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# Motivations and the Level of Practicing Physical Activities by Physio-Kinetotherapy Students

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**Abstract:** (1) Background: The aim of the study was to identify the physical activity index of physio-kinetotherapy (PKT) students during the three years of study, as well as the motivation to practicing Physical Activity (PA); (2) Methods: The study comprised three groups of 84 students each, corresponding to the three years of study from the PKT specialization. The study included the survey method, using two questionnaires: Physical Activity Index (PAI) and Motives for Physical Activity Measure—Revised (MPAM-R). A factorial and correlation analysis was made between the three groups; (3) Results: The level of PA practice in all our study groups was between the low and the lowest indicator. The main motivations underlying PA are: enjoyment, competence/challenge, and fitness/health; (4) Conclusions: Future specialists in physio-kinetotherapy need extensive competencies in physical activity by optimizing intimate and extrinsic motivations. Extending the number of hours allocated to the physical education discipline within the university curriculum allows the person to form proactive behaviors.

**Keywords:** physical activity; motivations; kinetotherapy; physiotherapy; students

## 1. Introduction

Physiotherapists are health specialists with an educational role on patients to achieve health education, counseling on PA issues, motivation, and awareness of the benefits of active behaviors, etc. [1,2].

Recent studies have confirmed that physiotherapists should be models in PA practice in order to motivate and educate patients about the importance of a physically active lifestyle [3,4]. However, among physicians, physiotherapists are the most physically active, although according to Chevan et al., 2010, no study has described their PA habits, and in this context, our study focuses on the assessment of this aspect [5].

Knowing the motivations and the level of practicing physical activities by future physiotherapy specialists gives us a complete picture of the multidisciplinary educational aspects of applying theory to practice as a further concern for educating future patients.

Motivation theories have a considerably educational and practical role in promoting physical activity by attempting to highlight the behavioral changes of health professionals involved in prophylactic and therapeutic interventions [6,7].

Some authors [8,9] consider that health specialists should also be educated in prescribing and promoting PA because the current outlook on obesity, sedentarism, etc., requests a multidisciplinary approach.

At the basis of PA practice, there are many autonomous, intrinsic, and extrinsic motivations, depending on personal experiences, information, and goals, which are manifested in certain periods of time [10]. Through the specific activities adapted for prophylaxis and kinetherapy, it has promoted and optimized a correct and positive perception of: fitness level, health status, body image, self-esteem, etc. [11,12]. Several interdisciplinary scientific studies in medicine and physical activity have shown that the lack of physical activity has negative influences in particular on health, but can also influence the psychic, functional, social, and emotional human aspects [13–15].

The personal motivations are supported by certain necessities and needs. The social motivations aim at interpersonal relations with emphasis on affirmation of competences, belonging to certain social groups; the psychological ones contribute to healthy psychological development; those of autonomy that refer to the desire of the human being to organize his own experiences and behaviors [16–18].

The curriculum content should be updated to current trends in order to optimize the didactic process focusing on the extension of interdisciplinary competencies [19].

University curricula specific to physiotherapists in the health field especially focus on disciplines that develop professional clinical skills. Practical courses focused on the physical education of students are either enrolled in optional subjects, or in a semester with a small number of hours allocated or non-existent [20,21].

Practicing PA on a regular basis in the case of physiokinetherapists has a double purpose: a personal one manifested by proactivity, and a professional behavior in order to improve specific skills in a practical-methodical way.

In Romania, the PKT curriculum provides a limited number of disciplines in the Physical Activity (PA) field. For the first year of study there is a number of three disciplines with a component of physical activity from a total of 22 disciplines namely: Physical education 2 h/week and 1 h/week: Basic and compensatory gymnastics, and physical therapy in physical activities and sports. Paradoxically, students from the second and third years of study do not have any physical training discipline.

So far, there are no studies to analyze the curricular content specific to physiokinetherapy, and to what extent the content of physical disciplines offers sufficient competence to graduates, to be experts in the demonstration, application and knowledge of physical exercise [22]. According to the specialists [23] in the medical and motric education field, the most important objective is the development and diversification of prevention activities.

