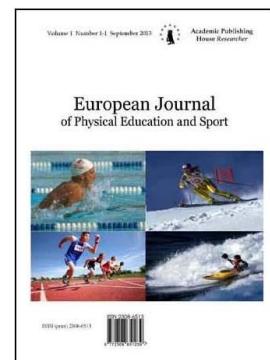


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## The Comparison of Agressiveness in Sports Hockey Classes Depending on Age

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### Abstract

The research objective was to find out and compare overall aggressiveness and its individual subcategories between observed student age categories in sports hockey classes. The sample consisted of 120 lower secondary school students from Lučenec and Banská Bystrica in the age from 11 to 14. The standardized psychological questionnaire BDHI focused on the diagnose of aggressiveness was used for gaining the factual material. As emerged from the results, weighted average score of overall aggressiveness has substantially increased in case of older students. Younger students reached weighted average score 30.76 while older ones reached 39.46. Statistical significance of variance with value  $p = 0.036$  was validated by nonparametric Mann Whitney U test. Weighted average score also substantially differs in case of physical aggression. Older students reached weighted average score 5.45 where younger students reached weighted average score 3.70. Nonparametric MannWhitney U test validated statistical significance variance between younger and older students where  $p = 0.022$ .

**Keywords:** sports hockey class students, aggression, aggressiveness, age, BDHI questionnaire.

### 1. Introduction

Authors Jandourek (2001), Škodáček – Černovský (2004), Martinek (2009) and Dobrôtka (1999) agree that word aggression is derived from latin word "agreddi" meaning to ensure one's access, to attack, to dare, try to overcome somebody. Anderson – Bushman (2002) and David Tod (2010) emphasize fact that aggressive behaviour is in the first place behaviour not attitude or even emotions.

We agree with the opinion that aggression is certain characteristic, perosnality trait. Definition of aggression says it is an unpleasant activity against other person. According to three basic theories aggression can be understood as an instinct (S. Freud, K. Lorenz), as an acquired characteristic (A. Bandura) or as a bio-psycho-socially conditioned entity (Karíková, 2001; Pavlovský 2009; Harsa et al. 2012).

Hart – Hartlová (2004) and Výrost – Slaměník (2008) define term aggression as follows:

"aggression is an offensive or belligerent action, hostility expression against certain object, intentional attack on obstacle, person or object that stands in the way of satisfying one's need" (response to frustration).

"aggression is habituated way of behaviour with tendency to react by long term attacking, hostile focus with high promptness to aggression" (Hanušková, 2008: 168)

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Vágnerová (2004) and Výrost – Slaměník (2008) agree that aggression is a tendency to make aggressive act, to behave aggressively, it is the tendency to hurt intentionally.

Heretik (2000) distinguishes altruistic, hostile, social and verbal aggression.

On the other hand authors Výrost – Slaměník (2008) distinguish affective aggression, instrumental aggression and bullying (tyranny). The other point of view on distinguishing aggression has Blahutková (2011). She distinguishes altruistic, anticipating, instrumental, inductive and shifted aggression.

Other authors such as Burk – Durkee (1957) worked on the assumption that aggression is the complex phenomenon for which is suitable to distinguish some subcategories of hostile aggressive behaviour. They made 8 categories (items) considering them basic aggression subcategories: assault, indirect hostility, irritability, negativism, resentment, suspicion, verbal hostility and sense of guilt (Buss – Durkee, 1957).

The personality influence on sports performance belongs to greatly discussed subjects. On the one hand there are skeptics that do not admit relationship between personality and sports performance and on the other hand are those who consider personality influence for significant factor of sports activity successfulness (Silva – Stevens, 2002).

According to the Hošek (2005) the most important base of knowing athlete's personality is developmental attitude. This attitude lies in respecting the fact that athlete's personality is determined by long-term influence of three groups of factors: athletes' inborn anatomy-physiological presuppositions; presports, sports and outsports environment; socially-educational influence (social learning):

- nonsystematic individual learning by imitation;
- institutional systematic upbringing and performance development.

