

# Metoda wartościowania wypowiedzi o kształceniu postaw studentów fizjoterapii na gruncie metaetyki

*Methodology of Assessing Certain Statements Regarding the Formation of Attitudes in Students of Physiotherapy, on the Basis of Metaethics*

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## Streszczenie

**Wstęp.** W fizjoterapii tak jak w przypadku innych zawodów medycznych oprócz zdobywania wiedzy i osiągania umiejętności zawodowych istotną rolę odgrywa etyka zawodowa.

**Cel pracy.** Celem pracy jest weryfikacja wypowiedzi studentów fizjoterapii o przedmiotach (dyscyplinach) humanistycznych, które powinny mieć wpływ na kształcenie postawy etycznej.

**Materiał i metodyka.** Materiał obejmował grupę 141 osób, będących studentami fizjoterapii. Badania zostały przeprowadzone w na przełomie 2015/2016 roku. Technikami badawczymi zastosowanymi w ramach tej pracy była ankieta. Do interpretacji wyników zastosowano test chi-kwadrat ( $\chi^2$ ).

**Wyniki.** Wyniki badań wskazują, iż istnieje przeciętna zależność pomiędzy przedmiotami humanistycznymi i ich wpływem na postawę etyczną. Uznanie wśród studentów fizjoterapii uzyskała psychologia oraz komunikacja interpersonalna. Stąd wynika, że przyczyną, która świadczy o braku wpływu przedmiotów humanistycznych na kształcenie postawy studentów fizjoterapii wobec pacjentów, jest brak komunikacji interpersonalnej, wymiennej, a tym samym nie eksponowanie wiedzy psychologicznej w komunikacji.

## Słowa kluczowe:

Fizjoterapia, etyka, komunikacja interpersonalna, psychologia, edukacja humanistyczna

## Abstract

**Introduction.** In physiotherapy, just like in the other medical professions, in addition to acquiring the actual knowledge and gaining the professional skills, the professional ethics is of major importance.

**Aim of the Study.** The aim of the study was to verify statements made by the physiotherapy students, regarding the humanities (academic disciplines), which should have an impact on formation of their ethical attitudes.

**Materials and Methods.** In the study participated a group of 141 persons who, at the time, were physiotherapy students. The study was carried out at the turn of 2015 and 2016. The research tool applied was a questionnaire. To interpret the results of the study, the chi-square test ( $\chi^2$ ) was used.

**Results.** The results of the survey show, that there is an average dependency between the humanistic disciplines and their impact on the attitude. Psychology, as well as interpersonal communication, have gained a high level of recognition among the physiotherapy students. Hence, the cause which testifies to the lack of impact of the humanistic disciplines on the formation of attitudes of the physiotherapy students toward their patients, is the lack of interpersonal communication, interchangeable, and therefore no emphasis on the knowledge of psychology during the process of communication.

## Key words:

Physiotherapy, ethics, interpersonal communication, psychology, humanistic education

## Introduction

In physiotherapy, just like in the other medical professions, in addition to acquiring the actual knowledge and gaining the professional skills, the professional ethics is of major importance, since it completes universal morality in many ways, first of all by concretizing the universal morality standards and adapting them to a specific social situation. Secondly, it determines needs, boundaries and objectives, in the cases of derogation from the standards of universal morality. Thirdly, it specifies ways and means of resolution of conflict between the standards of universal morality and the standards associated with the profession. And fourthly, it formulates the ideal, the concept of good, to which the specific professional group should aspire [1]. The physiotherapist, in the process of studying and learning the professional environment, forms his or her ethical attitude. Education should provide such an opportunity, considering the fact that it constitutes the fundamental human right and the universal value, it should be managed in the way encompassing the various aspects of education: learning to know, that is to gain the tools for understanding, learning to operate effectively, learning to live together, learning to be. In the process of academic education for medical professions, the most attention is being paid to the clinical disciplines, while the humanities: ethics, deontology, interpersonal communication, philosophy, psychology, pedagogics, sociology - all tend to be sometimes treated marginally, and the amount of time allotted for these matters is limited, permitting only to learn the theoretical basics [2]. When analyzing the educational program, it can be concluded that studies in the field of physiotherapy do not create the conditions, which would be sufficient to get to know the vast area of the ethical issues related to this profession, and to acquire the skills allowing to take on the specific ethical attitudes [3]. Still, it is the ethics, that leads among the diverse philosophical issues [4].