I have presented this situation as a starting point in the argumentation of the present study by highlighting the fact that the degree of practicing physical activity of physiokinetherapeutic students during the three years of study is considered to be low and insufficient for professional training [21].

The novelty of the study consists in correlating the level of knowledge and motric skills learned with the motivation to practice physical activities in order to form proactive behavior and professional prophylaxis skills and kinetherapists after each year of study.

The purpose of this study was to determine the motivation underpinning PA practice and its level of practice by physiokinetherapists during the three years of the bachelor study.

## 2. Materials and Methods

### 2.1. Participants and Data Collection

The research included a total number of 252 students from the 3-year bachelor's program, from physiokinetherapy (PKT), from the University of Medicine and Pharmacy from Tirgu Mures. The study comprised three groups of 84 students each, from each year of study, PKT 1: average age 19.31 years, average body mass index (BMI): 20.98; PKT2 with average age 20.38 years, average BMI 21.10, and PKT3 with an average age of 22.11 and an average BMI of 21.34. None of the participants in the

study performed professional sports. All participants in this study were volunteers. The application of the two questionnaires was carried out in the last two weeks of the second semester of the academic year 2016–2017, in all study groups. We used the Google Form to draw the questionnaires and we shared and collected the results from students by mails.

The sample consisted on: PKT1: 57 (67.85%) female and 24 (32.14%) males; PKT2: 49 (58.33%) female and 35 (41.67%) males; PKT3: 62 (73.81%) female and 22 (26.19%) males.

## 2.2. Tests Applied: Within the Study 2 Questionnaires Were Applied

### 2.2.1. PA Measures

The first questionnaire determined the PAI physical activity index [24], indicated the degree of participation of subjects in physical activities, and comprises three questions with four or five variants of response, focusing on the intensity of the effort made in the activities performed, the duration of the effort on the activity, and the frequency of participation. The evaluation was based on the answers given by entering the value of the given answer for each question in the following formula:  $PAI = \text{intensity} \times \text{duration} \times \text{frequency}$ . In this questionnaire the interpretation of the results is done according to Table 1.

**Table 1.** Characterization and interpretation of physical activity index (PAI).

Score	Characterization	Physical Activity Category
80–100	Very active lifestyle	Superior
60–80	Active and healthy person	Very good
40–60	Acceptable	Reasonable
20–40	Insufficient active, relatively sedentary	Weak
Below 20	Sedentary	Very weak

The first parameter of PAI—Intensity, included five variants of response, ranging from “light efforts such as fishing or walking” to “physical activity leading to significant acceleration of breathing (panting), and to relatively abundant sweating.” The second parameter of PAI—Duration included four items: practice time per lesson, from 10 min to over 30 min. The last parameter of the PAI—Frequency of PA practice consisted of five items, with variants of “daily or almost daily”, “several times a month” and “less than once a month” response.

### 2.2.2. MPAM-R Measures

The second questionnaire followed the extracurricular, motivational aspects of PA, Motives for Physical Activity Measure (MPAM-R), designed by Fredrick and Ryan [25]. The revisions have been validated by Ryan, Fredrick, Lipes, Rubio, and Sheldon [26]. The MPAM-R questionnaire comprises 30 items, grouped on five scales: Fitness, Appearance, Challenge/Competence, Social and Interest/Enjoyment. The 5-point Likert Scale: 1—nothing real to me and 5—really true was used to evaluate the MPAM-R questionnaire. The Fitness/Health scale included: the individual characteristics of physical condition, health, functional and motor skills. The Appearance Scale aimed at harmony and body aesthetics. The Challenge/Competencies Scale addresses personal aspects and perceptions of the cognition and self-denial of practicing physical activities by enhancing specific skills.

Affiliation to a group with similar interests was addressed in the Social Scale, and the moral-volitional and psychic aspects that arose from physical exercise, feelings of satisfaction and joy were addressed in the Interest/Enjoyment Scale.

The questionnaire was aimed particularly at people who practice physical activities and do not have as objective performance [25].

