Palestrica of the third millennium – Civilization and Sport
Vol. 16, no. 3, July-September 2015, 228–234

Factors involved in adherence to physical activity among Israeli physiotherapists
Factorii implicați în aderarea fizioterapeuților israelieni la activitatea fizică

Michal Azmon, Emilia Grosu
Faculty of Physical Education and Sport, "Babeş-Bolyai" University Cluj-Napoca

Abstract

Background. As professionals working in the field of health, physiotherapists (PT's) are in an excellent position to promote and educate physical activity (PA) in the many clients who come to them for physiotherapy, with problems that could be averted were they to lead a more active lifestyle.

Aims. 1) To identify the factors involved in adherence to PA among PT's in Israel. 2) To identify the connection between factors.

Methods. The population in this mixed-methods research were all officially certified PT's, who are active in their profession. The comparison was between two separate groups (group 1: adherence to PA; group 2: non-adherence to PA). Research tools were a close-ended questionnaire, physical tests and in-depth interviews.

Results. There was a positive correlation between the reasons for undertaking and adherence to PA, and also a positive correlation between the adherence and subjective reporting of leisure time PA (LTPA) and non-LTPA. There was a positive correlation between a sense of self-efficacy and adherence to PA and a positive correlation between age and adherence to PA. A positive correlation was also found between the objective state of health and adherence to PA, and finally, an insignificant correlation was found between adherence and some physical fitness data. More findings were that adherence to PA among PT's is characterized by a gap between their knowledge of the significance of PA and their actual engagement in this area.

Conclusions. The conceptual conclusions create a model that demonstrates the process of making a decision with regard to lifestyle change - and undertaking/adhering to PA among PT's. The process begins when a culture of adherence is created through the integration of three areas: social, value-based and behavioral. In addition, the combination of age, health status and PA (leisure time and during the day) and self-efficacy creates a synergy which leads to the creation of a culture of adherence to PA.

Key words: physical activity, physiotherapist, self-efficacy.

Rezumat

Premize. Profesioniştii care lucrează în domeniul sănătăţii, cum sunt fizioterapeuţii (PT), trebuie să fie într-o formă fizică deosebită, pentru a promova şi educa prin activitatea fizică (PA) diferiţii clienţi care merg la ei pentru fizioterapie. Problemele de sănătate ale fizioterapeuţilor ar putea fi evitate dacă aceştia ar avea un stil de viaţă mai activ.

Obiective. 1) Identificarea factorilor implicaţi în aderarea la activitatea fizică (PA) a fizioterapeuţilor (PT) din Israel; 2) Identificarea legăturii dintre aceşti factori.

Metode. Instrumentele de cercetare folosite au fost: chestionar închis, testele fizice şi interviurile aplicate.

Rezultate. Există o corelaţie pozitivă între motivele pentru începerea practicării activităţii fizice şi aderarea la activitatea fizică (PA) şi, de asemenea, o corelaţie pozitivă între aderenţă şi raportarea subiectivă a timpului liber PA (LTPA) şi non-LTPA. Există o corelaţie pozitivă între un sentiment de auto-eficacitate şi aderarea la PA şi o corelaţie pozitivă între vârstă şi aderarea la PA. A fost găsită o corelaţie pozitivă şi între starea obiectivă de sănătate şi aderarea la activitatea fizică (PA) şi, în final, o corelaţie nesemnificativă a fost găsită între aderenţă la activitatea fizică şi unele date ale fitness-ului fizic. De asemenea, aderarea la activitatea fizică (PA) printre fizioterapeuţi (PT) se caracterizează printr-un decalaj între cunoştinţele lor şi implicarea efectivă a acestora în acest domeniu.

Concluzii. Acestui studiu arată necesitatea creării unui model pentru fizioterapeuţi (PT), în vederea realizării unui stil de viaţă sănătos, prin practicarea activităţii fizice (PA). Acesta se poate realiza în momentul în care aderarea fizioterapeuţilor la activitatea fizică se realizează prin integrarea a trei domenii: social, bazat pe valori şi comportamental. În plus, combinaţia de vârstă, starea de sănătate şi activitate fizică (PA) în timpul liber şi auto-eficacitate creează o sinergie, care conduce la crearea unei culturi de practicării a activităţii fizice (PA).