Ethics (in Greek 'ethos' means custom, habit; the Latin word would be 'moralis') is the branch of philosophy dealing with the issues of moral sources for criteria of human activities, such as: good, duty, conscience, virtue, goal [5, 6]. At least three distinct divisions of ethics can be listed, these are:

1. Normative ethics, or prescriptive ethics, which investigates the questions: how to live, what is the highest good, what is our responsibility, how should we act, what qualities and behavioral patterns foster happiness or minimize suffering. It focuses on values and ethical standards. Within the normative ethics there may be distinguished different philosophical systems. One can deliberate on the ethics of: Socrates, Aristotle, Kant, Christianity, Utilitarians, etc. [7].
2. Descriptive ethics, which explores, from different scientific points of view, the moral behavioral patterns, which are subordinated to the criteria of right and wrong, it deals with moral facts, evaluates and analyzes them. The descriptive ethics encompass such disciplines of knowledge, as: psychology of morality, which examines human motivations, attitudes etc.; sociology of morality, which deals with dependencies of data, their categories in relation to social conditions; anthropology of morality, etc. [8].

3. Metaethics (from Greek: 'meta' – outside, beyond; Greek: 'Ethos' - custom, habit) researches the epistemological status of ethical expressions (assessments, standards, etc.), as well as possibilities and means for their justification and verification, "Their qualification in relation to the truth and the relation of opinions about the facts to the expressions of the evaluating and the normative nature" [9].

#### Aim of the Study

The aim of the study was to verify statements made by the physiotherapy students, regarding the humanities (academic disciplines), which should have an impact on formation of their ethical attitudes.

#### Materials and Methods

##### Participants

In the research participated 141 persons, 119 women and 32 men, who were graduate students of physiotherapy, on the 1st year - 10 persons and on the 2nd year - 131 persons. The study was carried out at the turn of 2015 and 2016.

The age of the participants ranged between 22 and 26 years, the mean age  $\bar{x} = 24.1$ ; SD = 1.9; mean age for women  $\bar{x} = 23.04$ ; SD = 1.8, average age for men  $\bar{x} = 23.13$ ; SD = 1.9.

##### Research Method

The research technique in this study was a questionnaire, "The Desired Ethical Attitude and the Personality Traits of a Physiotherapist". Material subjected to the detailed analysis concerns the answers obtained for the 15th and the 16th question of the survey. These questions relate to the attitude of the students toward the humanistic disciplines, they are:

Humanistic disciplines	Definitely yes	Rather yes	Difficult to say	Rather not	Definitely not
Psychology					
Pedagogics					
Sociology					
Deontology					
Philosophy					
Interpersonal communication					
Ethics					

- Question No. 15, which humanistic disciplines are, in your opinion, important in forming
- Question No. 16, from your point of view, do the humanistic disciplines have an impact on forming your attitude toward patients?
  - o definitely yes
  - o rather yes
  - o difficult to say
  - o rather not
  - o definitely not

$$\chi^2 = \sum \frac{(f_o - f_s)^2}{f_s} \quad (1)$$

The method used to evaluate the results was the chi-square test ( $\chi^2$ ), in the form [10]:

where:

$f_o$  – frequency observed

$f_s$  – frequency expected

Frequencies expected  $f_s$ , have been obtained by multiplying the proper sums of rows by proper sums of frequencies in columns, and the products have been divided by the sum of frequencies resulting from the sums of rows or columns. The results have been recorded at the intersection of the corresponding row and column in the Table of the expected frequencies  $f_s$ . The convergence and the dependency of the appropriate frequencies obtained for the results, “definitely yes”, “rather yes”, “difficult to say”, “rather not”, “definitely not”, have been determined in the following way:

- if  $\chi^2 > \chi^2_{a,s}$  then there are dependencies between the test results,
  - if  $\chi^2 < \chi^2_{a,s}$  then there are convergences between the test results,
- s - the number of degrees of freedom (number of rows -1) (number of columns -1)

$$C = \sqrt{\frac{\chi^2}{\chi^2 + n}} \quad (2)$$

Type of dependency/convergence has been defined using the contingency coefficient in the form:

where:  $\chi^2$  – test of significance applied to compare the empirical result with the critical value  $t_{a,s}$ .

**Table 1. The maximum C values at various degrees of freedom**

Degrees of freedom	1	2	3	4	5	6	7	8	9	10	28
Maximum C values	0.707	0.816	0.866	0.894	0.913	0.926	0.935	0.943	0.949	0.954	0.982

The maximum C values at various degrees of freedom are shown in Table 1.

