

## APPEARANCE OF SPECIAL EDUCATIONAL NEEDS IN HIGHER EDUCATION: HUNGARIAN AND POLISH PHYSICAL EDUCATION TEACHER EDUCATION STUDENTS' KNOWLEDGE AND INFORMATION ABOUT ADHD

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**ABSTRACT.** Attention Deficit Hyperactivity Disorders (ADHD) is considered one of the most frequent child and youth psychiatric disorder all over the world. Researchers observed that children with ADHD had lower performance in some aspects of motor skills and they are less successful in sporting events compared to the normative data. Sports can help teach crucial social skills to healthy emotional development, but children with ADHD have difficulty in sport settings in a numerous aspects. When children exhibit ADHD symptoms in school, teachers are often the first who recognize the problems. Teachers play a key role in classification decisions in the intervention process in the classroom or in the P.E. lesson. ADHD has also become a relevant educational issue, so according to us, it is important what future P.E. teachers know about ADHD? The purpose of this study was to assess Physical Education Teacher Education students' knowledge and experience on ADHD and the integration of ADHD students in school setting. Hungarian (n=125) and Polish (n=211) junior and senior PETE students filled out a closed ended questionnaire at two major institutes in Hungary and Poland (SU-AWF). Although most of the students have already heard the term hyperactivity, a half of both said that they had no specific information about ADHD during their PETE courses. Beside lack of information, most participants believed that ADHD students could take part in the regular PE lesson, but they did not know how. They think it is important to learn about ADHD during university studies. Since a growing number of public school teachers have to face issues relating ADHD in some way in these countries, it is important to include these issues in their PETE programs. Our opinion is to worth teaching some information about special educational needs (SEN) including ADHD, integration and some other practical and pedagogical methods during university studies.

**Keywords:** attention deficit hyperactivity disorder; physical education teacher education program; knowledge about ADHD

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## Introduction

Attention Deficit Hyperactivity Disorders (ADHD) is considered one of the most frequent child and youth psychiatric/neuropsychiatric disorder, and it is affecting about 3-5% of the world's population under the age of 19 (Polanczyk et al., 2007). Boys are diagnosed ADHD three times more than girls (Barkley, 1998).

According to the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV, DSM-IV- TR) ADHD is a neurobehavioral disorder with early childhood onset, characterized by three main symptoms: inattention, hyperactivity and impulsivity (American Psychiatric Association, 2000; Grönlund, Renck and Weibull, 2005).

Inattention manifests as the individual having difficulty sustaining attention in tasks or playing activities, does not seem to listen when spoken to directly, has trouble following through on instructions, often loses things necessary for activities and often forgetful in daily activities.

Hyperactivity can be described as fidgeting with hands or feet, excessive talking and inability to remain seated or still when it is expected.

The best way to describe impulsivity is a tendency to blurt out answers before question have been completed, inability to wait for their turn and frequently interrupts others.

ADHD has three sub-types: ADHD predominantly inattentive type (ADHD-PI), ADHD predominantly hyperactive-impulsive type (ADHD-HI) and ADHD combined type (ADHD-C) (American Psychiatric Association, 2000).

Many studies have found that over 50% of people diagnosed ADHD also meet the diagnostic criteria for one or more additional psychiatric, behavioral and/or developmental disorder such as: Oppositional-defiant disorder, Obsessive-compulsive disorder, Tourette-syndrome, Specific learning disorders (Chu, 2003; Waugh and Sherill, 2004), Developmental coordination disorder (Grönlund, Renck and Weibull, 2005; Chu, 2003; Piek and Dyck, 2004; Miranda, Jarque and Tárraga, 2006) and so on. Barkley (1998) suggested approximately 30% of children with ADHD suffer from learning disability.

Researchers observed that restlessness just one part of their problems. On the other hand they have problems with their clumsiness, namely children with ADHD had lower performance in gross and fine motor skills, coordination, balance and physical fitness compared to the normative data (Harvey and Reid, 1997; 2003; Dewey et al., 2002; Piek, Pitcher and Hay, 1999; Pitcher, Piek and Hay, 2003; Steger et al., 2001). They are at risk for developing movement skill difficulties and to have poor levels of physical fitness (Harvey and Reid, 2003). Piek, Pitcher and Hay (1999) have found that children diagnosed ADHD-PI type were most likely to have fine motor problems, while ADHD-C type were at risk for gross motor problems (Kooistra et al., 2005).