Cuvinte cheie: activitate fizică, fizioterapeuţi, autoeficacitate.

Received: 2015, May 6; *Accepted for publication:* 2015, May 29;
Address for correspondence: Pandurilor Street, No.7, Cluj-Napoca, Romania
E-mail: emiliaflorina.grosu@gmail.com
Corresponding author: Michal Azmon, michal@hagymnasia.co.il

Copyright © 2010 by "Iuliu Haţieganu" University of Medicine and Pharmacy Publishing

Introduction

A well-known researcher in the field of Physical Activity (PA) made this statement. He called the world to consider seriously the phenomenon of a gradual and significant decrease in the level of PA within the population due to western lifestyle, and the severe implications of this phenomenon for public health, longevity and prevalence of chronic diseases.

The lack of PA is considered to be a significant contributor to the frequency of non-communicable diseases in Western countries, and a factor that is rising significantly in countries with low and middle income (Bauman et al., 2012).

The absence of PA is responsible for more than 3 million cases of deaths per year around the world (Pratt et al., 2012), with non-communicable diseases (as a result of physical inactivity) accounting for 60% of all cases of death worldwide, and for more than 80% of deaths in countries with a low to middle income per capita (Pratt et al., 2012). In epidemiological terms, there has been a change in calculating the economic burden of contagious diseases with that of non-communicable diseases (as a result of physical inactivity) in countries with low to moderate incomes, a process which was in the past characteristic of moderate-high incomes (Miranda et al., 2008).

Thus, it is important to understand which factors are connected with adherence to PA among PT's, so that they can serve as advocates of an active lifestyle for their clients (Shirley et al., 2010).

The public interest in halting this rising trend of physical inactivity is by treating the accompanying health risks: between 6-10% of deaths which are due to non-communicable diseases could be connected to the lack of PA, and this rate is even higher with reference to specific diseases such as arteriosclerosis (Lee et al., 2012).

The literature defines two types of PA: LTPA - Leisure time PA - defined in the literature as: "PA performed during exercise, recreation or any time other than those associated with one's regular occupation, housework or transportation" (Yu-Pei et al., 2011); NLTPA - Non-leisure time PA - PA that pertains to the daily routine activities such as mobility, cleaning the house, PA as part of one's job and so forth. NLTPA includes walking or cycling for transportation; occupational activity is PA performed at work, including housework.

PA among health professionals

Naturally, we expect people who engage in health, with the relevant education, to engage in PA at a rate that is significantly higher than that in the general population. Rogers et al. (2006) examined the percentage of those who meet WHO recommendations among internal medicine resident physicians and found that only 41% were physically active according to recommendations, concluding that most internal medicine resident physicians may not be adequate role models for promoting exercise adherence.

Further examination of PA among PT's was conducted by Chevan & Haskvitz (2010). This research found that the rate of those engaging in routine PA among PT's and students was 67%-72% compared to the general population rate, which was measured using the same measurement tools, evidencing that only 36% engaged in routine PA. Additionally, a study by Black et al. (2012), which examined the rate of PA among PT's and physiotherapy students in the U.S., found that 80% were routinely physically active, a finding that is relatively high compared to that of Chevan & Haskvitz (2010). This difference probably stems from the use of different questionnaires.

A review of studies in the field confirms the great importance of the influence of "health care providers" or by their other name "health professionals" on patients with regard to PA. Studies have yet to identify a particularly good way to promote PA among patients in the health system, but this research suggests that health care professionals can improve the situation in relation to PA by evaluating and encouraging patients regularly and routinely.

There are a number of recommendations for improving the relationship between health care providers and patients in the context of PA:

Firstly, attention should be paid to the training of health profession students on this issue because recommendations vary and are updated from time to time, and time and resources should be devoted to training after graduation. In addition, exercise evaluation and recommendations in this area, and evaluation of health professionals in their fields should be part of the examination. If part of a new patient's admission interview were to include questions in the field of PA, it would both serve as a reminder and would raise the importance of the issue.