### 2.3. Data Analysis

The results were processed with IBM SPSS Statistics 20 (Armonk, NY, USA). The statistical indicators used were: arithmetic average ( $X$ ), standard deviation ( $SD$ ), student  $t$ -test ( $t$ ), Kolmogorov-Smirnov test ( $Z$ ), for  $p < 0.05$ . Person correlations ( $r$ ) define the relationships between the percentage values of the five domains.

### 3. Results

In this section are presented the most relevant results and descriptive information of the study on the relevance of PAI and the motivational aspects of involvement and participation in PA for the physiokinetotherapeutical students included in our study.

The Cronbach alpha values obtained were  $\alpha = 0.69$  for PAI and  $\alpha = 0.94$  for the entire MPAM-R scale, and for each study group, the following questionnaire obtained the following values: PKT1  $\alpha = 0.91$ , PKT2  $\alpha = 0.91$ , and at PKT3  $\alpha = 0.91$ .

Following the application of the PAI questionnaire, the following results were presented in Table 2.

**Table 2.** Statistical description of physical activity index results (PAI).

Group	No.	$X$	SD	Student Test		Kolmogorov-Smirnov	
				$t$	$p$	$Z$	$p$
PKT1	84	39.90	10.51	34.78	0.00	2.57	0.00
PKT2	84	42.26	8.57	45.16	0.00	2.45	0.00
PKT3	84	28.33	6.09	42.61	0.00	0.73	0.65

No.—number of subjects;  $X$ —Arithmetic average;  $SD$ —standard deviation;  $t$ -test— $t$ ;  $p < 0.05$ .

The differences in arithmetic average PAI between groups were as follows: between PKT2 and PKT1 2.23, between PKT2 and PKT3 13.92, and between PKT1 and PKT3 11.57. Referring to the evaluation grid, the group PKT1 and the group PKT3, is characterized by the qualitative insufficiency of active and relatively sedentary entering the category of practicing poor physical activities. Only the PKT2 group recorded a reasonable participation in the PA, and an acceptable attitude of the PAI.

The results of the MPAM-R questionnaire are presented in Table 3.

**Table 3.** Statistical description of the results of the Motives for Physical Activity Measure—Revised (MPAM-R) questionnaire.

Group	Index	No.	$X$	SD	Student Test		Kolmogorov-Smirnov	
					$t$	$p$	$Z$	$p$
Group 1 physiokinetotherapy (PKT1)	Enjoyment	84	4.74	1.24	34.93	0.00	1.87	0.00
	Competence/Challenger	84	4.42	1.03	39.37	0.00	1.15	0.14
	Appearance	84	5.49	1.10	45.73	0.00	2.09	0.00
	Fitness/Health	84	5.76	1.12	47.09	0.00	1.87	0.00
Group 2 physiokinetotherapy (PKT2)	Social	84	4.25	1.39	28.01	0.00	0.96	0.31
	Enjoyment	84	4.77	1.18	37.07	0.00	1.56	0.01
	Competence/Challenger	84	4.44	0.99	40.89	0.00	1.14	0.14
	Appearance	84	5.51	1.09	46.21	0.00	2.07	0.00
Group 3 physiokinetotherapy (PKT3)	Fitness/Health	84	5.79	1.05	50.25	0.00	2.01	0.00
	Social	84	4.30	1.34	29.35	0.00	1.05	0.21
	Enjoyment	84	4.83	1.11	39.68	0.00	1.50	0.02
	Competence/Challenger	84	4.48	0.98	41.84	0.00	1.23	0.09
Group 3 physiokinetotherapy (PKT3)	Appearance	84	5.53	1.07	47.14	0.00	2.03	0.00
	Fitness/Health	84	5.82	1.02	51.97	0.00	2.04	0.00
Group 3 physiokinetotherapy (PKT3)	Social	84	4.37	1.29	30.89	0.00	0.93	0.35

No.—number of subjects;  $X$ —Arithmetic average;  $SD$ —standard deviation;  $t$ -test— $t$ ;  $p < 0.05$ .

