

JOANNA GOTLIB¹, DARIUSZ BIAŁOSZEWSKI², ANNA CABAK, KATARZYNA BARCZYK, ALEKSANDRA BAUER⁵, JOANNA GRZEGORCZYK⁶, WOJCIECH KUŁAK⁷, PIOTR MAJCHER⁸, OLGA NOWOTNY-CZUPRYNA⁹, MACIEJ PŁASZEWSKI¹⁰, KATARZYNA PROKOPOWICZ¹¹, JANUSZ SIERDZIŃSKI¹²

Zmiana postaw studentów fizjoterapii wobec współpracy w interdyscyplinarnym zespole medycznym

Change in physiotherapy students' attitudes towards cooperation in an interdisciplinary medical team

Streszczenie

Wstęp. Efektywna współpraca w zespole medycznym ma coraz większe znaczenie dla skutecznej ochrony zdrowia i życia pacjentów. Studenci kierunków medycznych rozpoczynają studia posiadając ugruntowany, zwykle stereotypowy obraz osób wykonujących wspomniane zawody. Obraz ten nie jest podczas studiów weryfikowany, lecz ugruntowywany, szczególnie poprzez obserwacje członków zespołów medycznych podczas pracy klinicznej.

Cel. Celem badań była analiza postrzegania współpracy w interdyscyplinarnym zespole medycznym w badanej grupie studentów, oraz porównanie postrzegania współpracy w interdyscyplinarnym zespole terapeutycznym w badanej grupie pomiędzy studentami I i III roku studiów uczelni medycznych (PM), uczelni o profilu wychowania fizycznego (PWF) oraz pozostałych uczelni (IP).

Material i metody. Badaniem objęto 1145 studentów 11 polskich uczelni o różnych profilach nauczania. Dobrowolne badania zostały przeprowadzone w tej samej grupie studentów dwukrotnie, podczas I i III roku studiów. Narzędziem badawczym był anonimowy, autorski, standaryzowany kwestionariusz (88 pytań). Analizę statystyczną (STATISTICA 9.0) przeprowadzono za pomocą nieparametrycznego testu statystycznego Chi-kwadrat (χ^2), $p < 0.05$.

Wyniki. Istotnie więcej ($p < 0.001$) studentów uczelni o wszystkich profilach podczas III roku studiów deklarowała, że status zawodu fizjoterapeuty jest równy statusowi zawodowemu lekarza. Większość studentów, reprezentujących uczelnie o różnych profilach kształcenia podczas I i III roku studiów deklarowała, że fizjoterapeuta powinien współpracować z lekarzem na zasadach partnerstwa, a studia nie wpłynęły na zmianę opinii studentów w tym obszarze.

Wnioski. Istnieje konieczność wprowadzenia do programów studiów związanych z medycyną w polskich uczelniach zagadnień dotyczących kształtowania przyszłych relacji interdyscyplinarnych, ze szczególnym uwzględnieniem kształcenia umiejętności komunikacji interpersonalnej w zespole medycznym. Program kształcenia interdyscyplinarnego powinien być dostosowywany również do potrzeb i możliwości konkretnych uczelni i kierunków studiów.

Abstract

Introduction. Effective collaboration within a medical team is playing an increasingly important role in ensuring a high level of service in health care. Students of medical degree programs perceive other medicine-related professionals in a predetermined, frequently stereotypical manner from the very beginning of their university education. University education, instead of verifying the image, reinforces it.

Aim. The objective of this study was to analyze the participants' perceptions of cooperation in an interdisciplinary medical team, and to compare the perception of this cooperation among first- and third-year students at medical universities (MS), universities of physical education (PE), and other university-level schools (OU).

Material and methods. The study involved 1145 students from 11 Polish university-level schools of different educational orientations. The same students were surveyed voluntarily on two occasions: during their first and third year of studies. The research tool was an anonymous standardised questionnaire designed by the authors (88 questions). The statistical analysis (STATISTICA 9.0) was conducted using the non-parametric chi-square (χ^2) test ($p < 0.05$).

