

# ASPECTS ABOUT HOW THE TYPE OF PHYSIOTHERAPY BACHELOR'S DEGREE STUDIES INFLUENCES THE ETHICAL AND PROFESSIONAL BEHAVIOR OF PHYSIOTHERAPISTS

N. ROMAN<sup>1</sup>    R. MICLĂUŞ<sup>1</sup>    L. ROGOZEA<sup>1</sup>

**Abstract:** *Background: The heterogeneity of physiotherapy specialization bachelor's degree studies across Europe is represented by different curricula, number of years of study, and faculty profile. Within this context, our aim was to identify ethical and professional behaviour aspects that may interfere with physiotherapists' professional behaviour and ethical attitudes. Methods: We have conducted a cross-sectional study, using a questionnaire distributed online. Data processing was performed using SPSS 20 software. Results: 303 responses from physiotherapists from Europe were collected. From 22 items analysed, 6 showed a statistic significant difference between Sport Physiotherapy and Healthcare Physiotherapists graduates' perceptions and opinions on ethical and professional elements of practice. Conclusion: The heterogeneity of studies is influencing the professional behaviour of physiotherapists, with consequences on their professional behaviour and role in the community and among healthy people.*

**Keywords:** *physiotherapy, ethics, professionalism, behaviour*

## 1. Introduction

The heterogeneity of physiotherapy bachelor's degree studies across Europe is represented by different curricula, number of years of study and faculty profile. The duration of graduate study varies between 3 and 5 years and the curricula differ in the studied disciplines. The profile of Physiotherapy Faculties can be specific to Healthcare and Medicine, Physical Education and Sport or mixed [1],

[4], [18].

The physiotherapy practice aims to promote proactive behaviours through awareness and implementation of prophylactic physical activities programs in order to optimize health, as well as designing and applying therapeutic programs depending on the medical needs of the patients [2], [3], [20], [27], [28]. Excepting the national's laws regarding the physiotherapist's profession across Europe, important aspects of professional behaviour

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<sup>1</sup> Faculty of Medicine, *Transilvania* University of Braşov.

and ethical knowledge influence the quality of physiotherapy services.

Considering the importance of physiotherapists' role in the health status of the population and their involvement in the physical education of individuals, our study aimed to investigate whether there is a difference related to the specificity of the bachelor's degree studies, the ethical perceptions and professional behaviour of physiotherapists [10], [22], [24]. The novelty of our research is the investigation of the differences between physiotherapists graduates related to the specific of the bachelor's degree studies, considering sport physiotherapists graduates and healthcare physiotherapists graduates.

## 2. Materials and Methods

### 2.1. Participants and Data Collection

We have conducted a prospective cross-sectional study using a questionnaire, to assess the main ethical perceptions and professional behaviour elements that influence physiotherapy practice. The questionnaire was realized through Survey Monkey platform and shared online, from November 2017 to April 2018, through professional associations and physiotherapist groups on social networks. The Faculty of Medicine Ethics Committee for scientific research approved our study, according to the national and international rules [12], [13].

The sample size was 303 respondents, from 331 questionnaires collected, from which 28 have been removed from analysis due to missing data. The mean age of respondents was 33.42 years. The respondents were 48.8% from Romania, 15.2% from Italy, 7.9% from France, 7.6% from Belgium, 6.9% from UK, 2.6% from

other countries from European Union and 10.9% from outside European Union. The gender distribution was 65% females and 35% males and the speciality graduate type studies percent were 43.6% for sport graduates and 56.4% for healthcare graduates. The respondent's distribution according to the level of experience was 31.4% for 1-3 years, 13.5% for 3 to 5 years, 23.8% for 5 to 10 years, 20.5% for 10 to 20 years, 8.9% for 20-30 years and 2% physiotherapists with work experience greater than 30 years.

### 2.2. Questionnaire Applied

For this study were selected 22 items and used as dependent variable and one variable created within the correspondence of graduate studies profile. The items were divided into four sections: professional aspects (Items 1, 2, 3), individual knowledge update and necessary skills (Items I4a, I4b, I4c, I4d, I4e, I5a, I5b, I5c, I5d, I5e,) ethical knowledge (Items 6, 7, 8, 9) and continuous professional development (10a, 10b, 10c, 10d, 10e)

### 2.3. Data Analysis

We have used SPSS 20 to analyse the survey data results. First, we have conducted principal factor extraction analysis, to check the validity of our questionnaire and to determine whether it fits to the dimensions investigated. After assessing the assumption of normal distribution, which was violated, we have chosen to apply the Mann-Whitney Test to identify whether there are differences between sport physiotherapists graduates (SP) and healthcare physiotherapists graduates (HP) groups related to ethical

and professional behaviour [21]. Cronbach Alpha was applied for internal consistency and reliability.

