Physiotherapist's Activity in the Clinical Intensive Care Unit and Acute Medical Wards

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Abstract
The purpose of the research is based on the activity of the physiotherapist, who, according to international standards, must have knowledge of the specialized equipment of the intensive care unit, from which the morphofunctional data of the patients in accordance with the diagnosis approached result.
The working hypothesis starts from the premise that on the basis of a physiotherapeutic assessment and a good collaboration with the multidisciplinary team, an interdependent relationship can be established, by setting out the tasks of the medical team and developing a well-established and individualized program, with therapeutic rehabilitation exercises appropriate to the pathology approached, whether acute or chronic respiratory pathologies.
A survey of physiotherapists' work was used, using the questionnaire interview method conducted through the online application Survio.com, which includes items that collect data from the responses of the interviewed subjects on the therapy applied in respiratory recovery in the UK and Romania.
The validity of the developed questionnaire was achieved using the Alpha L.J. Cronbach coefficient on the subjects, using the statistical interpretation program IBM SPSS Statistics 25, which attests both the consistency of the items listed and the validity of the questionnaire as a whole.

***Keywords**: Physiotherapist, ontensive therapy unit, multidisciplinary clinical team, questionnaire interview method, therapeutic recovery program.*

1. Introduction

The physiotherapist's work is based on a good knowledge of the resulting parameters, both on specialized equipment and on the morpho-

functional data of the patients in accordance with the presented diagnosis, which is one of the **topical aspects of the research topic**.

Within this interdependent relationship, the physiotherapist uses practical training recommendations for the remedial exercise programme, which can become a guideline applicable on intensive care units. It can be optimised and adapted following acceptable results on each targeted pathology and, of course, individualised on each subject (Brassington et al., 2002).

In addition to these observations, there are also the premises of experimental research results of internal specialists and international publications, with similarity in recovery on Anaesthesia and Intensive care Unit even on pathologies that have a current social impact, such as SARS-COV2 (Auwal, 2020), or research on Bestall et al. (2003).

2. Questionnaire survey method

The questionnaire survey aims to "study the opinions, motives, attitudes, habits, decision-making and behavioural patterns of the interviewed subjects" (Epuran, 1995), especially those who are respondents in our survey in the field of health and physiotherapy work of individuals or specific groups.

In the case of the questionnaire survey applied by us independently it had the particularity that it referred to the real conditions and experience of the subjects in respiratory therapy.

The conditions of application of the questions was the professional specialized training of the observer, the observer's level of practicing attention in discovering details.

Our survey methods sought to provide explanations regarding the opinions and objectivity of the responses in order to formulate scientifically conclusions, and succeeded in providing the researcher with explanations regarding the mechanisms of opinion formation and the prediction of patients' behaviours in the physiotherapy recovery process.

The questions received recorded responses in standardised form conducted in a limited time focused on the research topic. Recommendations were made within the survey methods where the questions had a single

interpretation or also interpretation variants with certain progression and rationality.

On the objectivity of the subjects' narrative, the answers to the questionnaires depend the formulation of scientifically based conclusions on respiratory therapy and the work of specialized physiotherapists.

Within the research we considered it necessary to prepare a questionnaire through the online application Survio (Survio.com) and to have the answers automatically processed by the application in real time.

We mention that this questionnaire is structured in two parts:

In the first part the questions aim to collect data referring to the activity of the physiotherapist specialized in respiratory therapy within a team, activity materialized by applying a recovery program with specific physical and respiratory exercises, correlated with the field of medical gymnastics, with a program corresponding to a chronic or permanent respiratory pathology taking into account age, gender and other morpho-functional characteristics of the patient.

The second part includes items through which data are collected from the responses of the interviewed subjects on the therapy applied in respiratory recovery.

The survey was carried out by questionnaire to 14 respiratory therapy specialists in the United Kingdom (UK) and Romania during March-April 2021 first stage, second stage June-July 2021, applying the evaluation texts.

Graphing method and interpretation of respondents' answers.

5 representative responses of the respondents were selected.