Results. The students claimed significantly more frequently ($p < 0.001$) during the third year of their studies that the professional status of the physiotherapist was equal to that of the physician. The majority of the students declared that the physiotherapist should collaborate with the physician as a partner, with the university education not influencing the students' opinions in this regard.

Conclusions. It is necessary to complement the curricula of Polish medicine-related universities with courses serving the development of future interdisciplinary relations. The interdisciplinary training curriculum should be adapted to the needs and potentialities of individual university-level schools and degree programmes.

Słowa kluczowe: lekarz, pielęgniarka, fizjoterapeuta, opinie, studenci, interdyscyplinarny zespół terapeutyczny, praca zespołowa

Key words: physician, nurse, physiotherapist, opinions, students, interdisciplinary therapeutic team, team work

¹ Division of Teaching and Outcomes of Education, Faculty of Health Science, Warsaw Medical University

² Division of Rehabilitation, Department of Physiotherapy, 2nd Medical Faculty, Warsaw Medical University

³ University of Physical Education, Warsaw,

⁴ University School of Physical Education, Wrocław

⁵ College of Physiotherapy, Wrocław,

⁶ University of Rzeszów, ⁷ Białystok Medical University,

⁸ Division of Rehabilitation and Physiotherapy, Medical University of Lublin

⁹ Silesian Medical University, ¹⁰ College of Administration in Bielsko-Biala

¹¹ Olsztyn College, ¹² Division of Computer Technology in Medicine and Telemedicine, Warsaw Medical University

INTRODUCTION

Effective collaboration within a medical team is playing an increasingly important role in ensuring a high level of service in health care [1-3]. The importance of cooperation in a therapeutic team was emphasised in the 2008 Annual Report of the World Health Organisation [1]. Nonetheless, numerous authors exploring these issues indicate that the members of an interdisciplinary team will not collaborate with each other in the absence of reasons other than quality of patient care. While the issue of teamwork may represent a priority for governments and international organisations, its implementation depends on the attitudes of individual members of medical teams. One of the major barriers to effective cooperation is strict specialisation in skills and knowledge acquired during university education combined with perception of certain medicine-related professions as 'superior' to others. Such a situation requires members of medical teams to share their knowledge and experience in order to foster an atmosphere of partnership, which will optimise work both with patients and with other members of a therapeutic team. A further problem significantly impeding collaboration between the team members, as stressed in numerous papers, is that students of medical degree programs perceive other medicine-related professionals in a predetermined, frequently stereotypical manner from the very beginning of their university education. Most authors emphasise that the university education, instead of verifying the image, reinforces it, especially as students observe the attitudes displayed by teachers of individual professions and members of medical teams during in the clinical setting [1-3].

The education of physiotherapists in Poland takes place at three types of university-level schools: 1) medical universities, 2) universities of physical education and 3) university-level schools of orientations not connected with medicine or physical education [4-6].

The educational orientations in these three types of school differ considerably in terms of: educational traditions, teaching quality and various approaches to the subject of study, which may influence the perception of cooperation within an interdisciplinary medical team.

OBJECTIVE

The objective of this study was:

- to analyze the participants' perceptions of cooperation in an interdisciplinary medical team,
- to compare the perception of cooperation in an interdisciplinary medical team among first- and third-year students at medical universities (MS), universities of physical education (PE), and other university-level schools (OU).

MATERIAL AND METHODS

The study involved a total of 1145 students from 11 Polish university-level schools of different educational orientations offering programs in physiotherapy.

There were students from four medical universities

(MS), two universities of physical education (PE) and five of other educational orientations (OU). Participation in the study was voluntary. Surveys were distributed in all of the university-level schools during seminars. The research tool was an anonymous standardised questionnaire designed by the authors. It consisted of 4 parts and contained a total of 88 questions, with detailed instructions for responders regarding each question.