According to Slepčík (2006) sports activity is characterized by strong emotionality given by loaded and at the same time attractive sport programme.

Vanek (1984) and Nakonečný (2000) think that emotions at the same time influence also other mental processes as perception, imagination, thinking, memory, focus and free processes. Emotions influence sports activity by certain intensity and quality. Experience intensity relates to level of athletes' activation.

Optimal performance as Tod, Thatcher and Rahman (2012) mention comes when athlete experience adequate activation level and performance is bad or activation is either high or low.

According to Jarvis (1999) and Kunath (2001) theories of instincts suggest that sport serves for actual decreasing of aggressiveness in society in a way that enable expression of our aggressive instincts.

Fleming (2008) distinguishes three acceptable and one nonacceptable form of aggression in ice hockey: tactic violence, symbolic violence, actual violence and violence with intention to heavily hurt and harm opponent – it is a form of aggression that results in previous bodily harm.

Lauer – Paiement (2009) tell about higher rate of aggression in a game that is alarming not only for a danger of many serious health problems that has arisen e. g. as a result of the frequent head shocks, but there is a concern that aggressive behaviour can transfer to other situations too.

Hockey studies concerning this explanation try to understand which surrounding and contextual factors increase probability of athlete's frustration and consequently athlete's aggressive behaviour. These studies showed that increased level of frustration and then more frequent aggressive behaviour relate to e. g. greater differences in score, game in defensive position, losses and the last third of the game. (Gee – Leith, 2007).

### Objective

The research objective was to find out and to compare overall aggressiveness and its individual subcategories in different age groups of sports hockey classes.

### 2. Methodology

The research is focused on the comparison of aggressive behaviour of students in sports hockey classes in relation to their age and that is the reason why the research was limited by number of students.

The sample consisted of boys in sixth, seventh, eighth and ninth year of study at lower secondary school in Lučenec and Banská Bystrica. We grouped the 6th and 7th year and 8th and

9th year of study. The age of students ranged from 11 to 14. 30 hockey students were chosen from every year. 10 from Lučenec and 20 from Banská Bystrica. Total sample consisted of 120 students. More detailed description of the sample is present in table 1.

**Table 1.** Structure of the sample

Year		Lučenec	Banská Bystrica	Total
6th year		10 boys	20 boys	30
7th year		10 boys	20 boys	30
8th year		10 boys	20 boys	30
9th year		10 boys	20 boys	30
<b>Total</b>	<b>n</b>	<b>40</b>	<b>80</b>	<b>120</b>
	<b>%</b>	<b>33.33</b>	<b>66.67</b>	<b>100.00</b>

The research was carried out in february school year 2015/2016. The research was organized by standardized psychological questionnaire BDHI created by Buss – Durkee (1957) and is focused on diagnosis of aggression. This test classification includes 2 hostility types (resentment and suspicion) and 5 aggression types (physical, indirect, verbal, irritability and negativism). Authors created items partly on their own and partly they took them from the other questionnaires. To admit that probant acts socially undesirably items presuppose that much aggressive behaviour is natural or apologized. In formulation of the items common phrases from life are sometimes used.

Questionnaire consist of 75 items, 60 of them are patognomic in the case of positive answer, other 15 are false and patognomic in the case of negative answer – signed F.

Evaluation of hockey class students' answers was made according to key:

Calculation – sum of positive answers in individual items is RS (rough score). We get WS (weighted score) by multiplying adequate coefficients for adequate items. WS should not exceed value 5 in different items. The score of item 7 (verbal aggression) is slightly higher in our population. Sum of all results in items 1 – 8 gives total aggressiveness and their sum should not exceed 35.

❖ mathematical-statistical methods (calculation of the arithmetic mean, deviation, minimum, maximum, Kolmogorov-Smirnov test, nonparametric test of significance MANN WHITNEY U Test, statistical variance on 5 % level of statistical significance  $p < 0.05$  ([Kampmiller, 2010](#))).

- ❖ graphic methods (tables, graphs),
- ❖ qualitative methods (comparison, analysis, synthesis, induction, deduction).

