

## **INNOVATIONS IN PRACTICAL TRAINING IN KINESITHERAPY OF THE STUDENTS REHABILITATORS**

*(Preliminary communication)*

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### **Abstracts**

*In this study we aimed to investigate the role of innovative elements in the training of Kinesitherapy and Ergotherapy and their application in clinical practice. The survey included 285 third year students and 50 mentors. An anonymous survey was conducted amongst students of "Rehabilitation therapist" profile at Medical College - Stara Zagora and the mentors in the educational and practical facilities from 2007 to 2012. A mathematical - statistical treatment of the results was made. The results are clear about the satisfaction of the students and mentors with the innovative elements in the education and with their application in facilities for practical training.*

**Keywords:** *clinical practice, methods for computer diagnostics, therapeutic methods, Ergotherapy, Art therapy, diagnosis of spinal deformities, Play therapy, Survey, correlation*

### **INTRODUCTION**

Practical training of the students specializing in „Rehabilitation therapist,, includes clinical practice, pre-diploma internship and summer internship. It is an essential part of the professional training of students, it is conducted in specialized educational and practical facilities and- includes the latest achievements in the field of rehabilitation. New methods for computer diagnostics and therapeutic methods for rehabilitation are being used for its continuous improvement.

Training of the students specializing in "Rehabilitation therapist" requires continuous improvement of the teaching and theoretical and practical training. It is defined by the following key priorities:

- Good theoretical and practical training;
- Practical skills and professional competence;
- Development of critical thinking of students;
- Establishing a new attitude towards the patients and their perception as persons with relevant needs;
- Continuous improvement of the educational programs according to the current realities of the health care system;
- Lifelong learning of the working rehabilitation therapists;
- Improving the functions of the rehabilitation team and ethics in interrelations in the healthcare system.

Training of students in medical colleges enables students to acquire specific skills to pursue a professional

career (Kasnakova (Касанкова), 2008).

Innovative approach to practical training in Kinesitherapy is the inclusion of new equipment for the diagnosis of the spinal deformities and back pain through a computer system for comprehensive postural analysis and diagnosis of the foot. This system is used for the first time in Bulgaria for a comprehensive assessment of the foot, the spine and the entire musculoskeletal apparatus. With very precise technique one determines the pathological changes affecting the foot and the resulting spinal deformities, back pain and abnormal posture and gait. It is used to expand the professional competence of the students specializing in "Rehabilitation therapist" regarding the diagnosis of spinal deformities and compiling a kinesitherapeutic program for the prevention and treatment.

Ergotherapy was applied in the practical training of students in specialized centers for the rehabilitation of children in the form of Play therapy and for adults as a motor retraining and entertaining Ergotherapy. It is a new approach in the rehabilitation of children with cerebral damage and the adults with musculoskeletal system, central and peripheral nervous system diseases.

It provides socialization, social adaptation and prequalification of the people with disabilities and patients with permanent damage to the musculoskeletal system and the nervous system. The contemporary Ergotherapy uses successfully the experience of the

European countries and the United States (Koleva (Колева), 2009).

In this paper we aim at:

1. Defining the role of the innovative elements in the teaching of KT and ET and their application in clinical practice.

2. Surveying the opinion of the students specializing in "Rehabilitation therapist" at Medical College - Stara Zagora and the mentors of educational and practical facilities about the innovation in education.

**METHODS**

- An anonymous survey was conducted with the students of "Rehabilitation therapist" profile at Medical College - Stara Zagora and the mentors of educational and practical facilities from 2007 to 2012.

- The survey included 285 third year students and 50 mentors.

- A mathematical - statistical treatment of the results was made.

**RESULTS AND DISCUSSION**

Students actively participated in the diagnostics, development and implementation of the rehabilitation, Kinesitherapy and Ergotherapy programs, as they implemented them independently and under supervision of the doctor in Physical Medicine and Rehabilitation in the educational and practical facilities and specialized offices under the guidance of the teacher. Working in a team with other health professionals helps to improve the training, such as physical therapists, occupational therapists and medical therapists, nurses, midwives, logopedists, psychologists, social workers and special educators.

Analyzing the results of the three studied groups (Table 1) we found out that the majority of the respondents gave positive responses, as for the entire research period they were about 63%. There were significant differences in partial satisfaction of the students and 44% of the first study group is was not completely satisfied and they kindly asked for improving the quality of education.

