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## Samoocena przygotowania zawodowego oraz plany dotyczące podjęcia zatrudnienia wśród studentów studiów I stopnia na kierunku fizjoterapia uczelni o różnych profilach kształcenia

### Streszczenie

**Wstęp.** Jedną z najistotniejszych zmian, jakie wprowadza podział na studia I i II stopnia jest fakt, że po zakończeniu studiów I stopnia absolwent uzyskuje dyplom ukończenia studiów zawodowych i tytuł licencjata i otrzymuje prawo do wykonywania zawodu.

**Cel.** Celem pracy była analiza samooceny przygotowania zawodowego oraz planów dotyczących podejmowania zatrudnienia wśród studentów studiów I stopnia na kierunku fizjoterapia uczelni o różnych profilach kształcenia oraz porównanie samooceny przygotowania zawodowego pomiędzy studentami uczelni medycznych (PM), uczelni o profilu wychowanie fizyczne (PWF) oraz pozostałych uczelni (IP).

**Materiał i metody.** Badaniem objęto łącznie 593 studentów III roku. 10 polskich uczelni: 4 PM, 2 PWF i 4 IP. Badania zostały przeprowadzone w marcu i kwietniu 2009 roku. Udział w badaniu był dobrowolny. Narzędziem badawczym był anonimowy, autorski kwestionariusz, zawierający 88 pytań. Analiza statystyczna: test Kruskalla-Wallisa i Chi-kwadrat ( $\chi^2$ );  $p < 0,05$ , STATISTICA 8.0, licencja WUM.

**Wyniki.** Studenci najwyżej ocenili swoje umiejętności w zakresie fizykoterapii (4,01), najniżej w obszarze technik specjalnych w fizjoterapii (2,72) ( $p = NS$ ). Badana grupa studentów najwyżej oceniła swoje kompetencje w obszarze ortopedii (3,56); najniżej zaś w obszarze reumatologii (3,28). W obszarze kompetencji ogólnozawodowych najwyżej oceniono umiejętność komunikacji z pacjentem (4,18), najniżej zaś umiejętność komunikacji z innymi członkami personelu medycznego (2,94) ( $p = NS$ ).

**Wnioski.** Studenci wysoko ocenili swoją wiedzę i umiejętności w obszarach związanych z wiedzą z obszaru fizjoterapii i jej zastosowań klinicznych, zdobyte podczas studiów I stopnia, należy pamiętać, że jest to ocena subiektywna, nie zweryfikowana żadnymi obiektywnymi metodami pomiaru dydaktycznego. Samoocena studentów różniła się w obszarze kompetencji ogólnozawodowych, np. przygotowaniem do pracy naukowej lub przygotowaniem kondycji fizycznej, na co mógł mieć wpływ profil kształcenia w poszczególnych uczelniach.

**Słowa kluczowe:** samoocena, plany zawodowe, przygotowanie do wykonywania zawodu, studia zawodowe, fizjoterapia, profil uczelni.

## Self-assessment of vocational preparation and plans regarding undertaking employment among bachelor degree physiotherapy students of university-level schools of different educational orientations

### Abstract

**Introduction.** A major change resulting from the separation of Bachelor- and Master-level studies is that after the completion of the Bachelor-level programme the student obtains a diploma of higher vocational education, i.e. a Bachelor's degree, and becomes certified to practice the chosen profession.

**Aim.** The objective of this study was to analyse the self-assessment of vocational preparation and vocational plans among physiotherapy students during their Bachelor programme studies at university-level schools of different educational orientations and compare self-ratings expressed by students of medical universities (MS), universities of physical education (PE), and other university-level schools (OU) during the first and third year of their Bachelor's programme.

**Material and methods.** The study involved the total of 593 students of 10 Polish universities (4 MS, 2 PE and 4 OU). The study was carried out in March and April 2009 among third-year students. The participation was voluntary. The data collected were the responses to an 88-question anonymous questionnaire designed by the authors. Statistical analyses utilised the chi-squared test ( $\chi^2$ ) and the Kruskal-Wallis test at  $p < 0.05$  (STATISTICA 8.0 licensed to WUM).

**Results.** The participants were most confident about their physical therapy skills (4.01) and least satisfied with their skills in the use of special techniques in physiotherapy (2.72) ( $p = NS$ ). The students rated their orthopaedic competence as highest (3.56) and rheumatology skills as lowest (3.28). The participants were most confident about their ability to communicate with the patient (4.18) and least satisfied with their skills in communication with other members of the medical team (2.94) ( $p = NS$ ).