### 3. Results

The variance in weighted score can be seen in the pictures. In the tables you can see statistical significance of variance and reached minimums and maximums of individuals' particular aggressiveness subcategories.

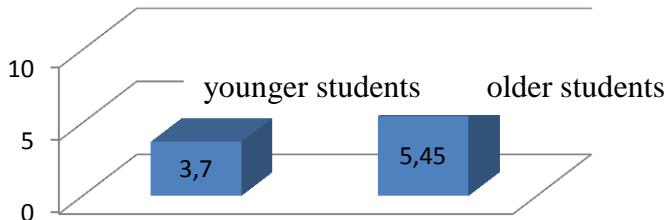
Substantial differences between younger and older students can be seen in case of physical aggression. Weighted average score in case of younger students was 3.70. It is lower than 5 and it means that physical aggression do not exceed standard. Increased physical aggression emerged in older students as their weighted average score 5.45 exceed 5.

The variance was validated also by Mann Whitney U test, that as the unilateral test on 5 % level of verification tells that there is verified variance  $p = 0.022$  between younger and older students.

**Table 2.** Physical aggression – Statistical significance of variance between younger and older students

Physical aggression	P	Minimum	Maximum
Younger students	0.022	0	8
Older students		1	8

## Physical Aggression

**Fig. 1.** The weighted average score of physical aggression in case of younger and older students

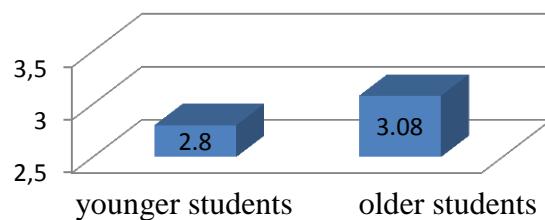
Results show the difference in indirect aggression between the younger and older students. Younger students reached weighted average score 2.80 while older students reached weighted average score 3.08. In this case no increased level of indirect aggression emerged either in younger or older students as the limit value was not exceeded.

Statistical significance of variance between younger and older students was validated by Mann Whitney U test that was unilateral and on 5 % level of verification tells that there is no statistically verified variance  $p = 0.489$ .

**Table 3.** Indirect aggression – Statistical significance of variance between younger and older students

Indirect aggression	P	Minimum	Maximum
Younger students	0.489	1.1	8.8
Older students		0	5.5

## Indirect Aggression

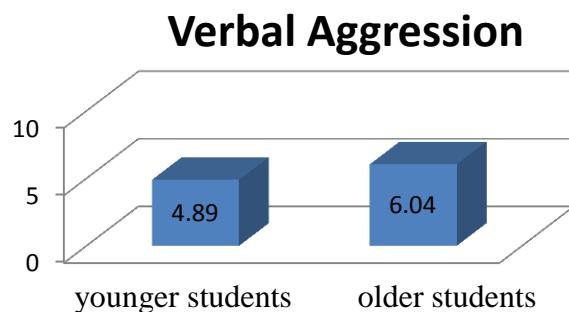
**Fig. 2.** The weighted average score of indirect aggression in case of younger and older students

The results show that younger students reached weighted average score 4.89 that means no increased verbal aggression contrary to older students whose weighted average score exceeded limit 5 with value 6.04. It means that in case of older students value of verbal aggression is increased.

Statistical correctness of variances was validated by Mann Whitney U test that in unilateral test on 5 % level of verification tells that there is no statistically verified variance  $p = 0.169$  between younger and older students.

**Table 4.** Verbal aggression – Statistical significance of variances between younger and older students

Verbal aggression	P	Minimum	Maximum
Younger students	0.169	0	7.7
Older students		3.08	9.24

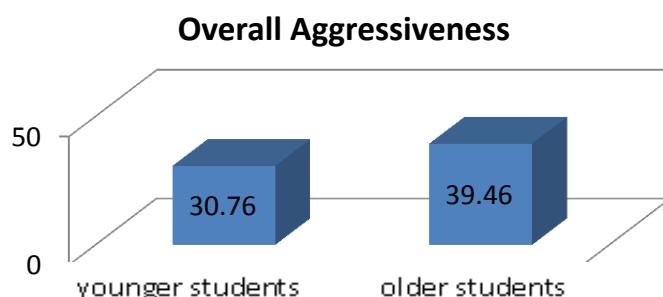
**Fig. 3.** The weighted average score of verbal aggression in case of younger and older students

Overall aggressiveness was gained by sum of weighted average score in individual aggressiveness subcategories where limit value of sum should not exceed value 35. Weighted average score in case of younger students was 30.76 and increased overall aggressiveness do not emerged. On the other hand in case of older students who reached final weighted average score 39.46 increased overall aggressiveness happens.