Expressing dissatisfaction with the training system, these results are important and have positive effect because they reflect the possibilities of an education system to improve and become more useful to students. This dissatisfaction is associated with specific recommendations to improve the students' level of training. In subsequent stages of the study, considering the change in academic curriculum and new USR for "Professional Bachelor" degree, the proportion of the

*Table 1. Students' satisfaction with the training at Medical College*

| Groups               | Percentages |    |        |
|----------------------|-------------|----|--------|
|                      | Yes         | No | Partly |
| First group (N=85)   | 56%         | 0% | 44%    |
| Second group (N=150) | 70%         | 5% | 25%    |
| Third group (N=50)   | 64%         | 6% | 3%     |

positive responses was increased and the share was the highest in the second study group (70%), followed by the third (64%).

These data are sufficiently clear proof that the education of the students at Medical College - Stara Zagora is held at a high level and provides not only theoretical knowledge but also practical skills that enable their future development and professional realization. This determines the quality of education, which for the majority of the surveyed students is high and fully meets their perceptions of a quality education.

Correlation between motivation and students' satisfaction with the level of education was positively significant (R = 0.61; p <0.05). Best motivation of students for choosing a major is a factor determining the quality of education and active participation in it.

Innovation in the training of the students is the inclusion of Art therapy in the Kinesitherapy program. Art therapy is used to mobilize the creative potential, to distract the patient and for his active involvement in the recovery process through art in its various forms (Popov (Попов), 2004). Students in the first study group did not

*Table 2. Applicability of Art therapy in teaching Kinesitherapy – students' opinion*

| Groups               | Percentages |     |        |
|----------------------|-------------|-----|--------|
|                      | Yes         | No  | Partly |
| First group (N=85)   | 0%          | 0%  | 0%     |
| Second group (N=150) | 74%         | 12% | 14%    |
| Third group (N=50)   | 85%         | 2%  | 13%    |

*Table 3. Importance of Art therapy in clinical practice - according to students*

| Groups               | Percentages |     |        |
|----------------------|-------------|-----|--------|
|                      | Yes         | No  | Partly |
| First group (N=85)   | 0%          | 0%  | 0%     |
| Second group (N=150) | 63%         | 12% | 14%    |
| Third group (N=50)   | 67%         | 7%  | 13%    |

study Art therapy and therefore there is not information on this issue.

Welcoming innovations in their education, the students support them (Table 2) and 80% of both surveyed groups believe that Art therapy find an application in the treatment and rehabilitation of children and adults. The remaining 13% believe it is partly applicable, 7% reject its inclusion in the curriculum.

Essential to the quality of education in KT is the application of knowledge, practical skills and competencies in the educational and practical bases together with the mentors and the entire rehabilitation team.

Over recent years, the Art therapy for functional disorders of the nervous system in children with depression or aggression behavioral, manifestations of

Table 4. Assessment of the quality of education in Ergotherapy - students' opinion

| Groups               | Percentages |           |      |              |                |
|----------------------|-------------|-----------|------|--------------|----------------|
|                      | Excellent   | Very good | Good | Satisfactory | Unsatisfactory |
| First group (N=85)   | 0%          | 0%        | 0%   | 0%           | 0%             |
| Second group (N=150) | 4%          | 29%       | 35%  | 15%          | 17%            |
| Third group (N=50)   | 6%          | 30%       | 32%  | 22%          | 10%            |

whims and stubborn, easy irritability, fears, etc., has increasingly been recognized and used (Popov (Попов), 2005). Various Art therapy techniques in the form of role-playing games to engage their attention and stimulate the psychological and physical development has been applied. During clinical practice and pre-graduate practice students participate in the implementation of various Art therapy techniques in the specialized centers for children, "Home for medico - social care for children" and "Day care center for children and youngster with mental retardation". There are conditions for the use of Art therapy with children.

The opinion of students on the activities with children in these facilities is shown in Table 3. More than half of the respondents in both groups (65%) have confirmed the importance of Art-therapy in clinical practice with children and adults. This method stimulates mental and emotional development of children, imagination, motor activity and engage their attention. Only a minority of respondents (10%) is not confident in the final result, and 25% partially confirm the thesis. The results clearly demonstrate the positive position of the students about innovations and their application in educational and practical bases.

For proper analysis of the survey results it is necessary to examine the correlation between the use of Art therapy in KT education and the importance of Art-therapy in clinical practice, which is positively significant ( $R = 0.56$ ;  $p < 0.05$ ). Theoretical knowledge in Art Therapy guarantees the quality practical training. Their application in clinical rehabilitation practice stimulates regeneration processes in children and adults.

Ergotherapy is an active kinesitherapeutic method that uses specially selected and targeted intellectual and occupational work (Koleva (Колева), 2008).

It is used in educational and practical bases for the selection of walking aids in walking training and training in activities of daily living. This aims at the focusing attention of the patient on the results of the work (Koleva (Колева), 2008).