### 3. Results

The Cronbach Alpha coefficient for internal consistency and the reliability of our psychometric test was 0.731, suggesting an acceptable level.

For the principal factor analysis, the Kaiser-Meyer-Olkin (KMO) index was used to verify if there are linear relationships between the variables. The value of KMO was 0.755 and suggested a middling value and that principal components analysis

might be undertaken. Bartlett's test of sphericity value was 760.190 with a  $p < 0.001$  proved to be statistically significant, confirming the correlation of the analysed variables.

We have used as a rotation method Quartimax with Kaiser Normalization and the rotation converged in 5 iterations. The principal factor extraction results found in Table 1, showed four main factors related to our research. The first factor is related to the frequency of continuous professional development courses where physiotherapists participate in the workplace.

*Factor analysis results for the questionnaire items*

Table 1

<b>Rotated Component Matrix <sup>a</sup></b>				
	Component			
	1	2	3	4
Annual	.827			
At 3-4 months	.771			
Monthly	.688			
Only during CME courses/ mandatory courses	.636			
Weekly	.583			
Communication skills		.636		
Psychosocial skills		.584		
Online physiotherapy related websites		.569		
Books and materials from social networks		.566		
Scientific data bases		.561		
Ethical skills		.540		
Medical skills		.534		
Managerial skills		.520		
Workshops		.514		
National CPD events with CME credits?		.504		
Importance of new treatments in physiotherapy practice			.712	
Frequency of patient assessment during physiotherapy			.561	
Frequency in changing patient's physiotherapy plan.			.509	
University				.790
Ethic's knowledge self-assess level				.760
Master				.554
The importance of ethic and deontology in physiotherapist profession				.551

The second important factor is related to the essential skills and competencies required in physiotherapy profession, related to individual methods of knowledge update. The third followed up factor is linked to professional aspects from physiotherapy practice, while the forth concerns with the ethical aspects of physical therapy practice.

The results of the Principal Component Analysis prove the validity of the instrument used in our research.

#### *Similarities and differences between Sport Physiotherapists and Healthcare Physiotherapists*

We have checked for the normality of data distribution, and the results were negative. Because our data hasn't fulfilled this assumption, we have applied Mann-Whitney Test to investigate whether there any differences between our study groups. The results are shown in Table 1.

The results of Mann Whitney test (Table 2) suggest that there are differences between the studied groups. The first item with a statistically significance is linked to the frequency of changing patient's therapy program. Investigating the mean rank of each group, we can analyse which group scored higher and the results suggest that HP group had a significant higher score then SP group, with a mean rank difference of 27.78 and a p value of 0.004, the results suggesting a statistical significance concerning the differences between the two groups. Another aspect of professional behaviour is linked to the awareness of knowledge update regarding new treatments and methods used in physiotherapy practice. The results of the Mann Whitney Test show a difference within these regards in the advantage of

HP group, as their mean rank is higher than in the SP group ( $p = 0.004$ ).

There was no statistically significant difference regarding the frequency of patient evaluation between the two groups.

The second analysed dimension was related to the individual knowledge update and necessary skills in physiotherapy practice. The Mann-Whitney test results showed statistically significant differences in using scientific data base as a method for knowledge update, in the advantage of HP group, considering the mean rank value 159.54 versus 137.25 and p value 0.010, suggesting that HP used scientific data bases search more often in acquiring new information in physiotherapy. The second difference in this category was related to books and physiotherapy documents spread through social networks. The higher score was in SP group's advantage, with a mean score of 165.45 versus 138.44 and a p value of 0.002, the results suggesting that SP group used this method more often than HP group to acquire new physiotherapy knowledge. The rest of the items within this section (I4a, I4b, I4c, I5a, I5b, I5c, I5d, and I5e) haven't revealed any statistically significant differences between the analysed groups.