Statistical variance was validated by Mann Whitney U test that in unilateral test on 5 % level of verification tells that there is statistically verified variance  $p = 0.036$  between younger and older students.

**Table 5.** Overall aggressiveness – Statistical significance of variances between younger and older students

Overall	P	Minimum	Maximum
Younger students	0.036	13.47	54.01
Older students		21.58	55.55

**Fig. 4.** The weighted average score of overall aggression in case of younger and older students

#### **4. Discussion**

Differences in individual subcategories of aggressive behaviour were compared in results and also in overall aggressiveness between younger students (6+7) year and older students (8+9) year. It proved to be the case that in every observed comparisons older students reached higher weighted averages score than younger students.

Langmaier (1998) tells that students in pubertal age reach higher values of aggressiveness than people in other developmental periods. From the stated results follows that weighted average score in overall aggressiveness have substantially increased in case of older students. Younger students reached weighted average score 30.76 while younger students 39.46. Statistical significance of variance was validated with value  $p = 0.036$ .

According to Končeková (2010) physical aggression at primary schools continually increases. As follows from the stated results weighted average score also substantially differ in case of physical aggression. Older students reached weighted average score 5.45 while younger students 3.70. Nonparametric Mann Whitney U test verified statistical significance of variance between younger and older students with value  $p = 0.022$ .

Verbal aggression is basic aggressive behaviour. Research results show that weighted averages score also differ in case of younger and older students. Younger students reached weighted average score 4.89 and older students reached weighted average score 6.04. Nonparametric Mann Whitney U test did not verify statistically significant variance between younger and older students with the value  $p = 0.169$ . The study of Vágnerová (2000) also proves that. Author claims that various forms of aggressive behaviour shows more often at lower secondary school than primary school.

We agree with the Paškova's (2005) opinion. She claims that sport helps us effectively reduce aggression by helping us to gain self discipline and in higher rate is involved in creation of the value hierarchy.

Nowadays aggressiveness in sport is intensively observed subject. In the researches based on BDHI application were concerned with this subject e. g. Lenzi et al. (1997) that were finding out the relation between aggressiveness and doing sports activity (athletes had higher rate of aggressiveness than common population) or Keller (2007) who examined various sports athletes (he did not find out the difference on the level of aggressiveness). Similar research performed Šafář (2003) who also focused on several groups of athletes (he found out the higher rate of aggressiveness in contact sports (e.g. football, hockey) or Hodúrová (2011) who focused on aggressiveness of various groups of trainers and found the difference between e. g. football and handball trainers, football and basketball trainers and the like.

#### **5. Conclusion**

Thanks to the method of standardized psychological questionnaire BDHI and its following analysis the research objective was fulfilled.

On the basis of evaluated results, we found out that overall aggressiveness was gained by sum of the weighted averages score in individual subcategories of aggressiveness where limit value of sum should not exceed value 35. When this value is exceeded it means that overall aggressiveness is increased. Older students reached final weighted average score 39.46 and increased overall aggressiveness contrary to younger students that reached weighted average score 30.76 and normal level of overall aggressiveness ( $p = 0.036$ ).

Statistically significant variances ( $p = 0.022$ ) were revealed between younger and older students. Younger students reached weighted average score 3.70 that is beyond the limit 5 and so their physical aggression is normal but older students reached weighted average score 5.45 and it proves increased physical aggression.

Increased level of indirect aggression was not proven neither in case of older students nor in the case of younger students. Younger students reached weighted average score 3.08 and do not exceed limit value 5 ( $p = 0.489$ ).

