EVALUATION OF STUDENT PERCEPTION OF THE LECTURE “ORAL FUNCTIONAL MEDICAL REHABILITATION: BALNEOPHYSIOOTHERAPY”

S.I. Stratulat, C. Dombici, Doriana Forna
University of Medicine and Pharmacy “Grigore T. Popa”-Iasi
Faculty of Dental Medicine
Department of Implantology
Discipline of Rehabilitative Medicine-Balneophysiotherapy

EVALUATION OF STUDENT PERCEPTION OF THE LECTURE “ORAL FUNCTIONAL MEDICAL REHABILITATION: BALNEOPHYSIOOTHERAPY” (Abstract): The aim of the study was to assess this course as perceived by the 6th year dentistry students. Material and methods: Applying and validating the “Dundee Ready Education Environment Measure (DREEM)” for the first time in Romania. Results and discussion: The reliability of the test according to Cronbach alpha method, which measures the internal consistency of a test, was 0.87 (Cronbach alpha coefficient should be above 0.70). As to the reliability coefficients (internal consistency) for each test subscale and for the entire test, DREEM proved a very good overall reliability, with alpha = 0.89. The reliability of each DREEM subscale was also analyzed. The DREEM test results, with a global score of 149, indicate a “more positive than negative” perception (score between 101 and 150). Conclusions: The DREEM test showed that the assessment and treatment of pain in dental-maxillary pathology and TMJ dysfunctions through medical rehabilitation by means of balneophysiotherapy is of interest to final year dental medicine students. As a student-teacher partnership, modern education cannot ignore the practical needs of students and should add to their theoretical training with courses and practical training programs necessary in their future profession. Keywords: DENTAL EDUCATION, CURRICULUM, ORAL HEALTH EDUCATION, MEDICAL REHABILITATION, TEMPORO-MANDIBULAR JOINT, FUNCTIONALITY

The curriculum for the 6th (final) year students of the Iasi Faculty of Dentistry has included since 2004 the course in “Oral Functional Medical Rehabilitation: Balneophysiotherapy”, aimed at helping students acquire the methodology for rehabilitation treatment of orodental and craniofacial pain, as well as temporomandibular joint (TMJ) dysfunctions (1).

The Romanian Society of Physical and Rehabilitation Medicine, second in Europe after France (2, 3), was founded in 1922 and the use of mineral waters in the preventive treatment of periodontal inflammatory conditions has been introduced in Romania since 1987, by the WHO Romania Centre for Infant Oral Rehabilitation and the Academy of Medical Sciences of Romania at Baltatesti Resort, Neamt county (2). This was achieved in correlation with WHO guidelines on oral health and prevention in dentistry (4), as well as the European direc-
tives for healthy aging and physical activity with adequate nutrition for old age (3).

The course curriculum consists of 10 2-hour lectures and 20 2-hour practical works at patient’s bedside; the students fills in an observation sheet for orodental diagnosis and general medical condition based on current clinical and laboratory investigations.

MATERIAL AND METHODS

The test has 50 items and assesses the environment in which future doctors are trained (5), and also the efficiency, degree of interest and perceived importance of the course and practical works among students, using the 4-point Likert scale, with the following options: Strongly agree, Agree, Uncertain, Disagree, Strongly Disagree.

Of the total 185 final year dental students, 174 students, of which 23 foreign students, were asked to fill in the assessment test, an adaptation of the Dundee Ready Educational Environment Measure (DREEM) test in a paper-pencil survey, on the course and practical works in “Oral Medical Rehabilitation: Balneophysiotherapy” upon course completion. The questions targeted student perception, expectations, attitude, interest and satisfaction in the course and practical works. The test was written in its original template; written informed consent from all participants and hospital ethics committee approval in accordance with Helsinki declaration were obtained.

This is an important aspect of medical education, being rather neglected in dental educational research. The aim of the study was to fill this gap by applying and validating for the first time the DREEM test in a Romanian-speaking sample of dental medicine students (6, 7, 8, 9). Student responses were used to quantify educational effectiveness and their attitude regarding the information acquired during the course and its usefulness in their training as future dentists (6, 10, 11, 12).