The same students were surveyed on two occasions.

Questionnaires were first distributed among the first-year students in October and November 2006, at the beginning of the first semester of their university education. The same students, now in their third year, were surveyed again in March and April 2009, during the last (6th) semester of their first-cycle studies.

In the first stage of the study, the exclusion criteria comprised having graduated from a vocational secondary school and holding a diploma of physiotherapy technician or massage technician.

In the second stage, students who had come to the university from other university-level schools and had not studied at the same institution since the first year were also excluded. Extramural students were also excluded.

The statistical analysis of the survey data was conducted using the Statsoft STATISTICA 9.0 programme (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 non-parametric chi-square (χ^2) test was used ($p < 0.05$).

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

RESULTS

Characteristics of the participants

Eventually, having considered all the exclusion criteria, 883 questionnaires were qualified for the analysis at the first stage of the study and 593 questionnaires at the second stage. The vast majority of the participants were women, who accounted for 74.97% (662 students), while men constituted 25.02% (221 students). The mean age of the study group was 21.92 years. The detailed characteristics of the participants are presented in the table below.

The participants' perception of the professional status of physiotherapists vs. physicians changed significantly between the first and the third year of studies.

Students of MS, PE and OU alike claimed significantly more frequently during the third year of their studies that the professional status of the physiotherapist was equal to that of the physician (Table 2). In the group of MS students, participants declared that the professional status of the physiotherapist was higher than that of the physician significantly less frequently during the third year of their studies. The detailed data on the students' opinions concerning their perception of the professional status of physiotherapists vs. physicians are presented in Table 2.

The next part of the questionnaire contained questions about the students' perception of the professional status of physiotherapists vs. that of nurses. The opinions of the

TABLE 1. The number of students representing university-level schools of different educational orientations at the first and second stage of the study.

School orientation	School name	Number of questionnaires qualified for statistical analysis			
		1st stage of study		2nd stage of study	
		Number of students	Number of students representing schools of different orientations	Number of students	Number of students representing schools of different orientations
Medical Universities (MS)	Silesian Medical University (SMU)	64	MS= 215	46	MS= 160
	Warsaw Medical University (WMU)	80		74	
	Białystok Medical University (BMU)	43		25	
	Lublin Medical University (LMU)	28		15	
Universities of physical education (PE)	University of Physical Education, Warsaw (UPEWa)	42	PE = 143	53	PE = 128
	University School of Physical Education, Wrocław (UPEWr)	101		75	
Other universities (OU)	Olsztyn College (OC)	206	OU = 525	85	OU = 305
	Puławy College (PC)	30		-	
	College of Administration in Bielsko-Biała (CA)	46		62	
	College of Physiotherapy, Wrocław (CP)	162		78	
	University of Rzeszów (UR)	81		80	
Total:		883		593	

TABLE 2. Study participants' opinions about the professional status of physiotherapists vs. physicians - differences between the opinions of students representing university level schools of different educational orientations during the first and third year of studies.

The professional status of the physiotherapist is:	School orientation	Percentage of students %	Percentage of students %	Chi-square; p
		Year 1	Year 3	
equal to that of the physician	all students	3%	15%	159.57; p<0.001
	MS	-	24%	177.01; p<0.001
	PE	-	10%	127.54; p<0.001
	OU	3%	6%	56.81; p<0.001
higher than that of the physician	all students	7%	2%	5.26; p<0.0218
	MS	8%	1%	10.05; p<0.001
	PE	6%	4%	1.12; p<0.289 (NS)
	OU	7%	6%	0.12; p<0.962 (NS)
lower than that of the physician	all students	86%	51%	24.54; p<0.001
	MS	84%	46%	33.67 p<0.001
	PE	90%	64%	39.01 p<0.001
	OU	86%	46%	21.01 p<0.001

MS – medical universities; PE – universities of physical education; OU – university-level schools of other educational orientations; Chi-square – value of the Chi-square test/ statistics; p – the level of statistical significance; NS – not statistically significant

TABLE 3. Study participants' opinions about the professional status of physiotherapists vs. nurses - differences between the opinions of students representing university level schools of different educational orientations during the first and third year of studies.