But which sports are recommended an ADHD child? Furthermore, little information existed about daily physical activities or sport-specific skills of children with ADHD, although it was suggested that these children do not fare well in team or competitive situations (Alexander, 1990). For many children with ADHD, the most formidable opponents on the playing field are themselves, and they have the same difficulty with sports than they have in the classroom: they become distracted by what is around them and they will often miss instructions (ADDitude, 2009).

Sports – of course – can help teach social skills crucial to healthy emotional development, but children with ADHD have difficulty in sport settings: they become distracted, have difficulty following directions, have difficulty waiting their turn and have low frustration tolerance (ADDitude, 2009). They often become aggressive with not just the opponents but their team member also (Johnson and Rosén, 2000).

According to the literature team contact sports are not recommended for ADHD children, but they are more likely to succeed with individual sports such as swimming, wrestling, martial arts, tennis, horseback riding, track and fields and so on. It is easier for ADHD children to focus when they have one-on-one with their coach and they are able to concentrate on just one opponent. Naturally they often are on teams, just the efforts and instructions are individual (Atkins és Stoff, 1993; Johnson és Rosén, 2000; Hindawi, 2003; Alexander, 1990). One group of activities that almost everybody who research this topic promotes for nearly all ADHD children are martial arts such as taekwondo, karate, judo, because in martial arts are all about control and kids learn to control their body. The movements are smooth and its use of rituals such as bowing to the instructor. There are good for ADHD children because they make behavior automatically.

Despite the pitfalls of team sports, many children with ADHD are strongly motivated to join them, because learning to be a part of a team is a thrilling and therapeutic experience for kids who are up to the task and they could be successful on their peer relations, self-esteem and social development. Nevertheless modifications in team sport should be designed to keep the child active and motivated. For example: changing field position frequently, putting the ADHD child in an active field position as much as possible, giving opportunities to be group leader, team captain or referee and keep the task simple (ADDitude, 2009).

Children with ADHD are often rejected by their peers and have fewer friends than other children in their age compared to the normative data (Lullo and Van Puymbroeck, 2006).

ADHD children are at risk for peer rejection due to poor basic motor-skill development, poor coordination and low levels of athletic skills (Lopez-Williams et al., 2005). Children who exhibit attention-seeking behavior, or behavioral disorder like as ADHD are less successful in sporting events and sport settings and have low self-efficacy (Armstrong and Drabman, 2004; Pelham et al., 1990).

Perhaps is it possible that through improving sports performance children with ADHD can improve their social status and motor skills in the same time, in their life and school settings also?

Grönlund, Renck and Weibull (2005) - whose cited by Barkley - said: "Children with ADHD benefit the most- more than any other disorder- from regular exercise, because movement exercises increase dopamine in the human brain, just like the stimulus does (p. 65)."

Movement is a treatment process for ADHD children because in this form they can reach inhibition in their nervous system and they could learn and concentrate their attention to their tasks (F. Földi, 2004).

When children exhibit ADHD symptoms in school, teachers often are the first who recognize the problems. Teachers play a key role in classification decisions and to implement an intervention in the classroom or in the P.E. lesson (Vereb and DiPerna, 2004). Many of the students with ADHD become increasingly difficult to teach. Individual behaviors became more difficult to manage.

ADHD has also become a relevant educational issue, so according to us, it is important what future P.E. teachers understand ADHD and how it influences the teaching-learning process?

The purpose of this study was to assess Physical Education Teacher Education (PETE) students' theoretical knowledge and experience on ADHD and the integration of ADHD students in school settings and to make a comparative analysis between Polish and Hungarian students and between genders.

## Material and methods

We had sent altogether 520 questionnaires into both countries and we received back 336 that we can use in our research (return proportion= 64,6%). 211 had come back from Poland and 125 from Hungary. The probable cause of the large difference is that AWF is a larger institution than TF, so students' numbers on AWF are substantially taller (cca. two times more), than TF students' numbers.

Participants were all the Polish, all the Hungarian university's III., IV., V. year students (Table 1).

**Table 1.** Proportion of the participants

		<b>Poland</b>	<b>Hungary</b>	<b>Total</b>
<b>Participants (N/%)</b>		<b>211/62,8</b>	<b>125/37,2</b>	<b>336</b>
<b>Gender (N/%)</b>	<b>Female</b>	<b>134/ 63,5</b>	<b>97/ 77,6</b>	<b>231</b>
	<b>Male</b>	<b>77/ 36,5</b>	<b>28/ 22,4</b>	<b>105</b>
<b>Year in program (N/%)</b>	<b>III. year</b>	<b>85/ 40,2</b>	<b>75/ 60</b>	<b>160</b>
	<b>IV. year</b>	<b>44/ 20,9</b>	<b>16/ 12,8</b>	<b>60</b>
	<b>V. year</b>	<b>82/ 38,9</b>	<b>34/ 27,2</b>	<b>116</b>

In Poland the highest level P.E. training happens in AWF, where students could learn in P.E teacher education, coach education, tourism and recreation education and rehabilitation. In our research we just asked those people who are studying for P.E teacher, coach and recreation specialist.