**Conclusions.** Students were of high opinion of their knowledge and skills in the area of physiotherapy and its clinical applications that they had gained during their Bachelor-level studies but it is necessary to bear in mind that this was their subjective opinion. The students' self-assessment differed in the area of general competences such as preparation for conducting research or physical fitness, which could have been influenced by the educational orientations of their university-level schools.

**Key words:** self-assessment, career plans, vocational preparation, Bachelor degree programmes, physiotherapy, educational orientation of a university-level school.

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## INTRODUCTION

The Higher Education Act of 27th July 2005 obliged all university-level schools, including medical universities, to divide the degree programmes offered by them into three cycles: Bachelor-level programmes, Master-level programmes and PhD studies [1].

This division gave students new opportunities that had not been possible when universities offered only unified 5-year Master's degree programmes: students now have greater flexibility while at university, they may verify their choice of field of study after completing a Bachelor-level programme, they are free to change the university, go to study abroad or return to their university to continue with a Master-level programme at a later date.

A major change resulting from the separation of Bachelor- and Master-level studies is that after completion of a Bachelor-level programme the student obtains a diploma of higher vocational education, i.e. a Bachelor's degree, and becomes certified to practice the chosen profession.

According to the regulations, earning a Bachelor's degree represents a sufficient qualification to start practising the profession so that continuing to a Master's degree is not necessary. At the same time, the majority of students who have completed a 3-year Bachelor-level programme continue their education at a Master-level programme and simultaneously undertake employment in the profession.

Physiotherapy as a university degree programme was introduced in Poland in 1997 with courses offered as 3-year Bachelor-level and 2-year Master-level programmes from the very beginning. The education of physiotherapists in Poland currently takes place in three types of university-level schools: medical universities (MS), universities of physical education (PE) and university-level schools of orientations not connected with medicine or physical education (OU) [2-8].

## AIM

The objective of this study was to analyse the self-assessment of vocational preparation and vocational plans among physiotherapy students during their Bachelor programme studies at university-level schools of different educational orientations and compare self-ratings expressed by students of medical universities (MS), universities of physical education (PE) and other university-level schools (OU) during the first and third year of their Bachelor's programme.

## MATERIAL AND METHODS

The study involved a total of 593 students from 10 university-level schools of different educational orientations offering physiotherapy degree programmes.

The participants were from four medical universities (MS), two from universities of physical education (PE) and four from other university-level schools (OU).

The questionnaires were distributed among third-year

students in March and April 2009, during the last (6th) semester of their first-cycle studies. The exclusion criteria comprised having graduated from a vocational secondary school and holding a diploma of a physiotherapy or massage technician. Students who had come to university from other university-level schools or had not studied at the same institution since the first year were also excluded, as were extramural students.

Participation in the study was voluntary. The research tool was an anonymous questionnaire designed by the authors. It consisted of 4 parts and contained a total of 88 questions.

The statistical analysis of the survey data was conducted using the Statsoft STATISTICA 9.0 program (licensed to Warsaw Medical University). In order to identify and compare differences between the three study groups of students representing university-level schools of different educational orientations, the statistical non-parametric Kruskal-Wallis test was used.

In the opinion of the Internal Ethical Review Board of the Medical University of Warsaw, the study did not require the IRB approval with respect to its scope and the study population.

## RESULTS

A total of 593 questionnaires were qualified for the analysis. The detailed characteristics of the participants are presented in Table 1.

The first question to be analysed in this paper concerned the students' self-assessment of their practical skills in major areas of physiotherapy.

The participants were most confident about their physical therapy skills (4.01) and least satisfied with their skills in the use of special techniques in physiotherapy (2.72). The opinions on vocational preparation in major physiotherapy domains did not differ significantly between students representing university-level schools of different educational orientations ( $p=NS$ ). The detailed results are presented in Table 2.

The participants were further enquired about their vocational preparation with regard to individual clinical domains. The students rated their orthopaedic competence as highest (3.56) and rheumatology skills as lowest (3.28). The vocational preparation of students representing university-level schools of different educational orientations differed significantly as far as neurology and rheumatology skills were concerned. The detailed results are presented in Table 3.

The questionnaire continued with questions about the students' self-assessment of their preparation in various areas important for future work that are not specific to physiotherapy, including communication with patients and other members of the medical team, command of the professional register of foreign languages, first aid skills etc.

The detailed results of students' self-assessment of their general skills and differences between participants from university-level schools of different educational orientations are presented in Table 4.