In addition, it is important to inform health professionals on any development in their field of work in order to facilitate their patient referrals to activities tailored to their needs and inform the patient of the range of options available to him. Finally, patient time with a doctor is usually rather short, so there is room to develop frameworks in which the patient can receive comprehensive advice in the field of PA, in physical therapy, for instance. Hence it is important to examine this issue among PT's who spend a relatively long time with each patient compared to doctors.

Unfortunately, the number of people engaging in PA among health professionals in Israel has not yet been studied, and this research will be groundbreaking and will provide preliminary data on the percentage of PT's engaging in PA in Israel.

Definition of adherence to PA

An extensive review of the literature engaging in adherence to PA reveals that there is no uniform standard definition of adherence to leisure time PA as a function of time, but rather of adherence to recommendations for performance of PA.

This gap in knowledge led us to conduct this study, as the topic is still not clear enough and research is required in order to understand adherence to PA as a social phenomenon.

Huberty et al. (2008) defined women's adherence as medium-intensity PA of 150 minutes per week throughout the year. But is long-term PA that is shorter than the recommended time not considered adherence?

Additional research by Garmendia et al. (2013) defines adherence to PA as participation in 24 PA groups per year, meaning an average frequency of twice a month. Another

definition is that suggested by McAuley et al. (2007), the number of times that a person has trained in a three month period (the score is 0-36). In other words, maximum adherence is LTPA three times a week.

We can conclude that adherence to PA has different definitions, but what is important is the dimension of time rather than the intensity of the activity.

Quite a few reviews have attempted to examine the circumstances of adherence to PA. In the context of this research, it is important to discuss these factors because they can provide conceptual grounds for the research findings and help in understanding the phenomenon under investigation in the Israeli context.

Seven categories have been found to be linked to adherence to PA: 1) Demographic conditions - age, gender, ethnicity, and socioeconomic status. 2) Health factors - chronic diseases, poor health and excessive weight. 3) Cognitive and psychological factors - barriers to PA, lack of enjoyment of the activity, low expectations of the benefits of PA, poor mental health, a low sense of self-efficacy in the context of PA, low motivation for PA, lack of readiness to change, poor physical fitness. 4) Behavioral factors - PA in the past, smoking and type A character. 5) Social factors - lack of contacts in a group training together, lack of support and encouragement from the health care system, lack of social support of PA. 6) Factors related to the intervention program - high intensity of activity, duration of activity - too long. 7) Environmental factors - lack of access and low safety in the context of parks and sports facilities.

As professionals working in the field of health, PT's are in an excellent position to promote PA in the many clients who come to them for physiotherapy, with problems that could be averted were they to lead a more active lifestyle. Thus, it is important to understand which factors are connected with adherence in PT's, so that they can serve as advocates of an active lifestyle for their clients (Shirley, 2010).

Hypothesis

On this basis, 2 goals were set for the present study: 1) To identify the connection between factors for starting and adhering to PA among PT's in Israel; 2) To identify the factors involved in adherence to PA among PT's.

The present study seeks to contribute to existing knowledge regarding the factors for beginning and adhering to PA in general, by relating to the professional population, whose job entails a significant part in the promotion of a healthy lifestyle. Understanding the process, as it relates to PT's, can strengthen and deepen the process of change for instilling a healthy lifestyle among a much larger population. Consequently, 2 main areas were marked for this study: firstly, understanding the factors involved in undertaking PA, and secondly, understanding the factors involved in adhering to PA. Obviously, the picture based on the data in the present research does not presume to present a comprehensive overall picture, but rather only to gleam certain major insights and point out certain directions.

Material and methods

The approval of the Ethics Commission for conducting opinion research was obtained, as well as the informed consent of the participants in the study. Israeli physiotherapists, who are active in their profession, were divided into 2 groups: those adhering and those not adhering to physical activity.

Research protocol

a) Period and place of the research

The research was conducted between 2013-2014.

A mixed methods approach was chosen as the appropriate approach for this research, as it allows the researcher to maximize the possibilities for cooperation and interdisciplinary work so that future problems of the research goals can be averted. There is great importance in choosing the best way to combine qualitative and quantitative methods and there is a great challenge in combining the two methods (Creswell & Plano Clark, 2007).

b) Subjects and groups

The quantitative section of this research included a closed questionnaire and physical fitness tests: The structured questionnaire was anonymous and close-ended, and was sent online to approximately 600 PT's in Israel.