The professional status of the physiotherapist is:	School orientation	Percentage of students % Year 1	Percentage of students % Year 3	Chi-square; p
equal to that of the nurse	all students	19%	9%	20.56; p<0.001
	MS	24%	3%	13.16; p<0.001
	PE	13%	3%	0.14; p<0.704 (NS)
	OU	18%	6%	13.09; p<0.001
higher than that of the nurse	all students	70%	35%	49.41; p<0.001
	MS	68%	31%	26.90; p<0.001
	PE	0%	65%	13.88; p<0.001
	OU	69%	28%	3.67; p<0.055
lower than that of the nurse	all students	8%	3%	21.01; p<0.001
	MS	7%	6%	1.72; p<0.189 (NS)
	PE	7%	2%	150.94; p<0.001
	OU	3%	6%	18.36; p<0.001

MS – medical universities; PE – universities of physical education; OU – university-level schools of other educational orientations;
Chi-square – value of the Chi-square test/statistics; p – the level of statistical significance; NS – not statistically significant

Table 4. Study participants' opinions about the expected form of collaboration between the physiotherapist and the physician - differences between the opinions of students representing university level schools of different educational orientations during the first and third year of studies.

In his/her work, the physiotherapist should:	School orientation	Percentage of students % Year 1	Percentage of students % Year 3	Chi-square; p
collaborate with the physician as with a partner	all students	93%	92%	1.23; p<0.678 (NS)
	MS	95%	71%	2.56; p<0.890 (NS)
	PE	95%	84%	1.26; p<0.090 (NS)
	OU	92%	82%	1.71; p<0.713 (NS)
enjoy complete freedom in working with patients, without regard for a physician's recommendations	all students	4%	3%	1.01; p<0.913 (NS)
	MS	6%	4%	2.78; p<0.619 (NS)
	PE	7%	4%	1.45; p<0.775 (NS)
	OU	4%	3%	1.95; p<0.325 (NS)
fulfil a physician's recommendations only	all students	2%	4%	2.11; p<0.639 (NS)
	MS	-	2%	1.44; p<0.703 (NS)
	PE	3%	6%	1.07; p<0.901 (NS)
	OU	4%	7%	1.91; p<0.622 (NS)

MS – medical universities; PE – universities of physical education; OU – university-level schools of other educational orientations;
Chi-square – value of the Chi-square test/statistics; p – the level of statistical significance; NS – not statistically significant

participants changed significantly between the first and the third year of studies.

A significantly larger number of MS students and a significantly smaller proportion of OU students claimed that the professional status of the physiotherapist was equal to that of the nurse. MS students claimed that the professional status of the physiotherapist was higher than that of the nurse considerably less frequently during the third than the first year of their studies, while a contrary trend could be observed among OU students. The number of PE participants believing that the professional status of the physiotherapist was lower than that of the nurse decreased significantly between the first and third year of their studies, while the opposite was true for OU students. The detailed results are presented in Table 3.

The vast majority of students representing university-level schools of different educational orientations declared, both in the third and in the first year, that the physiotherapist should collaborate with the physician as a partner, with the university education not influencing the students' opinions in this regard. The detailed data on the participants' replies concerning the expected form of collaboration between the physiotherapist and the physician are presented in Table 4.