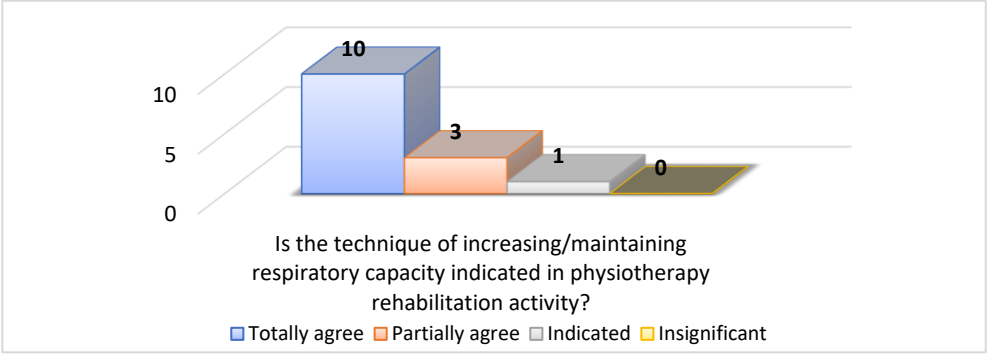

Figure 1. Graphical representation of the recovery activity by respiratory physiotherapy means, specific to increasing or maintaining respiratory capacity

In the graph above Figure 1 can be observed and interpreted that 10 out of the 14 interviewed subjects represent the majority, who consider that they totally agree, that specific physiotherapy techniques are necessary to increase or maintain respiratory capacity, while 3 out of 14 partially agreed with this statement, considering that only certain techniques are effective, and one subject considered that it is indicated to apply any specific physical exercise oriented on the respiratory apparatus.

As a confirmation of the importance of respiratory physiotherapy recovery activity, none of the interviewed subjects responded with "not significant".

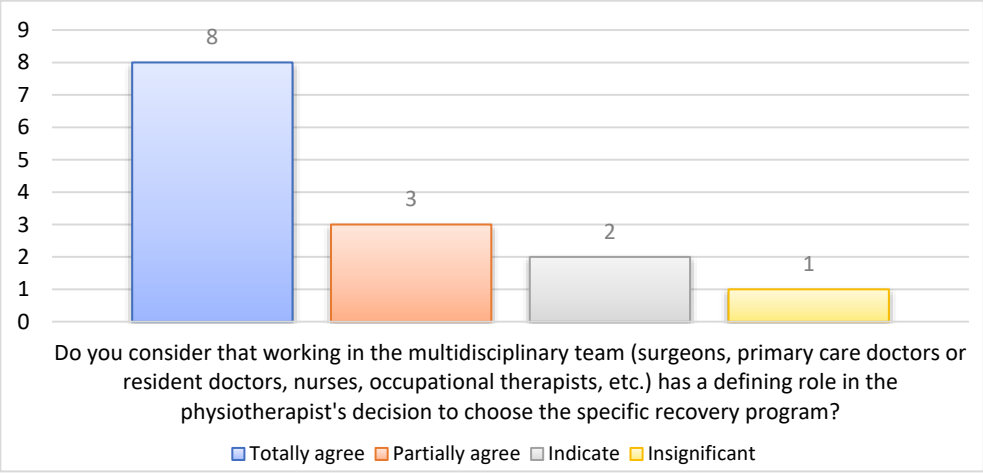

Figure 2. Graphical representation of multidisciplinary team work

From the graphical representation above Figure 2, we can observe a differentiation of opinions regarding the role of the physiotherapist, from the point of view of a professional team, in which the share of opinions of the team members is divided according to the activity and place of performance.

Out of 14 interviewed subjects 8 totally agreed with the above, forming the majority, in the appreciation that an interdisciplinary collaboration and consultation contributes to the defining role in the choice of the specific optimal rehabilitation program by the physiotherapist.

Three subjects partially agreed, and 2 others opted for indicating that the work of the specialised physiotherapist in the multidisciplinary team has a decision-making role. Only one subject considered that working in a

professional team is insignificant for the specialist physiotherapist by making decisions regarding the choice of the specific rehabilitation programme.