The purpose of the questionnaire was to gather data in the area of PA, adherence, self-efficacy and demographic details about the respondents. This questionnaire provided quantitative data for both research questions at the same time: the connection between the factors for starting PA and then adhering to it, and the factors involved in adhering to PA among PT's in Israel.

c) Tests applied

Physical fitness tests were performed on approximately 100 participants, with the aim of examining the connection between adherence to PA and physical fitness. The physical fitness tests included:

- Tecumseh Step Test (a multiple choice sub-maximal aerobic fitness test);
- a HGST test (Hand Grip Strength Test);
- resting-pulse, weight, and height tests

All of the above tests are valid and reliable physical fitness tests for use in the field.

After completing quantitative data collection, the collection of qualitative data was initiated by conducting in-depth interviews with approximately 30 PT's.

The qualitative research part was based on semi-structured in-depth interviews, which enabled the systematic study of topics and questions considered important and central to the research, on the one hand, and on the other hand, the construction of categories and concepts emerging from the field itself, with maximal openness to additional components and points that the researcher did not anticipate. Understanding the context and the circumstances which led to undertaking and adhering to PA in contrast with other areas of life that require adherence (studies, work, marital status, etc.) necessitates the examination of different aspects in the personal context. These data can provide a full picture for understanding the process of adherence and all that is associated with it in the field of PA (Table I, mixed methods research).

d) Statistical processing

Statistical processing was performed using the Excel application (Microsoft Office 2007), with the StatsDirect v.2.7.2 program.

Table I

Summary of the research design: mixed methods research.

Stages	Aim	Research Tool	Sources of Information / Research Population
Stage 1: Quantitative Research	The connection between the causes of undertaking PA and adherence, and causes of adherence among PT's in Israel	1. PA and adherence questionnaire	Existing diagnostic tools adjusted to the current research were administered to about 1300 PT's
		2. Physical fitness tests	Existing diagnostic tools examined some 100 PT's
Stage 2: Qualitative Research	Deepening the knowledge and understanding of the circumstances that influence undertaking PA and adherence to it	Semi-structured interviews	Structured interviews with 30 PT's.
Statistical analysis which will help understand the causes of undertaking PA and adhering to it among PT's in Israel			

Results

The main socio-demographic data of the research are presented below in Table I.

The adherence variable is a continuous variable which was calculated as the average number of minutes of PA per week in the last month multiplied by the number of months of activity times (Table II).

Table II

Socio-demographic data obtained from the questionnaires.

Variable	Items	N	%	M	SD
Adherence – Dichotomy	Non-Adhering	58	18.5		
	Adhering	256	81.5		
Gender	Male	81	25.6		
	Female	236	74.4		
Age	Up to 30	75	23.8	40.18	11.09
	31-45	140	44.4		
	46+	100	31.7		
Marital Status	Married/steady partner	176	80.0		
	Single	36	16.4		
	Divorced/ Widowed	8	3.6		
Place of Residence	Urban	219	69.5		
	Rural	85	27.0		
	Kibbutz	11	3.5		
Seniority in Physiotherapy	Up to 10 years	167	53.9	13.65	11.37
	11-20 years	64	20.6		
	21 + years	79	25.5		
Health Status in Last Month	Excellent	139	44.0		
	Very Good	125	39.6		
	Good	44	13.9		
	Medium	8	2.5		
A disease that limits PA	Yes	30	9.5		
	No	286	90.5		
Access to Sports Facilities	Not at all (0)	7	2.2	8.32	2.25
	Very Low (1-2)	6	1.9		
	Low (3-4)	7	2.2		
	Medium (5-6)	24	7.6		
	High (7-8)	91	28.8		
	Very High (9-10)	181	57.3		
Time of Aerobic Activity per Day	Less than 5 minutes	21	6.9		
	5-15 minutes	51	16.8		
	15-30 minutes	91	30.0		
	30-45 minutes	72	23.8		
	More than 45 minutes	68	22.4		
Minutes Activity per Week	Up to 50	24	9.1	169.58	96.27
	51-100	54	20.5		
	101-150	68	25.9		
	151-200	38	14.4		
	201-300	79	30.0		

This is how we calculated the total minutes a person engaged in PA (naturally, it is not exact, but rather an appraisal based on the participant's self-report), which was calculated as a *score*. An *adhering* participant was one who reported that he or she undertook PA and did not quit. Participants who reported undertaking PA and quitting, or those who had never been physically active were considered *non-adhering* (Table III).