**TABLE 1. The number of students representing university-level schools of different educational orientations.**

School orientation	School name	Number of questionnaires qualified for statistical analysis	
		Number of students	Number of students representing schools of different orientations
Medical universities (MS)	The Medical University of Silesia (SMU)	46	PM= 160
	The Medical University of Warsaw (WMU)	74	
	The Medical University of Białystok (BMU)	25	
	The Medical University of Lublin (LMU)	15	
Universities of physical educations (PE)	the University of Physical Education, Warsaw (UPEWa)	53	PWF= 128
	University School of Physical Education, Wrocław (UPEWr)	75	
Other universities (OU)	Olsztyn College (OC)	85	IP= 305
	Puławy College (PC)	62	
	College of Administration in Bielsko-Biała (CA)	78	
	College of Physiotherapy, Wrocław (CP)	80	

**TABLE 2. Study participants' self-assessment of their practical skills in major domains of physiotherapy.**

Areas of practical skills – major physiotherapy domains	Mean rating in entire study group	Mean rating - MS	Mean rating - PE	Mean rating - OU
Physical therapy	4.01	4.23	4.54	3.67
Kinesiotherapy	3.95	3.85	4.06	3.97
Massage	3.83	3.68	4.09	3.79
Special techniques in physiotherapy	2.72	2.82	2.58	2.73

MS – Medical Universities  
 PE - universities of physical education  
 OU - university-level schools of other orientations

**TABLE 3. Study participants' self-assessment of their practical skills in major areas of clinical medicine.**

Areas of practical skills – major domains of clinical medicine	Mean rating in the entire study group	Mean rating - MS	Mean rating - PE	Mean rating - OU	Difference between opinions of MS, PE and OU students Chi-square, p
Paediatrics	3.41	3.35	3.44	3.12	3.27; p<0.1947
Neurology	3.38	4.55	3	3.14	25.78; p<.000*
Cardiology	3.36	3.42	3.60	3.22	6.24; p<0.0441
Orthopaedics	3.56	4.64	3.76	3.56	2.38; p<0.3034
Rheumatology	3.28	4.48	3.35	3.14	13.75; p<0.0010

MS – Medical Universities  
 PE - universities of physical education  
 OU - university-level schools of other orientations  
 Chi-square – value of Chi-square test/ statistics  
 p – level of statistical significance  
 \* - the bold type signifies statistically significant differences

**TABLE 4. Study participants' self-assessment of their preparation in the area of general skills that are not specifically related to physiotherapy.**

General skills not specifically related to physiotherapy	Mean rating in the entire study group	Mean rating - MS	Mean rating - PE	Mean rating - OU	Difference between opinions of MS, PE and OU students Chi-square, p
Communication with the patient	4.18	4.21	4.34	4.10	1.54 p<0.461
Communication with other members of the medical team	2.94	2.94	2.95	2.93	0.27 p<0.871
Command of professional register of foreign language	3.90	4.03	3.09	2.75	10.97 p<0.004
Ability to provide professional first aid	3.24	3.19	3.43	3.19	4.36 p<0.113
Physical fitness necessary to work as a physiotherapist	3.86	3.79	4.10	3.79	8.17 p<0.016
Preparation to undertake scientific research	3.28	3.32	3.29	3.25	0.50 p<0.777
I know where to search for information about state-of-the-art physiotherapy methods	3.54	3.62	2.49	2.52	2.30 p<0.316
I can organise my work place in an ergonomic manner	3.77	3.90	3.82	3.69	1.13 p<0.568

The majority of students indicated that they preferred team work (Table 5) with differences between participants from university-level schools of different educational orientations not being statistically significant ( $p=NS$ ).

**TABLE 5. Type of work preferred by the students.**

What type of work do you prefer?	Percentage of students (%)			
	Total	MS	PE	OU
team work	51	43	34	62
individual work	30	38	46	20
I don't know	12	12	17	10

The majority of participants (57%) were willing to undertake employment related to kinesiotherapy in the future (Table 6).

**TABLE 6. Fields of physiotherapy in which students were willing to pursue a career.**

In which field of physiotherapy would you like to undertake employment once you have obtained your Bachelor's degree?	Percentage of students (%)			
	Total	MS	PE	OU
physical therapy	17	14	3	24
kinesiotherapy	57	67	43	57
massage/ manual techniques	40	38	54	35
other	11	11	24	5

The majority of respondents declared that they were ready to undertake employment in a rehabilitation centre (57%) after obtaining their Bachelor's degree, while the smallest proportion of students (15%) would like to pursue a university career in a theory-focused department (Table 7).