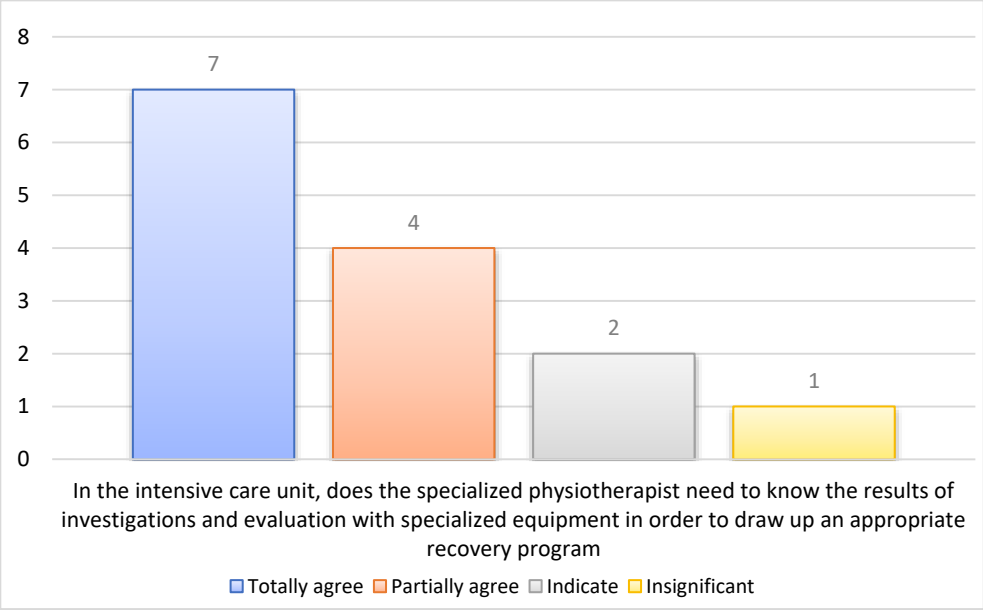

Figure 3. Graphical representation of assessment with specialist equipment in the intensive care unit (After Collins et al., 2014)

According to Figure 3, in the field of general physiotherapy, but especially in the intensive care unit, there is the opportunity to use specialised equipment for the correct application of a recovery exercise programme as optimal as possible, such as the motomed (auxiliary device for maintaining and increasing muscle strength, but also for maintaining range of motion, through passive, passive-active, active and resistance movements) and the therapeutic incentive spirometer coach 2 or with balls in-situ. In addition to these, internationally respiratory physiotherapists use a range of specialised aids to improve, maintain and treat respiratory diseases, including SARS-CoV-2 (COVID-19) (Garrod et al., 2000).

This aspect of knowledge of modern equipment, of intervention in the application of a recuperative exercise programme in the physiotherapy treatment schemes, gave rise to a series of varied responses, as can be seen in the graph above, where 7 out of 14 interviewed subjects totally agreed

with this statement, 4 partially agreed, 2 admitted that it is advisable to use these technological means, and 1 assumed that this need is significant.

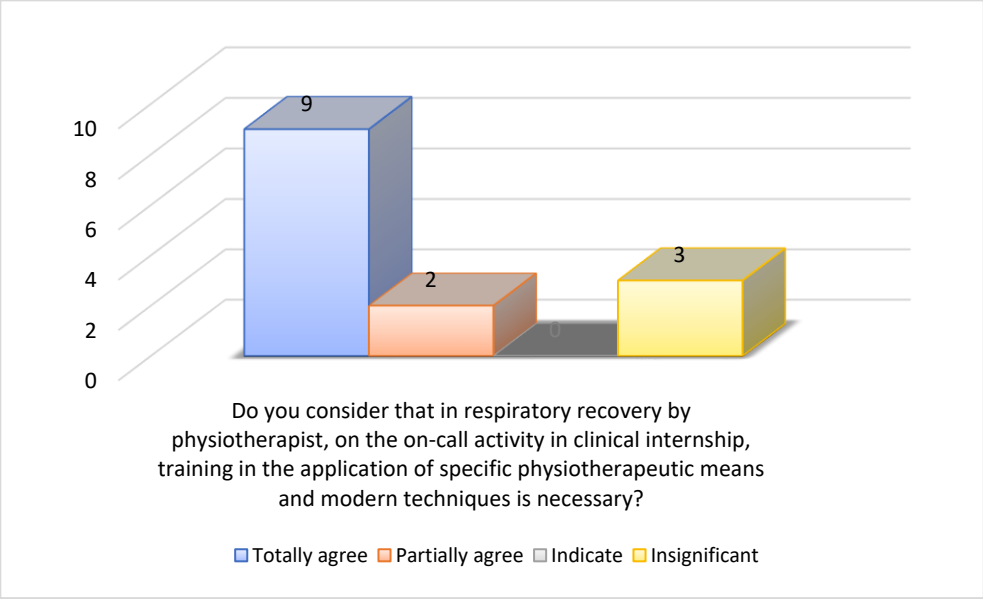

Figure 4. Graphical representation of the physiotherapist's activity during the clinical on-call period in clinical internship (After Mahler et al., 2003)

According to the international literature, the respiratory physiotherapist has also on-call duties, where they demonstrate specific and applied knowledge using modern means and techniques. Even in the Romanian national health and emergency system, interventions are used to manage certain respiratory pathologies.

