Development of a Learning Support Program for Home Visiting Nurses to Utilize Physical Assessment Skills on Respiratory System

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Objective

• To establish a learning support program that helps currently working visiting nurses utilize, and evaluate the efficacy of that program.
Design

• Randomized controlled trial
  – Experimental group
    • Received special support after training session
  – Control group
    • Not received any special support
Hypothesis

1. The respiratory physical assessment training session helps the participants to acquire physical assessment knowledge and skills for the respiratory system.

2. The support provided by the researcher after the training session improves knowledge and skills that are acquired in the training session.

3. The support provided by the researcher after the training session improves participants’ knowledge and skills to utilize them much more in the workplace.
Hypothesis

4. The support provided by the researcher after the training session improves participants’ behavior related to physical assessment.

5. The support provided by the researcher after the training session improves participants’ satisfaction of the training session.
Development of the Learning Support Program

- Basic theory of the Learning Support program
  - Learning transfer model

- Program development procedure
  - Instructional design: ADDIE model

- Program evaluation
  - Kirkpatric level of evaluation
    - Level 1, Level 2, Level 3
Methods

• Participant
  – home visiting nurses
    • inclusion criteria
      – Nursing experience: less than ten years
      – Home visiting nursing experience: one year or more
Research process

Recruit

Consent of participation

Pre test

Respiratory physical assessment training session

Post test

Randomization: minimization method
Adjustment factor: knowledge, skills • motivation • visiting patients

Experimental group
1. Encounter session at four weeks after training session
2. E-mail, FAX, TEL

8 weeks later test

Control group
No support after training session

8 weeks later test
Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Evaluation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge, Skills</td>
<td>○○</td>
</tr>
<tr>
<td>Daily Practice</td>
<td></td>
</tr>
<tr>
<td>Behavior</td>
<td>○</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>○○</td>
</tr>
</tbody>
</table>
Statistical methods

- Student’s t-test
- Chi-squared test
- ANOVA
Results
Recruit (n=59)

Consent of participation (n=57)

Respiratory physical assessment training session

Randomization: minimization method (n=57)

Experimental group (n=29)

8 weeks later test
n=27(93.1%)
Dropout n=2(6.9%)

Control group (n=28)

8 weeks later test
n=25(89.3%)
Dropout n=3(10.7%)
The analysis for the hypothesis 1
Knowledge • Skills Score

<table>
<thead>
<tr>
<th>Test contents</th>
<th>Pre-test (n=57) Score (mean±SD)</th>
<th>Post-test (n=57) Score (mean±SD)</th>
<th>t</th>
<th>d.f.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>5.32±3.25</td>
<td>8.23±3.95</td>
<td>-5.44</td>
<td>56</td>
<td>0.00**</td>
</tr>
<tr>
<td>Judgment</td>
<td>5.75±4.04</td>
<td>12.96±4.29</td>
<td>-11.47</td>
<td>56</td>
<td>0.00**</td>
</tr>
<tr>
<td>Skills</td>
<td>6.07±1.97</td>
<td>8.56±1.79</td>
<td>-8.38</td>
<td>56</td>
<td>0.00**</td>
</tr>
<tr>
<td>Total</td>
<td>17.14±7.41</td>
<td>29.75±6.87</td>
<td>-13.84</td>
<td>56</td>
<td>0.00**</td>
</tr>
</tbody>
</table>

** p<0.01
The analysis for the hypothesis 2
Pre • Post • 8 weeks later Test Score
### The analysis for the hypothesis 3

**Daily Practice Score**

<table>
<thead>
<tr>
<th>Evaluation time</th>
<th>Experimental (n=27) Daily Practice Score (mean±SD)</th>
<th>Control (n=26) Daily Practice Score (mean±SD)</th>
<th>t</th>
<th>d.f.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 weeks after training</td>
<td>10.53±2.35</td>
<td>9.09±2.84</td>
<td>2.01</td>
<td>49</td>
<td>0.049**</td>
</tr>
<tr>
<td>7 weeks after training</td>
<td>10.71±2.60</td>
<td>9.28±2.55</td>
<td>2.01</td>
<td>51</td>
<td>0.049**</td>
</tr>
</tbody>
</table>

**p<0.01**
The analysis for the hypothesis 4
Behavior Score

<table>
<thead>
<tr>
<th>Evaluation time</th>
<th>Experimental (n=26) Behavior Score (mean±SD)</th>
<th>Control (n=26) Behavior Score (mean±SD)</th>
<th>t</th>
<th>d.f.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 weeks after training</td>
<td>34.52±5.68</td>
<td>32.08±5.97</td>
<td>1.53</td>
<td>51</td>
<td>0.133</td>
</tr>
<tr>
<td>8 weeks after training</td>
<td>35.69±5.14</td>
<td>33.50±5.76</td>
<td>1.45</td>
<td>50</td>
<td>0.154</td>
</tr>
</tbody>
</table>
## The analysis for the hypothesis 5
### Satisfaction Score

<table>
<thead>
<tr>
<th>Satisfaction Item</th>
<th>Experimental (n=29) Satisfaction Score (mean±SD)</th>
<th>Control (n=28) Satisfaction Score (mean±SD)</th>
<th>t</th>
<th>d.f.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction of program</td>
<td>4.33±0.56</td>
<td>3.76±0.83</td>
<td>2.95</td>
<td>50</td>
<td>0.005**</td>
</tr>
<tr>
<td>Utilization in visiting nursing</td>
<td>4.07±0.92</td>
<td>3.88±0.83</td>
<td>0.79</td>
<td>50</td>
<td>0.429</td>
</tr>
<tr>
<td>Easy to understand teaching materials</td>
<td>4.38±0.57</td>
<td>3.92±0.86</td>
<td>2.88</td>
<td>49</td>
<td>0.027*</td>
</tr>
<tr>
<td>Training time</td>
<td>3.48±0.70</td>
<td>3.17±0.82</td>
<td>1.48</td>
<td>49</td>
<td>0.145</td>
</tr>
<tr>
<td>Program time</td>
<td>3.81±0.79</td>
<td>3.52±0.77</td>
<td>1.36</td>
<td>50</td>
<td>0.179</td>
</tr>
<tr>
<td>Receiving support</td>
<td>3.85±0.77</td>
<td>2.96±0.89</td>
<td>3.88</td>
<td>50</td>
<td>0.002**</td>
</tr>
<tr>
<td>How to support</td>
<td>4.15±0.60</td>
<td>3.43±0.73</td>
<td>3.79</td>
<td>48</td>
<td>0.002**</td>
</tr>
<tr>
<td>Encourage to learn on their own initiative</td>
<td>3.74±0.76</td>
<td>3.36±0.70</td>
<td>1.87</td>
<td>50</td>
<td>0.068</td>
</tr>
<tr>
<td>improve motivation for the learning respiratory</td>
<td>3.78±0.97</td>
<td>3.36±0.58</td>
<td>1.72</td>
<td>50</td>
<td>0.092</td>
</tr>
<tr>
<td>improve motivation for the learning the others</td>
<td>3.86±1.03</td>
<td>3.60±0.82</td>
<td>0.97</td>
<td>50</td>
<td>0.335</td>
</tr>
<tr>
<td>Total</td>
<td>39.30±4.61</td>
<td>34.56±5.08</td>
<td>3.53</td>
<td>50</td>
<td>0.001**</td>
</tr>
</tbody>
</table>

** p<0.01    * p<0.05
Conclusion

- It was suggested that the support from others was effective to maintain motivation for the learning and to help utilize of knowledge and skills that acquired by the respiratory physical assessment training session in practice.