In Hungary we have asked students who are learning in P.E. teacher education, P.E. and health teacher education and P.E. and recreation education.

In both countries students filled out the questionnaire on native language, because we have it translated onto Polish language with a Hungarian ancestry assistant professor, who teach in AWF. We have used just closed ended questions and also Likert Scale in the questionnaire, because of the lingual bar and difficulty.

In this research we try to find the answers to the following questions: Do PETE students have any information about ADHD and could they recognize it if it would be necessary? Have they learnt anything about ADHD during their university studies and they would like to learn more about it or not? What is their opinion about the integration of ADHD students into P.E. lessons?

In the question of the characteristics of ADHD children had used 12 statements of DSM-IV. Every student had to value these statements from 1 to 5, where 1 meant: I do not agree with this statement, 5 meant: I strongly agree with this statement.

Descriptive and Chi-square functions were employed in data analysis, the level of  $p \leq 0.05$  being considered significant. SPSS 14.0 software for Windows and Stratified Random Sampling was used.

## Results

### Recognize of ADHD

First step we would like to know respondents really know what is ADHD and what are the symptoms of ADHD. So we had used the DSM-IV statements with the characteristics of ADHD children but not to the all statements. The first five refer to the inattention of ADHD children (DSM-IV includes 9 statements related to inattention). Statement 6 through 9 relate to the ADHD children's hyperactivity (4 from 6 statements of DSM-IV) and the statements 10 through 12 refer to the impulsivity of ADHD children (all about DSM-IV). DSM-IV statements about ADHD are shown in Table 2.

**Table 2.** DSM-IV statements for ADHD in the questionnaire

DSM-IV statements of ADHD	Characteristics of ADHD
1. Often fails to give close attention to details or makes careless mistakes in schoolwork or tasks	<i>Inattention</i>
2. Often has difficulty sustaining attention in tasks or play activities	
3. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties	

DSM-IV statements of ADHD	Characteristics of ADHD	
4. Often avoids, dislikes, or reluctantly engages in tasks requiring sustained mental effort	<i>Hyperactivity</i>	
5. Often is distracted by extraneous stimuli		
6. Often fidgets with hands or feet or squirms in seat		
7. Often leaves seat in classroom or in other situations in which remaining seated is expected		
8. Often runs about or climbs excessively in situations in which it is inappropriate		
9. Often talks excessively		
10. Often blurts out answers before questions have been completed		
11. Often has difficulty awaiting turn		<i>Impulsivity</i>
12. Often interrupts or intrudes on others		

If respondents choose 4 (I agree with this statement) or 5 (I strongly agree with this statement) answer in the 5 grades Likert Scale, we may claim that they really know what is ADHD and we think they could recognize it, if it would be necessary.

In the highest percentages (more than 87%) students agree and strongly agree that an ADHD child often has difficulty sustaining attention in tasks or play activities (statement 2.) (Table 3).

We have found significant differences between Polish and Hungarian students in four statements. Polish students significantly more often stated that they agree and strongly agree with the first and fourth statements (statements of inattention). However in the second (inattention) and sixth (hyperactivity) statements Hungarian students agreed more often ( $p < 0.05$ ) (Table 3).

**Table 3.** Agree and strongly agree with DSM-IV statements among Polish and Hungarian respondents

		Sum Total (%)	Poland (%)	Hungary (%)
Statement 1.	Inattention	45,3	50,35*	40,3
Statement 2.		87,45	81,8	93,1*
Statement 3.		40,05	44,65	35,45
Statement 4.		44,38	67*	21,75
Statement 5.		71,95	74,9	69
Statement 6.	Hyperactivity	79,33	70,2	88,45*
Statement 7.		64,48	68,9	60,05
Statement 8.		66,23	62,4	70,05
Statement 9.		36,08	39,25	32,9
Statement 10.	Impulsivity	49	55,1	42,9
Statement 11.		81	75,6	86,4
Statement 12.		51,98	55,5	48,45

We have found 8 significant differences in Polish answers according to genders, namely that Polish women said significantly more agree and strongly agree with statement 1, 2, 5, (inattention) 6, 7, 8, (hyperactivity) 10 and 12 (impulsivity) (Table 4).