The results show that younger students reached weighted average score 4.89. It means that increased verbal aggression did not show in their case contrary to older students whose weighted average score exceeded limit 5 with the value 6.04. It means that verbal aggression value of older students is increased. To sum up, there is no statistically verified variance between younger and older students ( $p = 0.169$ ).

Aggression is continually repeated subject that occurs in common life. As more authors state, aggressiveness is gradually becoming primary subject at Slovak schools. Five-year research validated that aggressive behaviour at Slovak lower secondary schools constantly increases. To stop these problems we should start to teach students good manners. To help manage and prevent stress and subsequent aggressive behaviour following from stress situations can also little things in the form of effective time management, finding time for relax and various activities with friends and family.

## References

**Anderson, Bushman , 2002** – Anderson C.A., Bushman B.J. (2002). *Human aggression*. Manual review of psychology, vol. 12, no. 9, p. 53.

**Blahutková, 2011** – Blahutková M. (2011). Rodinné prostředí a výkon ve sportu u dětí a mládeže. In Asociace psychologů sportu. *Psychologie sportu v praxi 2011*. první. Praha: Filozofická fakulta UK Praha, p. 112-119, 8 p. ISBN 978-80-7308-375-5.

**Buss, Durkee, 1957** – Buss A. H., Durkee A. (1957). *An inventory for assessing different kinds of hostility*. vyd. Jurnal of Consulting Psychology, 21 p. ISSN 7853 – 1627.

**Fleming, 2008** – Fleming S. (2008). *Towards a Theoretical Understanding Of Violence In Ice Hockey*. International Journal of Violence and School, p. 118 – 128.

**Gee, Leith, 2007** – Gee Ch. J., Leith L. M. (2007). Aggressive behavior In professional ice - hockey: A cross-cultural comparison of North American and European born NHL players. *Psychology of Sport and Exercise*. vol. 8, no. 4, p. 567–583. ISSN 1211-9261.

**Hanušková, 2008** – Hanušková V. (2008). *Terapie akutního neklidu a agrese*. Psychiatrie pro praxi. vol. 9, no. 4, p.168-169.

**Harsa et al., 2012** – Harsa P., Kertézsová D., Macák M., Voldřichová I., Žukov I. (2012). Současné projevy agrese In *Psychiatrie pro praxi*. roč. 13, č. 1, p. 15-18. ISSN 1213-0508.

**Hartl, Hartlová, 2004** – Hartl P., Hartlová, H. (2004). *Psychologický slovník*. Praha : Portál, 774 p. ISBN 80-7178-303-X.

**Heretik, 2010** – Heretik, Heretik, A. (2010). *Forezna psychológia pre psychológov, právnikov, lekárov a iné pomáhajúce profesie*. Bratislava : Eurokódex, 554 p. ISBN 978-80-89447-22-0.

**Hodúrová, 2011** – Hodúrová, B. (2011). *Agresivita trenérů různých sportovních skupin*. Diplomová práce, Olomouc : Filozofická fakulta.

**Jandourek, 2001** – Jandourek J. (2001). *Sociologický slovník*. Praha: Portál, 288 p. ISBN 978-80-7367-269-0.

**Jarvis, 1999** – Jarvis M. (1999). *Sport Psychology (Routledge Modular Psychology)*. London : Taylor & Francis, 158 p. ISBN 9780-4152-064-19.

**Kampmiller et al., 2010** – Kampmiller T. et. al. (2010). *Základy metodológie výskumu v telesnej výchove a športe*. Vyd. Bratislava: ICM agency, 192 p. ISBN: 978 – 80 – 89257 – 27 – 0.

**Kariková, 2001** – Kariková S. (2001). *Základy patopsychológie detí a mládeže*. Banská Bystrica : PF UMB, 166 p. ISBN 80-8055-486-2.

**Keller, 2007** – Keller A.L. (2007). The Differences in Sport Aggression, Life Aggression, and Life Assertion Aminy Adult Male and Female Collision, Contact, and Non-Contact Sport Athletes In *Journal of Sport Behavior*, vol. 30, no. 1, p. 57 – 76. ISSN 2078-4724.