The ethical awareness of physiotherapists was measured by the items 6, 7, 8 and 9 presented in Table 2. The results proved a significantly difference related to the importance of ethic and deontology in physiotherapist profession (I6) and the knowledges acquired at in the university (I8) in behalf of HP group. The mean rank for these two items was higher than in the SP group and the p value  $< 0.05$  proved a statistically significant difference. The aspects linked

to the self-assessment level of knowledge in ethics and master ethical knowledge acquittance were not statistically different between the studied groups.

The last analysed category referred to the work place continuous professional development courses and aimed to

investigate whether there are any differences between SP and HC groups. The results were not statistically different, as shown in Table 2.

Table 2

*Mann-Whitney test results of group comparison regarding physiotherapists attitudes and behaviour*

Items	Group	Mean Rank	Sum of ranks	Z	p
I1: Frequency in changing patient's physiotherapy and prophylaxis plans	SP	134.40	17203.00	-2.869	<b>.004</b>
	HP	161.68	27647.00		
I2: What is the frequency of patient's assessment during physiotherapy and prophylaxis of physical activity	SP	140.04	17925.00	-1.873	.061
	HP	157.46	26925.00		
I3: The importance of updating with the latest treatments in physiotherapy and prophylaxis of physical activity practices	SP	135.91	17397.00	-2.906	<b>.004</b>
	HP	160.54	27453.00		
I4: Methods of knowledge update a) Workshops	SP	148.10	18957.00	-.391	.696
	HP	151.42	25893.00		
I4 b) Continuous Professional Development Courses	SP	149.08	19082.50	-.183	.854
	HP	150.69	25767.50		
I4 c) Online physiotherapy related websites	SP	153.11	19598.00	-.645	.519
	HP	147.67	25252.00		
I4 d) Scientific Data Bases	SP	137.25	17568.00	-2.585	<b>.010</b>
	HP	159.54	27282.00		
I4 e) Books from social networks	SP	165.45	21177.00	-3.115	<b>.002</b>
	HP	138.44	23673.00		
I5: Important skills in physiotherapy and prophylaxis of physical activity: a) Managerial Skills	SP	149.70	19162.00	-.072	.943
	HP	150.22	25688.00		
I5 b) Ethical skills	SP	146.93	18807.00	-.626	.531
	HP	152.30	26043.00		
I5 c) Communication skills	SP	154.13	19729.00	-.980	.327
	HP	146.91	25121.00		
I5 d) Psychosocial skills	SP	152.62	19535.00	-.563	.573
	HP	148.04	25315.00		
I5 e) Medical skills	SP	155.65	19923.50	-1.715	.086
	HP	145.77	24926.50		
I6: The importance of ethic and deontology in physiotherapist and prophylaxis of physical activity professions	SP	138.97	17788.50	-2.108	<b>.035</b>
	HP	158,25	27061.50		
I7: Ethic's knowledge self-assess level	SP	149,19	19096.00	-.152	.879
	HP	150,61	25754.00		
I8: University knowledge level of ethics acquired knowledge	SP	137.51	17601.00	-2.252	<b>.024</b>
	HP	159.35	27249.00		
I9: Master knowledge level of ethics acquired knowledge	SP	148.83	19050.50	-.206	.837
	HP	150.87	25799.50		
I10: Frequency of updating knowledge at workplace a) Weekly	SP	149.04	19077.50	-.173	.863
	HP	150.72	25772.50		
I10 b) Monthly	SP	142.23	18205.50	-1.389	.165
	HP	155.82	26644.50		
I10 c) At 3-4 months	SP	142.46	18235.00	-1.338	.181

Items	Group	Mean Rank	Sum of ranks	Z	p
110 d) Annual	HP	155.64	26615.00	-.306	.760
	SP	148.28	18980.00		
110 e) During mandatory courses	HP	151.29	25870.00	-.630	.529
	SP	153.57	19657.50		
	HP	147.32	25192.50		

## 4. Discussions

### 4.1. Professional Aspects

In physiotherapy, there is a demand for physiotherapists to assess and prescribe exercises according to patient's condition, and also to provide successful physical activity programs. Regarding the professional aspects of SP, our results suggest differences between the two groups, with an advantage for HP group by modifying the physical therapy plan in accordance to the patient's status evolution. It is essential for physiotherapists to adapt physical therapy techniques and exercise types, either the patient or the client is ill or healthy, according to individual progress.