**Table 4.** Agree and strongly agree with DSM-IV statements among Polish women and men

		<b>Polish women (%)</b>	<b>Polish men (%)</b>
Statement 1.	Inattention	<b>59,7*</b>	<b>41</b>
Statement 2.		<b>89,5*</b>	<b>74,1</b>
Statement 5.		<b>71,6 *</b>	<b>62,4</b>
Statement 6.	Hyperactivity	<b>78,4 *</b>	<b>71,4</b>
Statement 7.		<b>85,9 *</b>	<b>54,5</b>
Statement 8.		<b>75,4 *</b>	<b>62,4</b>
Statement 10.	Impulsivity	<b>75,4 *</b>	<b>49,4</b>
Statement 12.		<b>83,6 *</b>	<b>67,6</b>

2 significant differences were found in Hungarian answers according to genders, namely Hungarian women significantly more often agreed and strongly agreed than Hungarian men in statement 1(inattention) and 12 (impulsivity), exactly ADHD children often fail to give close attention to details or make careless mistakes in schoolwork or tasks (45,4%-35,2%) and they often interrupt or intrude on others (44,3%-21,5%).

In the aspects of genders comparison to the two countries, there were differences in three questions between Hungarian and Polish women. Polish female students significantly more often stated than Hungarian women that an ADHD child “often fails to give close attention to details or makes careless mistakes in schoolwork or tasks (statement 1.)” (59,7%-45,4%) and he is “often distracted by extraneous stimuli (statement 5.)” (71,6%-54,6%). While Hungarian women significantly more often agreed (94,8%) this statement: “An ADHD child often fidgets with hands or feet or squirms in seat (statement 6.)” than Polish women (85,9%).

Finally, we found 5 differences between Polish and Hungarian men. In the 2 (inattention), 6 (hyperactivity), 10, 11 (impulsivity) statements Hungarian men significantly more often stated that they agree and strongly agree with these statements than Polish men, while Polish men significantly more often agreed and strongly agreed with statement 8: An ADHD child often runs about or climbs excessively in situations in which it is inappropriate than Hungarian men (Table 5).

**Table 5.** Agree and strongly agree with DSM-IV statements among Polish and Hungarian men

		<b>Polish men (%)</b>	<b>Hungarian men (%)</b>
Statement 2.	Inattention	<b>74,1</b>	<b>96,5 *</b>
Statement 6.	Hyperactivity	<b>71,4*</b>	<b>59,7</b>
Statement 8.		<b>62,4</b>	<b>82,1*</b>
Statement 10.	Impulsivity	<b>49,4</b>	<b>67,9*</b>
Statement 11.		<b>67,6</b>	<b>89,3*</b>

## General experience and knowledge about ADHD

We have collected 4 very important and informative questions and the answers of these questions in Table 6.

**Table 6.** Answers about ADHD, university studies on this topic and the integration of ADHD students in P.E. lesson

	Poland (%)			Hungary (%)		
	Yes	No	I do not know	Yes	No	I do not know
<i>Have you ever heard the term hyperactivity or ADHD?</i>	<b>94,8</b>	3,3	1,9	<b>99,2</b>	0,8	0,0
<i>Have you learned anything about ADHD at university?</i>	<b>41,7</b>	49,3	9,0	<b>36,8</b>	52,0	11,2
<i>Do you think the information about this topic is important to learn about during your studies?</i>	<b>92,4</b>	3,8	3,8	<b>92,0</b>	2,4	5,6
<i>What do you think an ADHD student could take part in P.E. lessons?</i>	<b>85,8</b>	3,8	10,4	<b>80,8</b>	8,0	11,2

The majority of students have already heard hyperactivity or ADHD, as a term (97%). 99,2% of Hungarian students and 94,8% of Polish students said that they had known this term. No significant differences were found between countries and in the comparison between Polish/Hungarian women, Polish/Hungarian men and Hungarian men/women. Nevertheless, Polish female students significantly more often stated (97,8%) that they had already heard the term „hyperactivity” than Polish men (89,6%).

When asked about respondents have learned anything about ADHD at university, 47,1% of Polish respondents said yes and 49,3% said no. 36,8% of Hungarian respondents have already learned about ADHD at university and 52% said they have not learned anything about ADHD during university studies. There were no significant differences between the two countries, male and female students from each country, Polish/Hungarian women, and Polish/Hungarian men.