This method is used for rehabilitation, socialization

Table 5. Application of Ergo therapy in clinical practice – mentors' opinion

| Groups              | Percentages |    |        |
|---------------------|-------------|----|--------|
|                     | Yes         | No | Partly |
| First group (N=35)  | 87%         | 5% | 18%    |
| Second group (N=20) | 82%         | 9% | 9%     |

and, if necessary, requalification of the patients.

Quality of education in Ergotherapy (Table 4) is determined according to the opinion of the groups, as about two-thirds of the respondents place excellent assessment, very good or good (69%). Only 10% of all patients give unsatisfactory assessment.

The best application of the Ergotherapy methods is in specialized centers for children in the city region.

Students work with children with cerebral damage, using various crafts (weaving, pottery, and gardening) and applying Montessori therapy training in activities of daily living and other activities.

Ergotherapy is used for children with disabilities as Play therapy and for adults as work activity. It has increasingly been used in education and practical bases, social centers and patient's home in order to adapt to the social environment to patient's ability and willingness to the activities (Koleva (Колева), 2008).

The inclusion of Ergo therapy in the theoretical and practical training of the "Rehabilitation therapist" students a new approach to the rehabilitation of children with cerebral damage and adults with musculoskeletal disorders and the central and peripheral nervous system disorders.

The results of the Ergotherapy study in clinical practice are shown in Table 5, approximately 88% of all mentors have given positive responses and only 5% of them are not completely satisfied.

These results are indicative for the relevance of the Ergotherapy in recovering and improving the quality of life of children and adults with disabilities - for training in daily life activities, using walking aids and devices in everyday life, as well as adaptation of home and family to the needs of the patient (Panteva (Пинтева), 2007).

The interpretation and accurate assessment of the results of the study required examination of the correlation between the quality of education in Ergotherapy and its application in clinical practice. It is positively large ( $R = 0.75$ ;  $p < 0.05$ ). The quality of training in ET determines the competence of students in the use of ET in educational and practical facilities - together with mentors.

Cooperative teamwork between students, mentors, doctors and other specialists provides opportunities for interaction and improvement of professional skills of the students. They are aimed at determining the rehabilitation potential of the patient, proper selection of resources for the treatment and preparation of a rehabilitation program (Milcheva (Милчева), 2006).

The aim of the rehabilitation team is prevention,

Table 6. Comparative analysis between students and mentors regarding the team work

| Groups                       | Percentages |    |        |
|------------------------------|-------------|----|--------|
|                              | Yes         | No | Partly |
| First group-students (N=285) | 59%         | 7% | 34%    |
| Second group-mentors (N=50)  | 70%         | 4% | 26%    |

Table 7. Improvement of professional skills during clinical practice and pre-graduate internship

| Groups                       | Percentages |    |        |
|------------------------------|-------------|----|--------|
|                              | Yes         | No | Partly |
| First group-students (N=285) | 68%         | 8% | 24%    |
| Second group-mentors (N=50)  | 88%         | 7% | 5%     |

rehabilitation and a full recovery of patients with different diseases, alleviating the condition of terminally ill and re-integration of the disabled (Koleva (Колева), 2008).

Teamwork creates opportunities for effective coordination of activities and better quality of care.

The mentors have essential significance for the students' work in a team. In a comparative analysis of the two groups of respondents for the teamwork we find that the positive responses of the two groups of respondents have again small differences (Fig. 6).

When comparing shares of students (59%) and mentors (70%) of "yes" answers on the *team work* ( $U < 1.96$ ;  $\alpha < 0.05$ ), there is no statistically significant difference between the compared relative shares. This is a very good score for the team work of students and mentors.

For the practice it is important to analyze the results of the two treatment groups *and the definition of the correlation between the teamwork and improvement of the professional skills in clinical practice for students and mentors*. It is positively significant correlation ( $R = 0.69$ ;  $p < 0.05$ ). The teamwork improves the professional competencies for both surveyed groups.

Students together with mentors improve a number of professional competences in clinical practice and pre-graduate internship. Both groups of respondents gave a very good assessment for the improvement of the professional competence (Table 7).

Comparing relative share of mentors (85%) and

students (77%) that gave positive answer "yes" regarding the improvement of professional competence in clinical practice and pre-graduate internship ( $U < 1.33$ ;  $\alpha < 0.05$ ), there is no statistical significant difference between the compared relative shares. These results are an indication of good cooperation between the surveyed groups and good teamwork, because very little part of the two groups indicated negative and indefinite answers.

## CONCLUSION

The innovative elements in teaching of KT and ET are perceived and approved by students and mentors, as the majority of them are satisfied with its application in clinical practice.

The introduction of the contemporary methods in teaching KT and ET improves the abilities of students to determine the rehabilitation potential of the patient and helps to improve the professional competence of the graduate rehabilitation therapists.

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