The *t*-test results show that all the results of the questionnaire are statistically significant. As for the Kolmogorov-Smirnov test, Fitness/Health, Enjoyment, Appearance are statistically significant, and Social and Competence/Challenger are not statistically significant for  $p < 0.05$ .

The most important aspect that physiokinetherapeutical students took into account was Fitness/Health, which according to the results, the students of the third year had a difference of 0.02 of the arithmetic average, compared to the second year and the first year of 0.06. The second factor that mattered in motivating the practice of PA, for the young, is Appearance, which is very important at this age, as the PKT3 group recorded the highest value of the arithmetic average, with a difference of 0.02 compared to those in the PKT2 group and 0.03 for group PKT1. Enjoyment was best highlighted in third year students, with a difference in arithmetic average of 0.05 compared to second, and 0.09 compared to the first year of study. The fourth aspect, in the order of preference, was Competence/Challenger, which revealed a difference in the arithmetic averages of the third year compared to second and first of 0.04 and 0.06. The last aspect that influences PA participation is the Social one, where the PKT3 group compared to PKT2 and PKT1 recorded a higher value, with the difference in arithmetic average, 0.07 and respectively 0.12. In the Kolmogorov-Smirnov test distribution, at a  $p < 0.05$ , it was noticed that the null hypothesis was rejected, the data are not normally distributed to all three groups on the Enjoyment, Appearance, and Fitness/Health indicators.

To further highlight the motivational aspects, we further developed a correlation between the groups on each motivational index.

The correlation between the results of the groups for each motivational aspect was as follows: the PKT1 group had a significant correlation with the PKT2 group in all five motivational aspects, with values over 0.99; group PKT1 with the group PKT3, had a relatively weak correlation, in all motivational aspects, with values ranging from 0.42 to 0.50; the groups PKT2 and PKT3 showing poor correlation to all motivational aspects, with values ranging from 0.424 to 0.50. All correlations between groups and the motivational parameters were statistically significant for  $p < 0.01$  (Table 4).

**Table 4.** Centralized correlation between groups for the MPAM-R questionnaire.

Motivations	Enjoyment		Competence/Challenger		Appearance		Fitness/Health		Social	
	PKT2	PKT3	PKT2	PKT3	PKT2	PKT3	PKT2	PKT3	PKT2	PKT3
Group										
PKT1	0.99 **	0.43 **	0.99 **	0.50 **	0.99 **	0.43 **	0.99 **	0.48 **	0.99 **	0.42 **
PKT2	-	0.42 **	-	0.50 **	-	0.44 **	-	0.48 **	-	0.42 **

\*\* Correlation is significant at the 0.01 level (2-tailed).

#### 4. Discussion

Through our results, our study helped to identify aspects of PA attendance and motivation of physiokinetherapist students. The results of the study are in correlation with previous studies. The study highlighted the correlations between: the level of academic specialization, the PAI level, and the motivation to practice PA.

The possibility of evaluation, and valid and reliable observation of the behavioral changes in PA allows an optimal intervention in the direction of social, psychological, sanogenic, and well-being aspects [27].

The relatively low level of physical activity of PKT students in relation to the practical practitioners' demands, highlighted in our study, is confirmed by other studies. Studies on students from Exercise Science and Physiotherapy have shown a higher level compared to those in medicine and nursing, but a lower one according to future professional requirements, concluding that the material basis and university curricula are the main factors in the formation and modeling of proactive behavior [28,29]. A study led by Leal et al., in 2018 [30] aimed at assessing knowledge about sports science, and using physical exercise on 300 physiotherapist students after a specialization course on physiology of PA

efforts demonstrated that they did not have sufficient notions about this field. It was proposed to diversify the curriculum at the level of the license, and this research confirms our aspects and results.

The capacity of future physiokinetotherapists to become aware of the movement and form of physical exercise was also studied by Sirpa A et al., 2015, highlighting three perceptions of the quality of movement, namely: the practical experimentation, the forms and variety of the qualities of the movement, and its influence on professional development. From the point of view of PA practice, our research, in which physiokinetotherapist students need to experience themselves and to know the perceptions of the form of exercise, effort, etc. first of all, will be recommended to patients [7].