DISCUSSION

The results of this study, concerning the place of the physiotherapist in a medical team, clearly indicate lack of appropriate attitudes towards cooperation within an interdisciplinary team. The above finding seems alarming, not least since effective collaboration between the members of such teams is a prerequisite for ensuring a high level of service in health care. The subject has been widely discussed in the world literature (EMBASE, PubMed/MEDLINE, ProQuest, SCOPUS, Global Health) and the results of the research performed for the purposes of this paper are generally compatible with those presented in foreign publications [1-15].

The available Polish literature did not include publications comparing attitudes towards the physiotherapist profession between students from university-level schools of different educational orientations other than publications of this study's author, the present paper constitutes an innovative contribution [2, 3].

The school orientation did not influence the students' perception of the physiotherapist's position in relation to the other medical professionals in a treatment team in any of the study groups.

Participants from all of the study groups believed that the professional status of the physiotherapist was lower than that of the physician and, although this opinion was still held by a majority of the students during the second phase of the survey, the change between the first and the third year of studies was statistically significant. In their first year of university-level education, the vast majority of the study group declared that the professional status of the physiotherapist was lower than that of the physician, while in the third year the number of respondents perceiving the statuses of the two professions as equal significantly increased. The above results may represent a kind of wishful thinking but also an expectation of good collaboration between the physician and the physiotherapist.

It should also be noted that the opinion on the physiotherapist's having a considerably higher status than that of the physician changed very significantly only among MS students. While in their first year of studies a considerable group of MS students claimed that the physiotherapist enjoyed a higher professional status than the physician, their university studies strongly influenced their views and considerably fewer participants in their third year were of that opinion.

The results suggest that the studies reduced differences in the perception of the professional status of physiotherapists and physicians. This attitude could have resulted from the students becoming convinced that physiotherapy is a medical profession and, consequently, believing in equality of professional status. Additionally, as already mentioned, it may be an effect of the students' wishful thinking and perception of the expected cooperation between the above-mentioned members of a treatment team. This hypothesis may be supported by the participants' expectations concerning the terms of collaboration between the physician and the physiotherapist. The vast majority of respondents in all study groups representing university-level schools of different orientations claimed, during both the first and the third year of their studies, that the physiotherapist and the physicians should cooperate as partners. If the students displayed corresponding attitudes towards all the other members of a therapeutic team, it would be a very positive finding representing evidence that the training system in university-level schools of different orientations had fostered an appropriate attitude to collaboration in a medical team. Unfortunately, this hypothesis is challenged by the students' opinion on the professional status of physiotherapists vs. nurses. In all of the groups, the number of respondents perceiving the professional statuses of physiotherapists and nurses as equal significantly decreased between the first and the third year of studies, while the proportion of students viewing the status of the physiotherapist as higher than that of the nurse considerably increased.

The prevailing opinion in the vast majority of the foreign publications is that relations in medical teams are hierarchical [1-15]. This is particularly demonstrated by the lack of partnership between the physician, who is typically placed at the top of the professional hierarchy in medicine, and the other members of a therapeutic team. According to the publications, students tend to already have a predetermined, usually stereotypical, image of medical professionals when they begin university-level education in medicine-related fields [4-15]. As a rule, university education, instead of providing opportunities for verifying the stereotype, reinforces it. For this reason, papers frequently emphasise the need to complement curricula with subjects related to interdisciplinary training in medical professions in order to verify the stereotypes and promote partnership relations among members of a therapeutic team right from the beginning of training in the different medical professions [1-15].

Foreign studies represent two analytical approaches. Some authors analyse only the perception of professional interrelations among students of different medicine-related degree programmes [4-9]. The majority of researchers, however, focus on analysing changes in attitudes towards work in an interdisciplinary team as a result of participation in various courses and workshops aiming to develop and improve relations in a therapeutic team [10-15].

The outcomes of the studies representing both approaches confirm our conclusions concerning differences in the perception of particular medical professions by students and health care workers. The prevailing view in the majority of studies is that of the physician at the top and the nurse at the bottom of the medical hierarchy [1, 4-15].