The sample of the first part of this research evidenced that 81.5% adhered to PA, while 18.5% did not adhere to any specific PA. It is important to note that the adherence score did not divide the participants according to the types of PA, but rather in a dichotomous way: adhering or not adhering.

In terms of activity type, there were two main categories in this research: aerobic activity such as swimming, running and cycling, and anaerobic activities such as Yoga, Pilates, strengthening muscles and more (Table IV).

The following table presents the correlation between the reasons for undertaking PA and adherence.

Table IV

Pearson analysis between PA habits and adherence.

Indicator	Adherence	Variables				
		1	2	3	4	5
PA at Work: Objective	-.102					
PA at Work: Subjective	.079	-.406**				
PA Leisure: Objective	-.006	.092	-.050			
PA Leisure: Subjective	.236**	.019	.177**	-.415**		
Routine PA - NLTPA	.153*	.033	-.185**	.142*	-.215**	
Accessibility	.075	-.107	-.026	.216**	-.168**	.045

* $p < .05$. ** $p < .01$. *** $p < .001$

The research hypothesis regarding a positive correlation between the strength of the medical reason and adherence to PA was *refuted*. A non-significant negative correlation was found between the two. Nevertheless, a significant

Table III

Correlation between the reasons for undertaking PA and adherence.

Indicator	Adherence	Reasons						
		1	2	3	4	5	6	7
Recommendation/Medical problem	-.09							
Wish to lose weight	.36**	-.07						
Wish to look better	.57**	.13*	-.01					
Previous habit I recently quit	.16**	.17*	.17**	-.23**				
Social Reasons	.19**	.14*	.14*	.12*	-.09			
Through the workplace	.41**	.16**	.00	.11	.23**	-.05		
Practice towards competition	.35**	.30**	.14*	.07	.07	.01	-.05	
Setting an example for the children	.19**	.24**	.18**	.23**	.26**	.18**	.29**	.08

* p < .05 ** p < .01 *** p < .001

positive correlation was found between adherence and the "wish to lose weight" (Table V).

Table V
Pearson analysis between personality aspects and adherence.

Indicator	Ambition	Self-Efficacy	Adherence
Self-efficacy	.208**		
Ambition	.166*	.739**	
Sociability	.063	.168**	.120*

* $p < .05$. ** $p < .01$. *** $p < .001$

A significant positive correlation was found between adherence and the level of PA (NLTPA) ($p<.05$) - the more one is active during the day, the more one adheres to PA.

The table below presents the correlation between personality aspects of self-efficacy, ambition and sociability and adherence to PA.

The examination of the correlation between personality aspects and adherence yielded a significant positive correlation ($p<.01$) between a sense of self-efficacy and adherence as stated in the research hypothesis, "There is a positive correlation between one's sense of self-efficacy and the level of adherence to PA".

The following table depicts the correlation between age and Health 1 - objective aspect and adherence to PA.

Table VI
Pearson analysis between health and adherence.

Indicator	Adherence
Age	.233**
Health 1	.209**

* $p < .05$. ** $p < .01$. *** $p < .001$

There is a significant positive correlation ($p<.01$) between age and adherence to PA. This finding *confirms* the research hypothesis maintaining that "There is a positive relationship between age and the degree of adherence to PA", which means that adherence to PA improves with age (Table VI).

The figure below depicts the differences among the three age groups regarding adherence to PA, when physical fitness is good, but no direct and positive correlation was found between them.

Discussions

It was found that motivation for participation is *a complex outcome of personal, social and situational factors acting simultaneously*. Personal variables (such as personality traits, experience, role perception and more) mutually interact with contextual variables (such as opportunity, awareness, interaction with significant others) to create the intention to participate in the activity. These variables constitute the door or the *entrance* to the process of PA.