Both countries students’ thought that it is important to learn some things about ADHD during their studies. Almost every Polish (92,4%) and Hungarian students (92%) stated that it could be very important and useful to learn something about it. Similarly to the previous question we did not find any significant differences between the two countries, genders in the same country and genders in the relation of the two countries.

Respondents deemed positively the integration opportunities of ADHD students in P.E. lesson. 85,8% of Polish students and 80,8% of Hungarian respondents believe, that an ADHD student could take part on a P.E. lesson.

According to them, P.E. lesson employment is solvable. Like as the previous question there were no significant differences between countries and genders in both aspects in this question.

87,7% of Polish students think that they will meet with ADHD students in school settings in their work, while 88,8% of Hungarian respondents think the same.

## **Discussion**

More than 90% of respondents stated that they have already heard the term ADHD, although their knowledge is defective and just 39% have been remembering to learn something about it during their university studies and more than 44% said that they have not learnt anything about it. On the other hand, if they learn something about this topic, it would be just theoretical, not practical information about ADHD and the integration of ADHD students.

Our opinion is that both Polish and Hungarian PETE students do not know how it would be solve the integration of ADHD students, despite of almost every respondent (more than 83%) believed that an ADHD child could be integrated into P.E. lessons.

According to the literature, ADHD pupils have a lot of problems in his motor skills also, so hyperactivity or restlessness just one part of their disorder (Harvey and Reid, 1997; 2003; Dewey et al., 2002; Piek, Pitcher and Hay, 1999; Pitcher, Piek and Hay, 2003; Steger et al., 2001). Due to these problems, they have many accidents not just home but other places also, like as school settings. In this form, teachers' task to help the appropriate development and to keep in safety these children in the class and in the P.E. lesson equally. Nonetheless, due to the lack of the information and training, it is not easy to realize.

In both countries, both genders consider learning some information about ADHD important during their P.E. studies. More than 90% of Polish and Hungarian respondents thought that ADHD is a relevant problem in the present educational system. ADHD students are in conventional educational institutes, so almost every teacher have to know what ADHD is, and have to identify, treat and solve ADHD children's problems.

At the assessment of characteristics of ADHD children it was generally a high percentage, because a lot of students answered they agree and strongly agree with the statements. Almost every statement the ratios were more than 40% expect statement 9, namely ADHD child talks excessively.

In spite of we found differences in many cases in the question of the characteristics of hyperactive children between the countries, genders and other aspects of the comparisons, our impression is that students in PETE program could recognize who has ADHD and who has not, but theirs knowledge has some defect not just in practice but in theory also due to the lack of formal training in this topic.

Maybe it is possible that we are out in this, but it is sure that almost nobody knows what is ADHD exactly. We have a lot of theory but researchers argued. Some researchers stated that it is a neuropsychological disorder (Daley, 2006; Barkley, 1998; Polanczyk et al., 2007), some others said that this is a behavioral disorder (Vereb and DiPerna, 2004; Piek and Dick, 2004) and other claims that this is an aptitude (Hartmann, 1993). On the other hand DSM-IV. stated, that 6 or more of the 9 symptoms of inattention and 6 or more of the 9 symptoms of hyperactivity-impulsivity have persisted for at least 6 months, we could say sure that child has ADHD. Nowadays this is the relevant diagnostic criteria.

In the literature there is little information of the integration of ADHD students both in Poland and Hungary. In Hungary, according to Szűcs (2003 a,b,c) the obstacle of the school integration of ADHD students is that school teachers are not prepared for dealing with them, on the other hand they do not want to deal with this problem.

We do not agree with Szűcs with relation to P.E. teachers, because in our previous research (Kiszela et al., 2008) and in this research also we have found that P.E. teachers and PETE students are interested in special educational needs and ADHD also, and they would like to know more about these topics in the interest of their better job.

## **Conclusions**

Our conclusion is that it would be necessary to make information available for every student in the teacher training program in Hungary and Poland also.

According to us, it is a huge shortcoming that in P.E. lesson we just measure the performance of students and we have paid no attention to the deficits of motor skills, in spite of we have already known that a lot of students have motor deficiencies nowadays. It would be worthy to use not just performance but skill measured assessments also in P.E. lesson.

In our next research we will try to find the most effective, useful and accurate movement skill assessment that we could use in P.E lesson intervention and treatment also.

If P.E. teachers would like to improve their ADHD children's motor skills and they would like to help them, first step they have to know what their deficiencies are and how they could develop that. In the lack of this our ADHD students do not be able to frame well.

It seems that we try to build up a house without footing and try to begin it with the roof. Buildings like this will never be perfect and will never be finished, so in this form our ADHD children's skills will never be perfect and efficient also.

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