**Končeková, 2010** – Končeková L. (2010). *Vývinová psychológia*. 3. vyd. Prešov: Vydavateľstvo Michala Vaška, 312 p. ISBN 978 – 80 – 7165 – 811-5.

**Kunath, 2001** – Kunath P. (2001). *Sportpsychologie fur alle*. Aachen : Meyer und Meyer, 125 p. ISBN 3-89124-781-8.

**Langmeier, Krejčířová, 1998** – Langmeier J., Krejčířová D. (1998). *Vývojová psychologie*. 3. vyd. Praha: GradaPublishing, 343 p. ISBN 80 – 7169 - 195 – X.

**Lauer, Paiement, 2009** – Lauer L., Paiement C. (2009). *The Playing Tough and Clean Hockey Program*. The Sport Psychologist: Human Kinetics, Inc. vol. 8, no. 4, p. 543-561. ISSN 1469-0292.

**Lenzi et al., 1997** – Lenzi A., Bianco I., Milazzo V. et al. (1997). *Comparison of aggressive behavior between men and women in sport*. Perceptual and motor skill, vol. 84, no 1, p. 139-145. ISSN 0247-106X.

**Martínek, 2009** – Martínek Z. (2009). *Agresivita a kriminalita školní mládeže*. Praha: Grada Publishing, a. s., 152 p. ISBN 978-80-247-2310-5.

**Nakonečný, 2000** – Nakonečný M. (2000). *Lidské emoce*. Praha : Academia, ISBN 80-200-0763-6.

**Pašková, 2005** – Pašková L. (2005). Pohľad na výkonovú motiváciu v kontexte „Big Five“ prostredníctvom faktorovej analýzy. In *Zborník abstraktov konferencie: „Sociální procesy a osobnosť 2005“*. Správy : Psychologický ústav AV ČR. Brno 22.9 – 23. 9. 2005, p. 12.

**Pavlovský, 2009** – Pavlovský P. a kol. (2009). *Soudní psychiatrie a psychologie*. Praha: Grada Publishing, a. s., 226 p. ISBN 978-80-247-2618-2.

**Silva, Stevens, 2002** – Silva J.M., Stevens D.E. (2002). *Psychological foundations of sport*. Boston : Allyn & Bacon. 664 p. ISBN 0-205-33144-0.

**Slepíčka, 2006** – Slepíčka P. a kol. (2006). *Psychologie sportu*. Praha: Nakladatelství Karolinum, Univerzita Karlova, 230 p. ISBN 80-246-1290-9.

**Šafář, 2003** – Šafář, M. (2003). *Komparace agresivity ve vybraných sportovních skupinách*. Disertační práce: Olomouc.

**Škodáček, Černovský, 2004** – Škodáček I., Černovský K. (2004). Symptómy agresivity v osobnosti mladistvých In *Psychiatria*, roč. 11, č. 2, p. 65-69.

**Tod, 2010** - Tod D. (2010). *Psychologie sportu*. Praha : Grada Publishing, 200 p. ISBN 978-0-230-24987-5.

**Tod et al., 2012** – Tod D., Thatcher J., Rahman R. (2012). *Psychologie sportu (1. vyd.)*. Praha: Grada, 200 p. ISBN 978-80-247-3923-6.

**Vágnerová, 2004** – Vágnerová M. (2004). *Psychopatologie pro pomáhající profese: variabilita a patologie lidské psychiky (1. vyd.)*. Praha : Portál, 1999. 448 p. ISBN 80-7178-214-9.

**Vaněk, 1984** – Vaněk M. et al. (1984). *Psychologie sportu: rozbor psychických složek sportovního výkonu (1. vyd.)*. Praha : Olympia, 288 p. ISBN 27-010-84.

**Výrost J., Slaměník, 2008** – Výrost, J., Slaměník, I. (2008). *Sociální psychologie*. Praha : ČR: Grada Publishing, a.s. 404 p. ISBN 978-80-247-1428-8.