Further research is needed to investigate whether HP have better skills concerning clinical reasoning and decision making and if these aspects are related to the frequency of patients' changing therapeutic plan, although both groups have competencies and skills concerning clinical education and decision making [5]. The second difference, in the behalf of HP, is linked toward the considerations of knowledge updating regarding the latest treatment methods and techniques used in physiotherapy. Physiotherapy is a medical professional field which has many specialties, including musculoskeletal rehabilitation, neurorehabilitation, cardio-respiratory rehabilitation (etc.), but

physiotherapists who are not specialized in a distinct field, encounter multiple pathologies and cases due to the nature of their clinical work. In contrast, in a SP working environment, which represents sports rehabilitation, the pathology is poorly and the client's physical condition is superior. These elements might influence physiotherapists' attitudes toward the necessity of knowledge update and further research is needed in this direction.

### 4.2. Individual Learning and Skills in Physiotherapy

Since physiotherapy has developed so much through the last decades, reaching the level of robot-assisted physiotherapy, virtual reality gaming therapy and other new technological devices [13], [17], the importance of self-education increases and physiotherapists' standards are growing up too. Excepting Continuous Professional Development Courses (CPD), which are mandatory, representing an important aspect of healthcare practitioners and physiotherapists to improve knowledge, skills and professional outcomes [12], other tools and methods of knowledge update might be used for acquiring professional information. Our study revealed that SP, compared to HP, use the scientific academic databases as a source of

knowledge to a lesser extent, preferring more to use books shared through social networks. Anterior studies reported that physiotherapists found it difficult to search and acquire information through scientific databases. The terms used in statistics, the difficulty of gathering and interpreting the information, added to the lack of time were the major reasons why physiotherapists didn't use scientific databases as a tool for knowledge update [7], [16].

The lack of differences between the studied groups related to the necessary skills for physiotherapist profession reveals that both groups appreciate in a similar manner the skills concerning medical, ethical, managerial, communication and psychosocial competencies, although only medical and ethical skills are better represented during university studies, especially for the HP group.

### **4.3. Ethical Knowledge**

Regarding the assimilation of ethical skills / knowledge during the study years, 74 from all the respondents ( $n = 303$ ) expressed that they had a poor level of ethical knowledge during university studies. The issue of physiotherapist's ethical knowledge and implementation in professional practice represents a problem for physiotherapists in general [8], [15]. The both groups from our research have considered ethics and deontology important and very important in physiotherapists' occupation, although the results of knowledge acquired during university and master studies proved a

gap in this regard. The correlations between physiotherapists' ethical knowledge and perceptions have a meaningful impact on physical therapy medical practice [9], [25].

The first step to develop an ethical reason strategy is to achieve knowledge about ethics and to give meaning to this professional aspect. The results of the Mann-Whitney test regarding the importance of ethics in physiotherapy profession suggest that SP are less aware than HP about the ethical aspects of practice. This might be an explanation for the ethical issues raised in practice, especially in sport rehabilitation, related to the confidentiality principle and ethical responsibilities that are not respected as they should be among physiotherapists [14], [19], [26].

### **4.3. Continuous Professional Development**

In many countries across Europe and worldwide, guidelines for good practice are emphasised. The need for clinical and ethical guidelines used in medical practice is linked to healthcare services quality increase and evidence-based medicine, but unfortunately are misused. [6]. CPD is also linked to high quality services in healthcare and since CPD is mandatory for physiotherapists, our research investigated whether there are differences between the two studied groups regarding CPD courses at workplace, the results showed no difference between the two groups. This issue may be related to the fact that there is no legislation in Romania that physiotherapists are required to follow

CPD courses and that in most cases the entrepreneurs do not organize CPD courses and that there are other distinct entities that deal with the professional development of physiotherapists.

## 5. Conclusions

The heterogeneity of bachelor's degree type of studies of physiotherapists has an impact on the professional behaviour and ethical perceptions of physiotherapists. Differences were found concerning ethical and professional aspects of both studied groups. In a small proportion, HP were more aware and concerned about the ethical aspects of the practice than SP. The individual learning process was accomplished by physiotherapists in different manner, while SP preferred books from social networks, HP had a higher compliance for academic databases. Further research is needed to investigate the influences of university studies and the physiotherapists' awareness and implication in increasing physiotherapy standards and quality of care.

Limits: some responses were overvalued because of the lack of practical experience of participants and relatively low number of respondents that should be increased in further wider studies.

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