Each result obtained for C has been standardized, i.e. it has been divided by the corresponding result from Table 1. In such case the convergence and the dependency between the tested variables adopt values from within the range [0:1]. If the smallest depen-

dependency has been assigned the value of 0, and the largest one the value of 1, and the similar allocations have been made regarding the convergence, then the five degrees scale of convergence and dependency, expressed in words, looks as follows (Table 2).

**Table 2. Convergence and dependency between the tested values**

Dependency (expressed in words) $\chi^2 > \chi^2_{0.5}$	Ranges	Dependency (expressed in words) $\chi^2 < \chi^2_{0.5}$
very weak	[0 – 0.2)	very strong
weak	[0.2 – 0.4)	strong
average	[0.4 – 0.6)	average
strong	[0.6 – 0.8)	weak
very strong	[0.8 – 1]	very weak

### Results

In the study we have examined dependency/convergence of the results in regard to the knowledge of the students about the humanities (humanistic disciplines) based on their assessments. The empirical results ( $f_o$  – empirical results) of the students' answers to the survey questions contains the Table 3.

**Table 3. Empirical results of students' answers to the survey questions**

Discipline	Definitely yes	Rather yes	Difficult to say	Rather not	Definitely not	Total
Psychology	101	34	4	2	0	141
Pedagogics	65	42	16	18	0	141
Sociology	16	65	34	14	12	141
Deontology	25	35	66	2	9	141
Philosophy	5	19	42	37	38	141
Interpersonal communication	71	51	18	1	0	141
Ethics	52	55	15	13	6	141
Impact on the attitude toward patients	22	46	29	24	15	141
Total	357	347	224	111	80	1128

Table 4. Results expected ( $f_s$ )

Discipline	Definitely yes	Rather yes	Difficult to say	Rather not	Definitely not	Total
Psychology	44.98	43.72	28.23	13.99	10.08	141
Pedagogics	44.98	43.72	28.23	13.99	10.08	141
Sociology	44.98	43.72	28.23	13.99	10.08	141
Deontology	43.71	42.48	27.42	13.60	9.79	141
Philosophy	44.98	43.72	28.23	13.99	10.08	141
Interpersonal communication	44.98	43.72	28.23	13.99	10.08	141
Ethics	44.98	43.72	28.23	13.99	10.08	141
Impact on the attitude toward patients	43.39	42.17	27.22	13.50	9.72	141
Total	356.98 $\approx$ 357	346.97 $\approx$ 347	224	111	79.99 $\approx$ 80	1128

On the basis of the results in Tables 3 and 4, using the formula (1), there has been calculated the value of chi-square ( $\chi^2$ ), which amounted to:  $\chi^2 = 495.11$

When comparing with the critical value, there has been obtained:

$$\chi^2 = 495.11 > \chi^2_{0.01;28} = 56.893$$

Null hypothesis ( $H_0$ ) has been rejected, so there is a dependency between the humanistic disciplines and the students' assessments. The type of this dependency has been established by applying the formula (2).

The results have been:

$$C = \sqrt{\frac{495.11}{1614.11}} = 0.554$$

The last dependency has been cross-referred to the maximum value for C at 28 degrees of freedom, which equals 0.982 (Table 1). There has been obtained the so called C standardized ( $C_{std}$ ), specifically

$$C_{stand} = \frac{0.554}{0.982} = 0.564$$

Based on the Table 2, it has been determined, that there is an average dependency between the students' knowledge of the humanistic disciplines, on the basis of their assessments.

Which of the humanistic disciplines do have an impact on the average dependency? To answer this question, there has been introduced the operational definition, as the quotient of the  $\frac{f_o}{f_s}$ . Since the  $f_o$  is an empirical value, and the  $f_s$  is an expected value, then when:

$$f_o = f_s \Leftrightarrow \frac{f_o}{f_s} = 1$$

these values are equal, neither the trend to increase the  $f_o$  value, nor to decrease it may be determined.

