage
  - do not directly indicate that raising wages would improve the shortage



# Discussion: Impact of Faculty Wages on Shortage

- The ***higher*** probability of working as a nurse educator as wages ***increase*** given annual hours of work  $\leq 1600$ :
  - means that RNs who work fewer hours *and* who make higher wages are more likely to be nurse educators
  - indicates that raising wages to make academic year salary attractive compared to other employment options could increase supply of nurse educators





# Discussion: Impact of Faculty Wages on Shortage

- The **lower** probability of working as a nurse educator as wages **increase** given annual hours of work  $> 1600$ :
  - indicate that the low wages attributed to nursing education is a function of high hours of work



# Study Limitations

- No available measures of intangible benefits of educator role:
  - Flexible scheduling, emotional gratification, prestige
- Cross-sectional design prevents true assessment of individuals' response to wage increases or decreases



# Conclusions

- Raising academic year salary may stimulate the supply of nurse educators, but if workloads also continue to increase:
  - Hourly wage would be stagnant.
  - Non-monetary benefits of faculty positions would be reduced.



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