According to the survey conducted by Rudland among first year students of university-level medical schools, the respondents believed that the professional status of the physician was considerably higher than that of the nurse [14]. The participants claimed that nurses had significantly lower competences and professional status than physicians [14]. Nurses were perceived as more caring than physicians, who in turn came across as keeping their distance. Hean obtained similar results in a study enrolling 1200 first-year students of 10 medicine-related degree programs [8]. Students perceived physicians as decision-makers playing the role of the leader in a medical team, while nurses were believed to have superior interpersonal skills. Turner, who investigated the perception of the physiotherapist's professional prestige in a sample of 258 students in the first year of their Bachelor-degree programs, compared 12 occupations (physician, judge, physiotherapist, solicitor, chiropractor, architect, nurse, policeman, mechanic, bartender, postman and cleaner) taking into account 6 factors: level of education and necessity of continuous learning, income, social status, responsibility, usefulness and proportion of women among the practitioners [15]. Each occupation was rated on a scale of 1-6, where 1 marked a particular factor as the least useful and 6 as the most useful for description of the profession. The results obtained by Turner confirm that the students classified the physician as associated with the highest level of education and the greatest need for continuous learning, while the nurse was listed 6th, i.e. last, in this respect [15].

As regards the professional status of the physiotherapist, most of the foreign studies found that students had quite a high opinion of physiotherapists due to various characteristics of the occupation.

The students surveyed by Turner classified the physiotherapist in the third place among the 12 occupations (mean: 5.7) with respect to the level of education and necessity of continuous learning, after the physician and the judge [15]. However, in the opinion of the participants, physiotherapists did not earn a high income [5]. The profession was only listed sixth among the twelve professions with regard to the income level (mean: 4.6). On the other hand, the social status of the physiotherapist was rated high (mean: 5.1), putting physiotherapists in the 4th place, only after the physician, the judge and the solicitor. Respondents also viewed physiotherapists as responsible (mean: 5.3) and useful (mean: 3.4), ranking them 3rd for both categories, following the judge and the physician. As far as the proportion of women was concerned, the participants believed that physiotherapists were predominantly females: the occupation was ranked second in this respect, after nurses [15].

Dalley analysed how physiotherapists were perceived by nurses working in rehabilitation teams [7]. The interviews indicated that the nurses really appreciated the importance and competences of physiotherapists but felt these professionals did not sufficiently understand the role and tasks of nurses as

well as their autonomy in patients' rehabilitation. The latter conclusion was also confirmed by the above-cited results of Rudland, Hean and Turner concerning underestimation of nurses by the other members of a therapeutic team [8, 14, 15].

An interesting study on the perception of medical professionals was also conducted by Hind among 933 first-year students (350 students of nursing, 390 of pharmacy, 102 of physiotherapy and 24 of dietary science) [9]. The objective was to analyse the level of the students' identification with their profession and their readiness to undertake interdisciplinary training. The participants were asked to rate characteristics describing individual professions on a scale from 1 to 7. Students of dietary science (6.22) assessed their own communicative skills to be considerably higher than those of physiotherapy students (mean: 4.80 ± 1.23 , $p < 0.05$). The participants training to become physicians ($p < 0.01$), pharmacists ($p < 0.05$) and nurses ($p < 0.05$) perceived physicians as caring more frequently than physiotherapy students did. The prospective physicians ($p < 0.01$) and pharmacists ($p < 0.05$) believed significantly more frequently than physiotherapy students did that physicians displayed high communicative skills. On the other hand, the future pharmacists evaluated their own communicative skills significantly higher than those of the other medical professionals (physicians, dietary specialists, nurses, and physiotherapists). Another factor investigated in Hind's study was identification with the selected occupation. It was found to be the highest among physiotherapy students (mean: 4.81 ± 3.78) and the lowest among pharmacy students; these were the only two groups that significantly differed in this respect, with the prospective physiotherapists identifying themselves with their occupation more strongly than the future pharmacists ($p < 0.05$) [9].