RESULTS AND DISCUSSION

The questionnaire assesses 5 subscales, each with a different interpretation, as follows. The maximal score for the DREEM test is 200, indicating an ideal educational environment; minimum test score is 0. Items 4, 8, 9, 17, 28, 35, 39, 48 and 50 are negative scores; therefore, the scores for these items should be reversed in order to obtain the total score by summing up the subjects’ responses to all the items of the test/ all item responses.

The test is divided into 5 subscales:

- **Students Perception of Learning** contains items 1, 7, 13, 16, 20, 22, 24, 25, 38, 44, 47 and 48, maximum score 48. The obtained score was 35, and the interpretation was: 25-36 “A more positive perception”;

- **Students Perception of Course organizers** contains items 2, 6, 8, 9, 18, 29, 32, 37, 39, 40 and 50. The obtained score was 33, and the interpretation was: 23-33 “Moving in the right direction”;

- **Students Academic Self-Perception** subscale contains items 5, 10, 21, 26, 27, 31, 41 and 45. The obtained score result was 24, and the interpretation was: 17-24 “Feeling more on the positive side”;

- **Students Perceptions of Atmosphere** subscale contains items 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43 and 49. The obtained score was 35, and the interpretation was: 25-36 “A more positive attitude”;

- **Students Social Self- Perceptions** subscale contains items 3, 4, 14, 15, 19, 28 and 46. The obtained score was 18, and the interpretation was: 15-21 “Not too bad”;

The authors of the test reported a good validity and reliability. We analyzed the
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reliability and validity of this tool adapted for our course in a dental medicine student sample. Because the test has 5 subscales, for a good content validity, the 5 subscales have to positively correlate with each other. All Pearson $r$ correlation coefficients between the 5 test subscales are important, with average and high values (tab. I).

We also analyzed the DREEM reliability using the Cronbach alpha method. A high Cronbach alpha coefficient tells us that the test has high internal consistency, i.e. the test items correlate with each other. For good reliability, Cronbach alpha coefficient should be above 0.70. A reliability coefficient between 0.60 and 0.70 tells us that the test has acceptable reliability; if the reliability coefficient is below 0.60, the test is considered to have a fairly low reliability. The authors reported for the entire test a Cronbach alpha reliability coefficient of 0.87.

**TABLE I**

**Pearson’s $r$ correlation coefficients for the 5 test subscales**

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students Perception of Learning</td>
<td>1.000</td>
<td>0.575</td>
<td>0.605</td>
<td>0.741</td>
<td>0.490</td>
</tr>
<tr>
<td>2. Students Perception of Course organizers</td>
<td>1.000</td>
<td>0.415</td>
<td>0.714</td>
<td>0.405</td>
<td></td>
</tr>
<tr>
<td>3. Students Academic Self-Perception</td>
<td></td>
<td>1.000</td>
<td>0.595</td>
<td>0.449</td>
<td></td>
</tr>
<tr>
<td>4. Students Perceptions of Atmosphere</td>
<td></td>
<td></td>
<td>1.000</td>
<td>0.535</td>
<td></td>
</tr>
<tr>
<td>5. Students Social Self-Perceptions</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

In our student sample, the test had a very good overall reliability, with alpha = 0.89. We also analyzed the reliability of each subscale; for the first 4 DREEM subscales, the Cronbach alpha reliability coefficients indicated an acceptable and good validity, whereas for the Students Social Self-Perceptions subscale the Cronbach alpha reliability coefficient was low. Therefore, the reliability of the fifth subscale was low, meaning that the degree of confidence in the results obtained through this subscale was low (tab. II, III).

Comparing the obtained average scores to those provided by the authors of the test, we noticed that the average total score entered the category 101-150: more positive than negative.