In the comparative graph above, Figure 4, it can be noted that this activity is topical at international level, which is also confirmed by the recommendations of the interviewed subjects, 9 answered totally agreeing, 2 only partially agreeing, and 3 considered that this activity is insignificant in the Romanian health system. For this reason, there is no affirmative answer to the fact that a complementary training through the training of respiratory physiotherapists would be indicated.

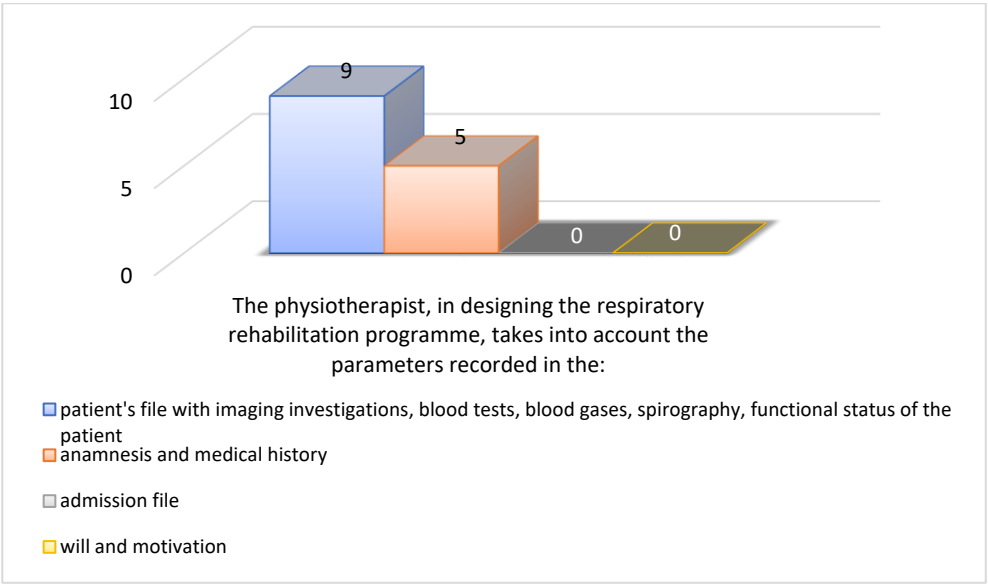

Figure 5. Graphical representation of the creation of the recovery programme based on the documentation

From the above graph, Figure 5, it can be noted that the answers are oriented on the pathological conditions records according to the patients' personalized records, which address the results obtained by imaging, laboratory samples, viscosity and colour of secretions (sputum), spirography, EKG, etc., as well as the medical history and admission records.

Knowing and interpreting data from blood/blood gas analysis results can help to avoid malpractice on different pathologies, and based on the imaging study, the physiotherapist can select a variation of recovery techniques and a set of physical exercises in order to draw up an optimal recovery program, considering the clinical diagnosis with indications and contraindications of the MDT team. Monitoring and assessment of the patient's functional status using specialist equipment, e.g., non-invasive measuring devices, mechanical ventilators, even injectors (where appropriate to know the medication used and the timing of therapy with it) on the intensive care unit helps to guide the physiotherapist during the implementation of the remedial exercise programme.

The answers are eloquent with reference to the data collected after consulting the above documents and parameters, 9 subjects agree with this

statement and 5 agree with the second statement, as they are conclusive in the functional assessment of the patient.

The admission file and the patient's motivation are not significant enough for the composition of an adequate recovery programme. As a result, none of the interviewed subjects took into consideration these last two answers.

3. Statistical-mathematical method for data processing and interpretation

The questionnaire received a total of 168 responses from 14 interviewed subjects.