According to Table IV, we can see that except for the reason of "Recommendation/Medical problem", there is a positive correlation between the reasons listed above and adherence to PA. All correlations were found to be significant ($p<.01$), where the reasons "wish to look better", "wish to lose weight", "through the workplace", and "practice towards competition" were the most positively correlated compared to "social reasons", "previous habit I recently quit" and "setting an example for the children".

This model supports the findings of this research which show that aesthetic reasons (such as looking better, losing weight) as well as social reasons such as activity in the workplace or setting an achievement goal such as a competition – all motivate the decision to undertake PA. Sometimes the wish to lose weight disrupts PA due to a state of being overweight. The literature states that obesity is significantly associated with physical inactivity and poor health - Centers for Disease Control and Prevention, (***, 2007). For example, a study by Brownson et al. (2000) found that overweight women engaged in significantly less PA than women whose weight was within the norm. The complex relationship between reasons for undertaking PA and, eventually, for adhering to it (where adherence relates to continuing with the activity) depends on a number of previously mentioned psychological theories. According to the Theory of Planned Behavior (TPB), a person's intention is the prime and direct stimulus for adhering to an activity. Intention is influenced by people's views regarding activity, their abilities to enjoy it and their desire to learn new skills. That is to say that the more positive feelings experienced towards sporting activity, the greater the enjoyment that will be derived and the higher the desire and ability to adhere. This theory cannot fully explain the complexity of adherence, and one has to rely on Bandura's Social Cognitive Learning Theory.

An active lifestyle that does not necessarily relate to PA means living in a conscious state of activity. Movement and activity are part of our daily routine and do not require special effort; thus, the transition from NLTPA to LTPA can be natural. The distinction between the two types is crucial since the focus solely on LTPA often lowers the evaluation of PA among women who are very active in NLTPA - mostly in housework (Kandula & Lauderdale, 2005). In a particular population, for example immigrants, the reported level of LTPA is very low, whereas the level of NLTPA is relatively high. Another important concept related to PA described in the literature is *sedentary behavior*. Sedentary behavior is another aspect of the physical inactivity epidemic. The definition of this concept is the amount of time a person spends sitting per day. Similarly to PA, sedentary behavior takes place in a number of settings during the day: for example at work, during leisure watching television, surfing the Internet, social gatherings, etc.

In summary, it can be seen that the examination of the reasons for undertaking PA yielded significant differences between the group of those who adhere to PA and those who do not regarding some of the reasons for undertaking PA; with regard to the correlation between the reasons for undertaking PA and adherence, positive correlations were obtained between the reasons "wish to look better", "wish to lose weight", "through the workplace" and "practice toward competition". In other words, the more the professional seeks to improve his or her appearance, the more he or she will engage in PA, etc. These findings confirm the research hypotheses regarding the positive correlation between the wish to lose weight and adhering to PA as well as between social reasons and adherence.

Sedentary behavior is expressed not only at work, but

also in leisure activities and comes at the expense of daily PA; for instance, using a car instead of riding a bicycle, taking the elevator instead of the stairs, prolonged sitting in front of a computer, shopping online instead of going to the supermarket, using a robotic vacuum cleaner instead of sweeping the floor, and more. In light of the above, the thought arises whether encouraging PA in daily life can lead to adherence to leisure time PA. Perhaps an active, not necessarily sporting lifestyle, allows for and reduces fear of sporting PA, enhances the sense of self-efficacy and improves adherence.

Self-efficacy is a person's belief in his/her ability to perform a specific task. Self-efficacy is based on one's expectations regarding one's capabilities (Bandura, 1994). Bandura listed four different ways where self-efficacy influences human performance:

1) The cognitive process or the processes which are expressed in the process of "acquisition, organization and use of information". 2) Self-efficacy strongly influences the process of motivation, such as in the case of setting goals, developing strategies and appraising and adjusting different goals. 3) The third way is the additional psychological process which is influenced by self-efficacy called "Affective Process", which regulates such feelings as anxiety or depression (Bandura, 1994). 4) The last process discussed by Bandura is the process of choice.

