Measuring Changes in Evidence-Based Practice Skills of First-Year Doctor of Physical Therapy Students

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Adapted Fresno Test of Competence in Evidence-Based Practice (AFT)

Useful Tool To Measure
EBP Knowledge & Skills

Significant Increase in EBP Learning in DPT Students
Faculty-Librarian Collaboration

- 2 credit course for 1st year DPT students
- 24 of 30 class hours devoted to EBP

- write a PICO question
- develop effective strategies to search databases

- interpret RCTs, meta-analyses, diagnostic/screening tests, case reports
- evaluate statistical significance & clinical importance of treatment effects
How to measure the effectiveness of our teaching?
Many studies evaluated teaching EBP to practicing physicians, medical students and some allied health professionals.... but there were no studies describing the outcomes of similar training for DPT students (Fall 2009).
Background

Purpose

Evaluate changes in DPT students’ knowledge and skills of EBP, as measured by the Adapted Fresno Test of Competence in Evidence-Based Practice (AFT)
Subjects

- 30 of 44 first-year DPT students enrolled in course volunteered in Spring 2010
- Written consent; no compensation
- UNE IRB = exempt from review
Materials

- AFT Version 3 used to measure knowledge of EBP
- 7 open-ended questions to 2 clinical scenarios
- Scoring rubric (all provided by McCluskey & Bishop)
Materials

AFT Q’s:

- Q1 - writing a focused clinical question
- Q2 - identifying sources of information
- Q3 - study design
- Q4 - MEDLINE search strategy
- Q5 - determining the relevance of a study to clinical practice
- Q6 - determining if the findings are valid
- Q7 - determining the magnitude/significance of the findings

Each question is graded individually and a total score is computed.
Methods

Research Hypotheses: total AFT score and the score on each question will be significantly greater after EBP instruction.

Study Design: one group pre-test/post-test
Instruction

CINAHL

PubMed

EBSCO Host

SportDiscus

Cochrane Database of SR’s

MD Consult

UpToDate

PEDro

OPEN DOOR

APTA’s Portal to Evidence-Based Practice
Statistical Analysis

Scoring of AFT by blinded investigator using rubric

Repeated measures analysis of variance

- Hypothesis 1: AFT Total score does not change with EBP instruction
- Hypothesis 2: Individual question scores (1-7) do not change with EBP instruction
## Results: AFT 1 - 4

<table>
<thead>
<tr>
<th>AFT Question</th>
<th>Pretest Mean (SD)</th>
<th>Posttest Mean (SD)</th>
<th>Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Writing a PICO Question (12 pt)</td>
<td>5.7 (1.8)</td>
<td>6.0 (1.6)</td>
<td>0.37 (-0.62 to 1.4)</td>
</tr>
<tr>
<td>Q2 Identifying Sources (24 pt)</td>
<td>11.5 (5.4)</td>
<td>7.1 (6.2)</td>
<td>-4.4 (-7.1 to -1.7)</td>
</tr>
<tr>
<td>Q3 Study Design (24 pt)</td>
<td>3.9 (4.7)</td>
<td>10.9 (5.5)</td>
<td>7.0 (4.7 to 9.2)</td>
</tr>
<tr>
<td>Q4 Medline Search (24 pt)</td>
<td>7.7 (5.3)</td>
<td>16.5 (3.4)</td>
<td>8.8 (6.9 to 10.7)</td>
</tr>
</tbody>
</table>
## Results: AFT 5 – 7 & Total Score

<table>
<thead>
<tr>
<th>AFT Question</th>
<th>Pretest Mean (SD)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Q5 Clinical Relevance (24 pt)</td>
<td>4.3 (5.2)</td>
<td>6.8 (4.5)</td>
<td>2.5 (0.7 to 4.9)</td>
</tr>
<tr>
<td>Q6 Validity of Study (24 pt)</td>
<td>6.8 (5.2)</td>
<td>10.9 (7.1)</td>
<td>4.1 (1.1 to 7.1)</td>
</tr>
<tr>
<td>Q7 Magnitude and Significance (24 pt)</td>
<td>2.4 (3.3)</td>
<td>8.2 (4.2)</td>
<td>5.8 (3.5 to 8.0)</td>
</tr>
<tr>
<td>Total (0 – 156 pt)</td>
<td>42.2 (15.1)</td>
<td>66.4 (17.4)</td>
<td>24.2 (16.1 to 32.3)</td>
</tr>
</tbody>
</table>
Results

Q1 - No Statistically significant difference

Q2 - Statistically significant decrease

Q3 to Q7 - Statistically significant increase

Total Score - Statistically significant increase
Conclusions

- First study using the AFT to evaluate changes in DPT students’ knowledge and skills related to EBP after formal instruction

- Observed 24 pt. increase in the mean total score is educationally important and comparable to the change in AFT scores reported in McCluskey & Bishop’s study of occupational therapists
Conclusions

- The AFT is a useful instrument to help educators assess the impact of their teaching and learning activities on students’ EBP skills.

- Results of the study to be used in ongoing evaluation of teaching EBP, an essential element of curriculum review in physical therapy education.
Current Related Research

- Tilson (2010) developed a modified Fresno Test for use with physical therapists at USC

- Dizon et al (2011) published a study protocol for a double-blind RCT with Filipino physiotherapists to measure effectiveness of EBP training using the AFT
For More Information

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