Different types of items are used in the questionnaire:

- With one answer
- Multiple choice

In phase I, the questionnaire was addressed to a sample of respiratory therapy health professionals, made out of medical specialists, specialist nurses, physiotherapists specialising in respiratory rehabilitation, occupational therapists aged between 27 and 60.

The sample of respondents was evaluated according to profession, seniority, experience and professional competence in parallel to those in the United Kingdom (UK) vis-à-vis Romania.

In Phase II, an analysis of the responses showed that there was some difference in terms of the way of working in a team, as well as the way of kinesiological recuperative intervention depending on the way of assessing the pathology and applying appropriate exercise respiratory recovery programmes.

Alpha Cronbach coefficient, identification of the indicator of analysis in the 12 questions, sum of variable items in the questions with final total score of variable responses are mentioned.

4. Results

For the analysis of some of the items in the questionnaire, a Likert-type scale was used with values ranging from 1-4, where value 1 = “totally

agree", which represents the highest level of appreciation, and value 4 = "not significant" is rated with the lowest level of appreciation, the mean score values "partially agree", "indicated", falling within the range of appreciation represented by graphical interpretations.

The assessment of the answers revealed information and data that the respondents' interest in the training activity of the physiotherapist specialized in respiratory recovery is materialized by the exercise program applied as optimized as possible.

The values of the average score obtained and interpreted through graphs show a high interest in the therapy activity according to the answers in the graphs below.

One of the objectives of the **research** was to find out the professional opinion of the members of the multidisciplinary team regarding the orientation towards the use of an adapted questionnaire.

After the information was centralized, it was **concluded** that "an instrument is reliable and consistent when the items of which it is composed, correlate both with each other and with the additive result of all the items (Likert scale - psychometric, global score)".

In order to know the validity of the developed questionnaire, a pre-testing was carried out using the Alpha L.J. Cronbach's coefficient on a number of 14 subjects, the aim being to establish their reliability.

The IBM SPSS Statistics 25 statistical interpretation program was used to detect the value of this coefficient.

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Tab. 1. The mathematical equation of Alpha L.J. Cronbach coefficient

$$\rho_T = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma_X^2}\right)$$

Tab. 2. Interpretation of values of Alpha J.L. Cronbach's coefficient

Coefficient's value	Consistence
Superior to 0.9	Excellent
Between 0.7 and 0.9	Good

Coefficient's value	Consistence
Between 0.6 and 0.7	Acceptable
Between 0.5 and 0.6	week
Inferior to 0.5	It is not accepted

Tab. 3. Case processing summary

		Number	%
Cases	Validity	14	100.0
	Exclusion	0	.0
	Total	14	100.0

Tab. 4. The value of Alpha L.J. Cronbach's coefficient for the 7 statistically interpreted items

Reliability	
Cronbach's Alpha	N of Items
.909	7

Tab. 5. The values of the items introduced in the IBM SPSS software

	Item1	item2	item3	item4	item5	item6	item8	item9	item10	Item11	item12
1	1	1	1	1	1	1	1	7	5	1	10
2	1	1	1	1	1	1	1	7	9	1	6
3	2	1	1	2	1	1	2	6	10	3	3
4	2	1	1	2	2	1	2	9	6	3	4
5	2	1	2	2	1	1	7	6	7	1	10
6	3	2	2	2	1	1	7	6	7	1	10
7	3	3	3	3	4	1	8	5	6	4	4
8	3	2	3	3	4	1	8	6	9	4	5
9	1	1	1	1	1	1	3	10	10	1	10
10	1	1	1	1	1	1	3	10	10	1	10
11	1	1	1	2	1	1	4	7	7	3	6
12	1	1	1	2	1	1	4	10	7	3	6
13	1	1	2	2	2	2	5	9	10	1	10
14	2	2	4	4	4	3	6	6	4	4	1
15											

After the data were centralized and collected, the internal consistency of the questionnaire was obtained using the Alpha L.J. Cronbach's coefficient. Thus, the coefficient has a value of 0.909 (for the 7 items out of 12 that can be statistically interpreted), falls above the limits set as threshold according to Figure 14, having an excellent consistency.

5. Conclusion

The resulting coefficient attests to both the consistency of the items listed and the validity of the questionnaire as a whole. The 5 items that could not be statistically interpreted will be descriptively analysed.

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