According to our study following the MPAM-R questionnaire, the most motivating aspect of practicing physical activity in all three groups was: Enjoyment, Appearance, and Fitness/Health. Further on, the Social and Competence/Challenger aspects do not occupy a relevant place between the motivations of physiokinetotherapeutic students to practice PA. Referring to the two aspects addressed in the present study, physiotherapeutical students from the third year had the best values for all the motivational aspects regarding PA practice, but correlating data with PAI, where they recorded the lowest score, we can state a discrepancy between motivation and practical applicability. The PKT2 group is complementary to the two aspects of PAI and PA motivation, and the PKT1 group students are more active without a proportionate motivation, due to practical curriculum disciplines aimed at physical exercise. According to our study, the Appearance and Social indices recorded low values, a fact confirmed in another study [31], which concluded that it is precisely these two indicators that set up the motivational profile of PA practice. Factors of improving quality of life and social interaction can be explained by the nature of our subjects who, due to life in the university, may have a number of opportunities to relate, and this may reduce awareness of social benefits due to PA practice [32].

On the basis of the motivations behind PA practice, a study conducted by Duda and Hall [17], by applying the MPAM-R questionnaire, finds that in the areas where education is conducted on the theoretical and practical objectives of PA, certain abilities such as sense of fun and the sense of competence, develops based on real and powerful intrinsic motivations. In our study, these aspects, Fitness/Health and Appearance, are best highlighted especially in the group from the second year of study at PKT1 and PKT2.

The motivational aspects contained in the questionnaires were validated in a study on the students from two universities, concluding that the socio-financial aspects are renowned in representing Competence/Challenger motivations [25]. Referring to our study, this motivational aspect of Competence/Challenger did not record good results, probably because PA is compulsory and free for PKT students.

Intrinsic goals are determined for autonomous reasons, and extrinsic goals follow controlled reasons [31,33]. Promoting and engaging in PA play a role in overcoming certain mental or aesthetic barriers that would lead to abandonment. Kondrič [34], found that the latent structure of motivation for student participation in sports contains six factors: socialization, popularity, fitness, and health, social status, sporting events, and relaxation through sport. Some authors [28,32,34] consider that the education process on physical exercise in students has a motivational structure that is defined by three motivational factors: enjoyment, body modeling to improve physical appearance, and socializing with friends.

Studies have shown that the most significant aspects of evaluations from the motivational perspective are psychological ones, satisfying certain basic needs, where physical activity can be a solution [6,35,36].

Limitations: Our study consisted of a reduced number of subjects, and the relatively short duration of the study could be extended to master studies. Some results were very high due to the fact that the students of study did not have a curriculum and an alternative experience as a comparative benchmark.

Strengths: Strengths of the study were assessment over all three years of PKT license studies, the complexity of the applied questionnaires, and the relevance of results and study findings.



## 5. Conclusions

The practice of physical activities in the sense of kinetoprophyllaxis requires, besides motric involvement, overcoming certain motivational barriers of: educational, physiological, psychic, and social order. The PA level of physiokinotherapy students is relatively low compared to the professional needs of prescribing physical exercise for prophylactic and therapeutic purposes, and proactive and proanagenic behavioral forms. The main motivation to practice PA by students at PKT was: Enjoyment, Fitness/Health, and Competence/Challenger, with the lowest motivational aspect being Social.

Expanding motivations and increasing the PA index to PKT students are real premises for expanding personal skills and promoting an active lifestyle with prophylactic connotations on quality of life and health.

The study found that at the level of third-year physiokinotherapist students, the PAI is lower, given the higher motivation level compared to the results of the students in the first two years of study. We believe that the disciplines provided in the academic curriculum for PKT, which involves physical exercise, which is at the basis of education and counseling in the practice of the PA, are too limited, restricting the formation of professional competencies in the field.

A study of specific behavioral habits related to physical activity in the workplace, the role of counselors in the prescription and practice of exercise, as a specialist in the medical field, with connotations on the increase of work capacity, is recommended. Future research will be able to focus on assessing other social, functional, and physical effects of PA practice.

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