**TABLE II**

**Reliability coefficients (internal consistence) for each test dimension and for the entire test**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>No. of items</th>
<th>Cronbach alpha coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Perception of Learning</td>
<td>12</td>
<td>0.739</td>
</tr>
<tr>
<td>Students Perception of Course organizers</td>
<td>11</td>
<td>0.651</td>
</tr>
<tr>
<td>Students Academic Self-Perception</td>
<td>8</td>
<td>0.655</td>
</tr>
<tr>
<td>Students Perceptions of Atmosphere</td>
<td>12</td>
<td>0.730</td>
</tr>
<tr>
<td>Students Social Self-Perceptions</td>
<td>7</td>
<td>0.319</td>
</tr>
<tr>
<td>Total Score</td>
<td>50</td>
<td>0.895</td>
</tr>
</tbody>
</table>
TABLE III
Average scores and standard deviations for each test subscale and for the entire test

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>No. of items</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Perception of Learning</td>
<td>12</td>
<td>31.38</td>
<td>5.52</td>
</tr>
<tr>
<td>Students Perception of Course organizers</td>
<td>11</td>
<td>28.67</td>
<td>5.01</td>
</tr>
<tr>
<td>Students Academic Self-Perception</td>
<td>8</td>
<td>21.81</td>
<td>3.82</td>
</tr>
<tr>
<td>Students Perceptions of Atmosphere</td>
<td>12</td>
<td>31.78</td>
<td>5.84</td>
</tr>
<tr>
<td>Students Social Self-Perceptions</td>
<td>7</td>
<td>17.81</td>
<td>2.98</td>
</tr>
<tr>
<td>Total Score</td>
<td>50</td>
<td>131.44</td>
<td>18.96</td>
</tr>
</tbody>
</table>

Analyzing the averages for the five DREEM subscales and comparing them to the standards provided by the author, we found that:

- The average score for the Students Perception of Learning subscale was interpreted as: 25-36 - a more positive perception;
- The average score for the Students Perception of Course Organizers subscale was interpreted as: 23-33 - moving in the right direction;
- The average score for the Students Academic Self-Perception subscale was interpreted as: 17-24 - feeling more on the positive side;
- The average score for the Students Perceptions of Atmosphere subscale were interpreted as: 25-36 - a more positive attitude;
- The average score for the Students Social Self-Perceptions subscale was interpreted as: 15-21 - not too bad.

The above data show that for both the entire test and for each test subscale students' perception was positive, which means that they appreciate the course.

CONCLUSIONS
The analysis of test results demonstrates students' interest and appreciation of the knowledge and practical skills acquired during this course. The test identified the need for practical work in the general medical pathology to be illustrated by clinical cases and to be carried out individually by students in Dental Medicine. Also, the university curriculum for the final years of study should be adapted according to the changes in dental pathology, in keeping with updated information, so that to meet the four goals:

1. Tailor treatment to the individual patient, and thus to receive the best treatment;
2. Transfer research findings to the practicing dentist, because they are the main caregiver of patients with TMJ dysfunction;
3. Balance the judgment of best research evidence with clinical expertise in the choice of treatment;
4. Gain more information about patient preferences and values and what impact this has on treatment outcome.

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INCREASED EXPRESSION OF ANTIMICROBIAL PEPTIDES AND TLR IN TINEA AND PITYRIASIS VERSICOLOR

A study by Brasch et al. investigated the role of non-cellular factors in the epidermal defence against fungi that cause superficial tinea or pityriasis versicolor, based on the observation that these pathogens are usually confined to stratum corneum. Using immunostainings in skin biopsies, researchers found an increase in expression of defensins 2 and 3 (hBD-2, hBD-3), psoriasin, RNase7, toll-like receptors 2 and 4 (TLR2, TLR4) in certain layers of lesional epidermis when compared to normal skin. In infected epidermis, defensins hBD2 and hBD3 were expressed in the stratum corneum and granulosum, while psoriasin was detected more common in the upper skin layers. However, the expression of TLR9 and dectin 2 showed no significant differences between normal and infected skin. The results of the study demonstrate the presence of antimicrobial peptides and ligands that contribute to fungal containment in tinea and pityriasis versicolor. (Brasch J, Mörig A, Neumann B, Proksch E. Expression of antimicrobial peptides and toll-like receptors is increased in tinea and pityriasis versicolor. Mycoses. 2013 Aug 19. doi: 10.1111/myc.12118).

Teodora Vremea