**TABLE 7. Institutions where the study participants would like to undertake employment after obtaining their degree.**

Where would you like to work after obtaining your degree?	Percentage of students (%)				Difference between opinions of MS, PE and OU students Chi-square, p
	Total	MS	PE	OU	
hospital	27	38	14	26	20.10; $p<.000$
rehabilitation centre	57	59	60	55	0.02; $p<0.8931$
fitness club	29	24	33	29	2.97; $p<0.0850$
spa	36	38	27	38	3.27; $p<0.0538$
theory-focused department at university,	15	21	17	12	2.08; $p<0.7242$

The largest number of the students indicated they would like to undertake employment in sports medicine (45%), paediatrics (39%), and orthopaedics (38%). The fewest participants were willing to pursue a career in rheumatology (6%). The differences between participants from university-level schools of different educational orientations were not statistically significant (Table 8).

One-third of the students wished to enter a PhD programme after graduating from university. The details of further educational plans of the participants are presented in Table 9.

Almost half of the students (45%) claimed they did not feel prepared to look for a job as a physiotherapist.

Students' self-assessment of their preparation to search for employment differed significantly between representatives of university-level schools of different educational orientations. The detailed results are presented in Table 10.

**TABLE 8. Field of medicine in which the students would like to pursue a career.**

In which field of medicine would you like to pursue a career?	Percentage of students (%)			
	Total	MS	PE	OU
orthopaedics	38	49	34	35
neurology	26	29	26	25
cardiology	8	10	4	8
paediatrics	39	36	42	40
rheumatology	6	4	2	10
sports medicine	45	49	53	40

**TABLE 9. Educational plans of the students after obtaining their Bachelor's degree.**

Are you planning to continue your education after obtaining Bachelor's degree?	Percentage of students (%)			
	Total	MS	PE	OU
I would like to study for a PhD degree	32	35	29	31
I would like to complete additional postgraduate studies. What major?	26%	21%	24%	31%
I have other plans	23	23	30	20

**TABLE 10. Students' self-assessment of their preparation to search for a job as a physiotherapist**

Do you feel well prepared to search for a job as a physiotherapist?	Percentage of students (%)				Difference between opinions of MS, PE and OU students Chi-square, p
	Total	MS	PE	OU	
yes	31%	40%	19%	24%	18.64; $p<.000$
no	46%	35%	60%	56%	12.68; $p<.000$
I have no opinion	19%	20%	17%	16%	1.13; $p<0.288$

## DISCUSSION

A review of the available domestic and foreign literature (PubMed, ProQuest, SCOPUS, Global Health, EMBASE) found no publications concerned with self-assessment of vocational preparation among Bachelor-degree physiotherapy students. The world literature predominantly focuses on physiotherapy students' plans to undertake employment in their chosen profession (a domain of physiotherapy or a clinical area) in the future, with some of the publications investigating differences between the views of male and female students [9-15].

The school orientation did not influence the students' self-assessment of their preparation to undertake employment in their chosen profession. Discrepancies between the opinions of students representing university-level schools of different educational orientations were found only in some areas.

With regard to self-assessment of vocational preparation in various areas of physiotherapy, there were no significant differences between students representing university-level



schools of different educational orientations. The participants were most optimistic about their physical therapy skills, although they were not willing to undertake employment in this field, while they were least satisfied with their skills in the area of special techniques. As expected, MS students rated their preparation for clinical work significantly higher than other respondents. This is probably due to their universities having their own clinical facilities and the longest experience in clinical training. The clinical skills were rated lowest by OU students, who completed their clinical training externally as OUs usually do not have their own facilities of this type and the students are trained in external regional healthcare centres, which focus on offering service rather than teaching.

As regards general skills, MS, PE and OU students alike were most confident about their ability to communicate with the patient and least optimistic about communication with other members of the medical team. As expected, assessment of the physical fitness necessary to work as a physiotherapist was dependent on the school's orientation, with PE students declaring significantly better physical preparation to work in the profession. This situation may be due to several factors resulting in superior fitness of PE students. The main reason seems to be the system of enrolment for this type of university, which includes a test of fitness. Moreover, the curriculum includes many more sports classes, which also contributes to PE students' high self-assessment of their physical fitness. Similarly, it was not surprising that MS students were most confident about their preparation for undertaking research work and awareness where to search for information about new physiotherapeutic methods, as their universities have the longest tradition of research.

The field of physiotherapy in which the students were willing to pursue a career was not dependent on the school orientation. The majority of respondents indicated that they would like to become involved in kinesiotherapy and massage, while the smallest proportion wished to undertake employment in the area of physical therapy, which seems surprising, especially since the students rated their physiotherapy skills as highest. As regards the desired workplace, the largest number of the respondents wished to undertake employment in a rehabilitation centre, while the fewest of them were interested in working at a theoretical department of a university, with the opinions in this respect differing significantly between students from schools of different orientations. MS participants were significantly more willing to pursue a career at the university than their PE and OU peers. At this point, it needs to be stressed that with such a small percentage of students wishing to work at university, the importance of head-hunting among those actively participating in students' research clubs etc. and encouraging them to teach and conduct research becomes even greater. Such students should be treated as priority candidates for employment in the institution since PhD studies tend not to satisfy students' financial expectations.

