To determine if a difference exists in student confidence in administering a pulmonary function test (PFT) after two phases of an educational intervention

A two-phase intervention was designed:
1. For phase one, students prepared by completing reading and watching videos on PFT administration technique. In skills lab, each student completed a PFT with an instructor coaching on proper performance
2. Phase two occurred one week later, with pairs of students coaching each other on performing PFTs

Students completed three surveys online via Qualtrics™ to assess confidence in performing six PFT steps. Survey results were analyzed using the sign test.
- The “Pre” survey was disseminated prior to lab after completing readings and videos
- The “Post 1” survey was completed after phase one
- The “Post 2” survey was completed after phase two

Student self-confidence in completing a PFT

<table>
<thead>
<tr>
<th>Rank your confidence in the following areas:</th>
<th>Pre</th>
<th>Post 1</th>
<th>Post 2</th>
<th>Diff Post 1-Pre</th>
<th>p-value*</th>
<th>Diff Post 2-Post 1</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Setting up the required equipment for the PFT</td>
<td>6.525</td>
<td>8.35</td>
<td>8.7333</td>
<td>1.825</td>
<td>&lt;0.000</td>
<td>0.3833</td>
<td>0.064</td>
</tr>
<tr>
<td>2. Utilizing/operating the PFT system</td>
<td>6.6905</td>
<td>8.1429</td>
<td>8.80</td>
<td>1.4524</td>
<td>&lt;0.000</td>
<td>0.6571</td>
<td>0.001</td>
</tr>
<tr>
<td>3. Explaining to the patient the procedures for performing the PFT</td>
<td>6.8372</td>
<td>8.6512</td>
<td>8.8667</td>
<td>1.814</td>
<td>&lt;0.000</td>
<td>0.2155</td>
<td>0.327</td>
</tr>
<tr>
<td>4. Coaching the patient through the procedure</td>
<td>7</td>
<td>8.8571</td>
<td>8.9556</td>
<td>1.8571</td>
<td>&lt;0.000</td>
<td>0.0985</td>
<td>0.503</td>
</tr>
<tr>
<td>5. Explaining the results to the patient</td>
<td>5.9024</td>
<td>7.0244</td>
<td>8.2273</td>
<td>1.122</td>
<td>&lt;0.004</td>
<td>1.2029</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td>6. Performing the PFT yourself (i.e., serving as a patient)</td>
<td>7.2326</td>
<td>8.907</td>
<td>8.9333</td>
<td>1.6744</td>
<td>&lt;0.000</td>
<td>0.0263</td>
<td>0.664</td>
</tr>
</tbody>
</table>

*Based on the Sign test

Self-confidence questions were quantified based on a sliding scale from 0 to 10. Zero indicated not confident at all, ten indicated very confident. Activity evaluation questions were answered using a 5-point Likert scale.

There was a significant increase in confidence for each PFT step between the first and second survey. Between the second and third survey, only two steps increased significantly:
- #2 “Utilizing/operating the PFT system”
- #5 “Explaining the results to the patient”

Activity evaluation survey questions indicated student satisfaction with the educational intervention. However, minimal changes were noted between the two steps.

CONCLUSIONS

- Overall, the educational intervention was successful in improving student’s confidence in performing PFT assessments.
- Based on the limited amount of confidence gained from the first intervention to the second, a single phase intervention may be sufficient.
- These findings will be used to guide revisions in course design regarding time allocation.
- Other schools may consider similar analysis methods to guide decisions on course revisions and potentially curricular changes.
- Limitations of the study include:
  - Small sample size
  - High percentage of students having completed a PFT previously
  - Level of instructor involvement in phase one compared to phase two
  - Pre-survey dependent upon student actually reviewing pre-lab readings and videos on completing a PFT