The argument has been made: how far to the right and to the left the frequencies may deviate from the value of 1, for them to be regarded as uncertain. The basis were the critical values. The critical value at the confidence level of  $\alpha=0.001$ , at 28 degrees of freedom, equals:

From the geometric point of view, it can be imagined that this is an “area of square”, which contains 56.893 units. The side of such square has been calculated:

$$\chi^2_{0,01;28} = \sqrt{56.893} = 7.543$$

It is known, that if the calculated  $\chi^2$  is equal with the critical value, then the decision regarding the null hypothesis is being postponed and it is being stated, that the results are uncertain (random). Thus, the side of the “imaginary square”  $\chi = 7.543$  constitutes the pattern at the confidence level of  $\alpha=0.001$ , at 28 degrees of freedom, to which there have been cross-referred the uncertain values, in this case the value of 1. The results have been:

$$\frac{f_o}{f_s} = \frac{1}{7.54} = 0,13$$

Hence: if  $\frac{f_o}{f_s} \in [1 - 0,13; 1 + 0,13] = [0,87; 1,13]$ , then these numerals have been considered as uncertain in the average dependency for the empirical result of  $f_o$ .

This way three ranges have been created:

1.  $\frac{f_o}{f_s} > 1,13$  which means, that the empirical results have an impact on the specific dependency,
2.  $\frac{f_o}{f_s} \in [1 - 0,13; 1 + 0,13] = [0,87; 1,13]$  which means, that within the dependency a trend cannot be determined,
3.  $\frac{f_o}{f_s} < 0,87$  which means, that the empirical results do not have a significant impact on the specific dependency,

The above definitions have been used for interpretation of the results in Table 5.

**Table 5. The ratio of the corresponding empirical frequency  $f_o$  to the expected frequency  $f_s$**

Discipline	Definitely yes	Rather yes	Difficult to say	Rather not	Definitely not
Psychology	2.245	0.778	0.142	0.143	0
Pedagogics	1.445	0.961	0.567	1.287	0
Sociology	0.356	1.487	1.204	1.007	1.190
Deontology	0.572	0.824	2.407	0.143	0.919
Philosophy	0.111	0.434	1.484	2.645	3.70
Interpersonal communication	1.578	1.166	0.636	0.071	0
Ethics	1.156	1.258	0.531	0.929	0.595
Impact on the attitude toward patients	0.507	1.091	1.065	1.778	1.543



The results in Table 5 show, that the impact of humanistic disciplines on the students' ethical attitude toward patients is uncertain, because:

- the assessment "definitely yes" meets the definition 3, and "rather yes", "difficult to say" meet the definition 2, and therefore are unspecified, while the assessments "rather not" and "definitely not" meet the definition 1, from which we draw the conclusion, that the humanistic disciplines do not have an impact on the development of a positive attitude of students toward their patients.

The one exception is psychology, since the assessment "definitely yes" meets the definition 1, as assess the students, and therefore has a significant impact on the average dependence between the humanistic disciplines and the assessments.

Interpersonal communication has an impact on the average dependency in a positive sense, since the assessment "definitely yes" meets the definition 1 and is greater than the assessment "rather yes", which also meets the definition 1.

### Discussion

Formation of the sensitivity, ethical value of physiotherapists occurs in the social processes, in which the students participate, more or less knowingly. The ethical attitudes and behavioral patterns are being formed primarily in the working environment, and the ethical values may be implemented in certain conditions and in real situations [11]. The teaching of ethics, although it is a sine qua non, is by itself not sufficient, as in ethics really important is practice - "the words teach, examples attract". The students assess the ethics as an uncertain discipline in the process of forming the attitude, because the value of the assessment "definitely yes" has less value than the assessment "rather yes"  $1.156 < 1.258$  (Table 5).

The above deliberations show, that the humanistic disciplines should play a central role in the process of forming the proper attitude of students toward their patients [12]. Interpersonal communication should be of significant importance in mobilizing the students' personalities, through the psychological knowledge in relation to the content presented especially in teaching of ethics and philosophy [13, 14, 15, 16]. Pedagogics, in turn, should provide the appropriate methods for mobilizing in students their humanistic disciplines knowledge, so they could reveal their potential. The aim of these measures should be to form the proper attitude, characterized by a strong commitment, constant search for new methods of rehabilitation and striving to continue raising the level of qualifications [17].

### PATRONAT PTF



## VI OGÓLNOPOLSKA OLIMPIADA WIEDZY MŁODYCH FIZJOTERAPEUTÓW

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### Conclusions

1. The humanistic disciplines will fulfill their role in forming the proper ethical attitudes of the physiotherapy students, if:
  - a. there will be activated the “interpersonal communication” based on psychology of personality,
  - b. the reasoning will be based on the ideal utilitarianism, since the good consists the value which is spontaneous, cannot be reduced, and this idea will be taught via psychology of personality, pedagogics and ethics.

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