It may be argued that the perception of one's own occupation as superior to those of other members of a therapeutic team, a trend often visible as early as the beginning of vocational education and later on during university studies, could be the most serious barrier to the formation of appropriate relations within the medical team. This factor was also stressed by Hean in his paper [8]. He points out that stereotypical perceptions of other members of a therapeutic team, which develop in students even before they commence their medicine-related training and become further reinforced during their university education as a result of disturbed relations, may represent the major source of difficulties in subsequent development of appropriate relations at the workplace.

The foreign papers indicate that the majority of students, regardless of their degree programme, would like to take part in workshops aiming to improve interpersonal skills in the medical team setting during their studies. The findings of the present study related to physiotherapy students' perceptions of their peers studying medicine and nursing, and vice versa, confirm this hypothesis. The findings have been translated into practice as a course on Interpersonal training for the purposes of physiotherapy was introduced to the curriculum of Warsaw Medical University in 2008, the first such course in Poland. The course is currently offered by the Division of Rehabilitation, Department of Physiotherapy, 2nd Medical Faculty of Warsaw Medical University in the third year of the Bachelor-degree programme and it is very popular with the students. It seems advisable to consider introducing

similar courses in all university-level schools training not only physiotherapists but also the other medicine-related professionals who, after graduation, will form part of the therapeutic team working with patients. Individual members of the team need to cooperate as partners who understand each other's tasks and roles. If they do, it will both enhance the effectiveness and quality of patient care and improve the atmosphere in the team.

CONCLUSIONS

1. It is necessary to complement the curricula of Polish medicine-related universities with courses serving the development of future interdisciplinary relations, with special emphasis on the skills of interpersonal communication in a medical team.
2. The issue should be addressed starting from the beginning of university-level education.
3. The interdisciplinary training curriculum should be adapted to the needs and potentialities of individual university-level schools and degree programmes. Moreover, it needs to be regularly re-evaluated to ensure optimal benefits from the work of an interdisciplinary team in the future.

REFERENCES

1. McCallin A, McCallin M. Factors influencing team working and strategies to facilitate successful collaborative teamwork. *NZ Journal of Physiotherapy* 2009;37(2):61-7.
2. Gotlib J, Białoszewski D, Lewandowska M, Doroszewski A, Durka M, Sopela M. Współpraca interdyscyplinarnego zespołu terapeutycznego-praca u podstaw czy idee- fixe?, w: Janowski K, Cudo A (editors). *Człowiek chory - Aspekty Biospołeczne*, t.2, Lublin 2009, 145-161.
3. Gotlib J, Białoszewski D, Cabak A, Barczyk K, Bauer A, Grzegorzczak J, Kulak W, Majcher P, Nowotny-Czupryna O, Płaszewski M, Prokopowicz K, Sierdziński J. Postrzeganie zawodu fizjoterapeuty przez studentów I roku studiów I stopnia polskich uczelni o różnych profilach kształcenia. *Fizjoterapia Polska* 2009;2(9):109-21.
4. Brehm B, Breen P, Brown B, Long L, Smith R, Wall A, Warren NS. An interdisciplinary approach to introducing professionalism. *Am J Pharm Educ*. 2006;15:81-4.
5. Chakraborti C, Boonyasai RT, Wright SM, Kern DE. A Systematic Review of Teamwork Training Interventions in Medical Student and Resident Education. *J Gen Intern Med*. 2008;23:846-53.
6. Cooper H, Spencer-Dawe E, McLean E. Beginning the process of teamwork: Design, implementation and evaluation of an inter-professional education intervention for first year undergraduate students. *J Interprof Care* 2005;19:492-508.
7. Dalley J, Sim J. Nurses' perceptions of physiotherapists as rehabilitation team members. *Clin Rehabil*. 2001;15:380-9.
8. Hean S, Clark JM, Adams K, Humphris D. Will opposites attract? Similarities and differences in students' perceptions of the stereotype profiles of other health and social care professional groups. *J Interprof Care*. 2006;20:162-81.
9. Hind M, Norman I, Cooper S, Gill E, Hilton R, Judd P, Jones SC. Interprofessional perceptions of health care students. *J Interprof Care* 2003;17:21-34.
10. Krautscheid LC. Improving communication among healthcare providers: preparing student nurses for practice. *Int J Nurs Educ Scholarsh* 2008;5:40-5.
11. Nadolski GJ, Bell MA, Brewer BB, Frankel RM, Cushing HE, Brokaw JJ. Evaluating the quality of interaction between medical students and nurses in a large teaching hospital. *Med Educ*. 2006;25:6-23.
12. Pedersen BD, Poulsen IK, Ringsted CV, Schroeder TV. Interprofessional communication and cooperation training in ward rounds for medical and nursing students: a pilot project. *Ugeskr laeger* 2006;25:2449-51.
13. Pollard KC, Miere ME, Gilchrist M, Sayers A. A comparison of interprofessional perceptions and working relationships among health and social care students: The results of a 3-year intervention. *Health Soc Care Community* 2006;14:541-52.
14. Rudland JR, Mires GJ. (2005). Characteristics of doctors and nurses as perceived by students entering medical school: implications for shared teaching. *Med Educ*. 2005;39:448-55.
15. Turner P. The occupational prestige of physiotherapy: perceptions of student physiotherapists in Australia. *Aust J Physiother*. 2001;47:191-7.