In summary of the interview analysis and congruently with the research hypotheses, it can be stated that adherence to PA among PT's is characterized by a gap between their knowledge of the significance of PA and their actual engagement in this area. Also, causes of undertaking PA and adherence to PA among PT's are influenced by extrinsic motivation, but intrinsic motivation has a greater effect on adherence to PA. Finally, adherence to PA among PT's can improve.

There are many factors that influence the connection between self-efficacy and adherence including enjoyment, which was a recurring theme in interviews with professionals and on which I expanded in the chapter dealing with qualitative findings.

In addition, the findings of the present research correlate with Bandura's conclusions (Bandura, 1977; Bandura, 1994). Bandura found that a person with a high self-efficacy has a better ability to cope with difficulties and succeed in meeting different challenges. Additional research in this area conducted by Hagger et al. (2001) also reinforces these findings, and adds that not only is self-efficacy positively connected to the level of PA, but it also correlates positively with active participation. In other words, the influence is in decreasing the negative attitude towards PA. All these studies can be connected to Bandura's theory maintaining that a high sense of self-efficacy helps overcome barriers and difficulties. For instance, a common barrier to engaging in PA is a low socioeconomic status. Kloek et al. (2006) examined how this barrier can be overcome so as to take part in PA frameworks. Among all the factors that were examined, it was found that self-efficacy plays a most significant role and the higher the sense of self-efficacy, the higher the rate of participation. In other words, self-efficacy is the key for helping people with low socioeconomic status to overcome the barrier and take part in regular PA.

Creating a culture of adherence in physical activity among PT's is a process that is made up of a number of factors responsible for undertaking and adhering to PA.

The process begins when a culture of adherence is created through the integration of three areas: social, value-based and behavioral. In addition, the combination of age, health status and PA (leisure time and during the day) and self-efficacy creates a synergy which leads to the creation of a culture of adherence to PA. The CAPA Model describes all of the above.

This model demonstrates the process of making a decision with regard to lifestyle change - and undertaking PA among PT's. The reasons for undertaking PA are social and/or value-based and/or behavioral such as Recommendation/Medical problem, Desire to lose weight, Desire to look better, Previous habit I recently quit, Social reason, Through the workplace, Practice for a competition and more. In order to adhere to PA, factors related to adherence are considered: NLTPA, LTPA, health status, age, and self-efficacy. Two areas which were not found to influence adherence in this research are physical fitness and knowledge - awareness of the importance of PA among professionals.

Conclusions

1. The connection between reasons for undertaking and adherence to PA pertains to a complexity of aspects involving social, value-related and behavioral factors.
2. Moreover, it seems that adherence to PA is directly and positively connected to the extent to which one dedicates time to LTPA.
3. This positive correlation derives from positive feelings of pleasure, success and high self-efficacy. Also, adherence to PA is directly and positively connected to the extent to which one dedicates time to NLTPA. The discussion of the qualitative findings shows that adherence to PA among PT's is characterized by a gap between their knowledge of the significance of PA and their actual engagement in this area.
4. Additionally, causes of undertaking PA and adherence to PA among PT's are influenced by extrinsic motivation, but intrinsic motivation has a greater effect on adherence to PA. Moreover, adherence to PA among PT's is influenced by barriers that are agreed upon in the literature and pertain to the overall population.
5. Furthermore, adherence to PA among PT's can improve when physical fitness is good, but no direct and positive correlation was found between them.
6. No significant correlation was found in the attempt to examine whether there was a correlation between adherence and some physical data, but there was an apparent negative correlation in most tests, which is reasonable, as the longer one adheres to PA, the more likely it is that the resting heart rate will be lower. The same is true for BMI and more.

Conflicts of interest
There are no conflicts of interest.

Acknowledgement

This paper uses partial results from the first author's ongoing PhD thesis carried out at "Babes-Bolyai" University, Faculty of Physical Education and Sport, Cluj-Napoca, Romania.

References

Bandura A. Self-efficacy. Harvard Mental Health Letter, 1977;13(9):4-6.

Bandura A. Self-efficacy. Toward a unifying theory of behavioral change. Psychol Rev. 1994; 84(2):191-215.