The clinical domains which were most frequently indicated by the students as the fields of their future career were traditional areas, i.e. orthopaedics, musculoskeletal traumatology of the motor system and sports medicine. A surprisingly large proportion of the respondents also declared they would like to work with children, which may

be associated with the development of modern and attractive physiotherapeutic methods for rehabilitation of the youngest patients. However, it seems not so obvious why such a small percentage of students were ready to engage in rehabilitation of patients in other clinical domains, such as cardiology, neurology or rheumatology, which also have well-developed rehabilitation techniques.

First and foremost, however, it needs to be stressed that about 45% of the students declared that they did not feel prepared to search for a job in the profession. At the same time, it should be pointed out that OU participants gave such a response significantly more frequently than the other students, which may be associated with the observed dramatic increase in the number of OU schools offering physiotherapy degree programmes. The results support the thesis that it is not advisable to train such a large number of physiotherapists. At the same time, the vast majority of respondents (ca 86%) claimed that university-level schools should prepare students to seek employment in the profession. It appears that the students may inadvertently confuse preparation for work in the area of knowledge and skills with preparation for job-seeking as no university, regardless of its orientation, can currently guarantee graduate employability.

The findings presented in the world literature confirm to a large degree the results obtained in this study, especially with respect to the fields of clinical medicine and domains of physiotherapy the students would like to become involved in [9-15].

A study conducted by Johanson [12] among American students found that the respondents were ready to undertake employment in private physiotherapeutic practices. However, a significantly greater proportion of male students compared to female students were planning to open their own practices. As regards seeking employment in sports medicine, fitness clubs or hospital wards, the expectations of Polish students were closely connected with the orientation of the school where they gained their physiotherapy qualifications. Students of medical universities were willing to work in the hospital setting significantly more often than those from other schools and students of sports (physical education) universities, in turn, were willing to work in the field of sports medicine or in fitness clubs significantly more often than the rest of the respondents [12]. These results support the argument that the educational orientation influences students' professional attitudes.

Interestingly enough, none of the Canadian students surveyed by Öhmann was willing to undertake a university job [9-11]. In this study of Polish students, in turn, the willingness to work at the university was closely connected with the educational orientation of the school. Students representing schools with a longer tradition of scientific research (medical and physical education universities) were significantly more often willing to accept employment at the university than those from private university-level schools, which usually do not conduct research. Similar attitudes were demonstrated by Johanson's American respondents, who were also interested in taking up a university job and engaging in academic work [12].

A study concerning physiotherapy students' attitudes towards scientific research was also carried out among

American university students by B.H. Connolly, whose results reveal that students' awareness of the need to read scientific magazines and the ability of critical analysis of scientific tests increased significantly in the course of their university education [15]. The study by the present authors which analyzed the preparation of Polish students to undertake research work showed that this variable was also influenced by the orientation of the school, as was the willingness to take up a university job. The students of medical universities were significantly better prepared in this regard than their PE and OU peers.

To summarise, it is necessary to keep in mind that the above findings concerning preparation for vocational work and high self-assessment of the students' knowledge and skills represent only a subjective opinion of the study group. The opinion has not been verified by the present authors using any objective measurement tools, such as tests of knowledge or tests of practical skills. Such verification was not possible due to the anonymous nature of the study. The authors will continue research among the same group of participants during their Master's degree studies, which may enable verification of the students' preparation for work in the profession as a vast majority of them commence work at this stage and their skills are confronted with employers' expectations.

## CONCLUSIONS

1. Students from schools representing all educational orientations were of high opinion of their knowledge and skills in the area of physiotherapy and its clinical applications that they had gained during their Bachelor-level studies but it is necessary to bear in mind that this was their subjective opinion that was not verified by any objective measurements.
2. The students' self-assessment differed in the area of general competences such as preparation for conducting research or physical fitness, which could have been influenced by the educational orientations of their university-level schools.
  - a. The students' plans concerning the domains of physiotherapy and clinical medicine in which they wished to pursue a career were associated with the traditional areas of application of physiotherapy and did not depend on the school's orientation.
  - b. Research on self-assessment of vocational preparation will be continued among the same students during their Master-level studies and after they have commenced their professional career in order to objectively verify the knowledge and skills acquired by them during their Bachelor-level degree programmes.

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