Informacje o Autorach

Mgr JOANNA GOTLIB – asystent, Zakład Dydaktyki i Efektów Kształcenia Wydziału Nauki o Zdrowiu Uniwersytetu Medycznego w Warszawie; dr n. med. DARIUSZ BIAŁOSZEWSKI – kierownik, Zakład Rehabilitacji Oddziału Fizjoterapii II Wydziału Lekarskiego Uniwersytetu Medycznego w Warszawie; dr n. med. ANNA CABAK – adiunkt, Akademia Wychowania Fizycznego w Warszawie; dr n. med. KATARZYNA BARCZYK – adiunkt, Akademia Wychowania Fizycznego we Wrocławiu; mgr ALEKSANDRA BAUER – asystent, Wyższa Szkoła Fizjoterapii we Wrocławiu; dr n. med. JOANNA GRZEGORCZYK – adiunkt, Uniwersytet Rzeszowski; dr hab. n. med. WOJCIECH KULAK – kierownik, Klinika Rehabilitacji Dziecięcego Szpitala Klinicznego, Uniwersytet Medyczny w Białymstoku; dr n. med. PIOTR MAJCHER – kierownik, Zakład Rehabilitacji i Fizjoterapii, Uniwersytet Medyczny w Lublinie; dr n. med. OLGA NOWOTNY-CZUPRYNA – kierownik, Zakład Kinezylogii, Śląski Uniwersytet Medyczny; dr n. med. MACIEJ PŁASZEWSKI – Dziekan Wydziału Fizjoterapii, Wyższa Szkoła Administracji w Bielsku Białej; mgr KATARZYNA PROKOPOWICZ – asystent, Olsztyńska Szkoła Wyższa; dr n. med. JANUSZ SIERDZIŃSKI – adiunkt, Zakład Informatyki Medycznej i Telemedycyny Uniwersytetu Medycznego w Warszawie

Adres do korespondencji:

Mgr Joanna Gotlib
Zakład Dydaktyki i Efektów Kształcenia, Wydział Nauki o Zdrowiu
Warszawski Uniwersytet Medyczny
ul. Żwirki i Wigury 61, 02-091 Warszawa
tel.: (22) 57 20 490, fax: (22) 57 20 491
e-mail: joanna.gotlib@wum.edu.pl