Bauman AE, Reis RS, Sallis JF, Wells JC, Loos RJ, Martin BW. Correlates of PA: why are some people physically active and others not? PubMed.Lancet 2012; 380(9838):258-271. doi: 10.1016/S0140-6736 (12) 60735-1.

Black B, Marcoux BC, Stiller C, Qu X, Gellish R. Personal health behaviors and role-modeling attitudes of physical therapists and physical therapist students: a cross-sectional study. J Physiother, 2012;92(11):1419-1436. doi: 10.2522/ptj.20110037.

Brownson RC, Eyler AA, King AC, Brown DR, Shyu YL, Sallis JF. Patterns and correlates of PA among US women 40 years and older. J Public Health. 2000;90(2):264-270.

Chevan J, Haskvitz EM. Do as I do: exercise habits of physical therapists, physical therapist assistants, and student physical therapists. Phys Ther. 2010;90(5):726-734.

Creswell JW, Plano Clark VL. Designing and Conducting Mixed Methods Research. Thousand Oaks, CA: Sage, 2007.

Garmendia ML, Dangour AD, Albala C, Eguiguren P, Allen E, Uauy R. Adherence to a PA intervention among older adults in a post-transitional middle income country: a quantitative and qualitative analysis. J Nutr Health Aging. 2013;17(5):466-471. doi: 10.1007/s12603-012-0417-1.

Hagger MS, Chatzisarantis NL, Biddle SJ. The influence of selfefficacy and past behaviour on the PA intentions of young people. J Sports Sci 2001;19(9):711-725.

Huberty JL, Randsdell LB, Sidman C, Flohr JA, Schultz B, Grosshans O, Durrant L. 2008 Explaining Long-Term Exercise Adherence in Women Who Complete a Structured Exercise Program. Res Q Exerc Sport. 2008;79(3):374-384.

Kandula NR, Lauderdale DS. Leisure Time, Non-leisure Time, and Occupational PA in Asian Americans. Ann Epidemiol 2005;15(4):257-265.

Kloek GC, van Lenthe FJ, van Nierop PW, Schrijvers CT, Mackenbach JP. Stages of change for moderate-intensity physical activity in deprived neighborhoods. Prev Med. 2006; 43(4):325-331.

Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT; Lancet Physical Activity Series Working Group. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. PubMed Lancet. 2012;380(9838):219-229. doi: 10.1016/S0140-6736(12)61031-9.

McAuley E, Motl RW, Morris KS, Hu L, Dorerksen SE, Elavsky S, Konopack JF. 2007 Enhancing PA adherence and well-being in multiple sclerosis: a randomized controlled trial. M. Scler. 2007;13(5):652-659.

Miranda JJ, Kinra S, Casas JP, Davey Smith DG, Ebrahim S. 2008 Non-communicable diseases in low- and middle-income countries: context, determinants and health policy. Trop Med Int Health. 2008;13(10):1225-1234. doi: 10.1111/j.1365-3156.2008.02116.x

Pratt M, Sarmiento OL, Montes F, Ogilvie D, Marcus BH, Perez LG, Brownson RC; Lancet Physical Activity Series Working Group. The implications of megatrends in information and communication technology and transportation for changes in global physical activity. PubMed Lancet. 2012;380(9838):282-293. doi: 10.1016/S0140-6736(12)60736-3.

Rogers LQ, Gutin B, Humphries MC, Lemmon CR, Weller JL, Baranowski T, Saunders R. Evaluation of internal medicine residents as exercise role models and associations with self-reported counseling behavior, confidence, and perceived success. Teaching Learning Med. 2006;18 (3):215-221.

Shirley D, van der Ploeg HP, Bauman AE. Physical activity promotion in the physical therapy setting: perspectives from practitioners and students. Phys Ther 2010;90(9): 1311-1322.

Yu-Pei L, Ying-Hsiang H, Feng-Hwa L, Jin-Shang W, Chin-Jen C, Yi-ChingY. Non Leisure Time PA is an independent predictor of longevity for a Taiwanese elderly population: an eight-year follow-up study. BMC Public Health 2011;11:428. doi:10.1186/1471-2458-11-428.

***. CDC - Centers for Disease Control and Prevention. Prevalence of self-reported physically active adults, United States, 2007. MMWR. 2008;57(48):1297-1300.