Original Article

Aggressiveness in sport – measurement method

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Abstract:

Aggression is a process, and aggressiveness is a feature of character. This article contains comprehensive data about Aggressiveness in Sport Questionnaire, that comprises three scales: 1) „Go-ahead” i.e. persistently pursue a goal regardless of appearing obstacles 2) „Tripping someone up” – person characterized by this kind of aggressiveness has no scruples, is interested only in his or her own business and considers as normal trampling over people to achieve his or her goals, 3) “Assertiveness” – person characterized by this kind of aggressiveness is courageous in his or her actions and expression of opinions in spite of potential negative consequences he or she incurred. The research group consisted of sportsmen practicing 1) individual non contact sports, 2) combat sports and, 3) team sports. In this article the Aggressiveness in Sport Questionnaire content, application and method of computing scores are presented.

Key words: sport, risk, assertiveness, go-ahead, aggression.

Introduction

Aggression and aggressiveness – these terms sound similarly, however their significance is not the same. Aggression is most frequently defined as a process, i.e. the course of successive linkages, cause-specific changes, constituting subsequent stages, phases of an individual's actions. Whereas aggression is understood as a personality trait that manifests itself in the tendency to express frequent aggressive reactions.

Aggression is a notorious phenomenon, but it is not unequivocally defined in the psychology science (Aronson 1999; Aronson, Wilson, Akert 2012; Bandura 1983; Buss 1961; Deffenbacher 2008; Krahe 2001; Loeber, Hay 1997, Nelson 2005; Niehoff 1999; Robertson, Daffern, Bucks 2012).

With reference to sport, B. F. Husman and J. M. Silva (1984) regard aggressiveness as bold and energetic pursuit of a goal. These Authors distinguish three types of aggression (aggressiveness) in sport: 1) proactive assertiveness, 2) instrumental aggression, 3) reactive aggression.

J. Archer (1988) proposed a classification based on functions of different types of behaviour: Defensive aggression serves the purpose of fighting off the threats. For example death or pain can constitute these threats. Parental aggression is in a way a form of defensive aggression because it is aimed at averting the threat that endangers offspring. Rivalry aggression is aimed at fighting off the threats which could diminish one's resources, e.g. food, good mood, social position.

Similarly, it may be supposed that dynamic, active and “go-ahead” people achieve success in sport (Moesch, 2010). These people are characterized by expansiveness, i.e. the desire to catch up with the best and the strongest ones, as well as by setting themselves ambitious goals to achieve greater advantages, greater resources. “Go-ahead” is linked not only to aggression but also to the risk (Brewer, Howarth, 2012; Castanier, Le Scanff, 2010). The opposite of a “go-ahead” person is a passive one. From this perspective the group of sportsmen may be divided into: submissive, aggressive and assertive ones. Submission means to respect other people's rights and to disregard one's own rights. Assertiveness means to respect both other people's and one's own rights. Aggressiveness means to respect one's own rights and to disregard other people's rights.

Assertiveness, just like aggressiveness, is regarded as a personality trait and is to a large extent genetically conditioned, and thus it is linked to the temperament (Rich, Schroedre 1976).

B.F. Husman and J.M.Silva (1984) show the necessity to distinguish aggression from assertiveness in sport at the same time drawing attention to the field common for these two notions.

In the opinion of a Polish researcher, T. Rychta (2004, p. 196) in sport we also encounter such an understanding of aggression according to which aggression can express normal and positive adaptive behaviour, close to non-destructive aggression or assertiveness. Many coaches and sports journalists believe that aggression in sport is a positive behaviour, an expected way to achieve success (Donahue, Rip, Vallerand 2009; Jarvis 2006).

On the basis of the literature review we assumed that aggressiveness in sport may be described by means of three factors: 1) “Go-ahead”, 2) “Tripping someone up”, 3) “Assertiveness”. The closest to the

classical aggressiveness definition is “Tripping someone up”, i.e. the actions aimed at making it impossible for the opponent (rival) to reach his goal and by the same to increase the probability of reaching one’s own goal.

Description of each dimension

„Go-ahead” – means persistent pursuit of a goal, regardless of emerging obstacles. „Go-ahead” also means truculence and aggressive entrepreneurship. In other words „Go-ahead” means the expansion aimed at attaining new material and immaterial resources, for example prestige. This kind of aggressiveness characterizes an individual that breaks obstacles, attacks, is inflexible, courageous and fearless. “Go-ahead” also describes a person who breaks common, usual standards.

Items:

1	In order to achieve anything you need to keep pushing forward and not look to others
4	I usually achieve success through relentless striving to the goal.
7	I use every opportunity to win.
10	There is not such an argument that could deter me from the set goal..
13	„To press ahead” is the purpose in my life.

“Tripping someone up” - an individual characterized by this kind of aggressiveness has no scruples, is interested only in his own business, and considers it normal when sometimes he must trample over people to achieve the goal. This individual uses lies, intrigues and lays the blame on others if he considers this necessary to achieve his goal. He has no remorse when he resorts to bribery. In his opinion happiness is worth the “victims”. He does not attach great importance to truthfulness / honesty. He creates / engages himself in situations of morbid rivalry, frequently feigning friendship.

Items:

2	Victory is all that matters, no matter the means used to achieve it.
5	In order to win, I would have no scruples to discredit my rival.
8	To get promoted, I would have no scruples to destroy my rival.
11	In my opinion it is no holds barred when one strives for the victory.
14	I feel satisfied if I succeed in doing harm to my rival.

“Assertiveness”: an individual characterized by this kind of aggressiveness acts and expresses his/her opinion in a courageous way despite impending potential negative consequences. An assertive individual will not be pushed around, which means that he/she does not allow others to impose an opinion on him/her and he/she knows how to defend his/her interests and just because of that he/she does not let others to exploit or cheat him/her.

Items:

3	When I think that my coach or boss is wrong, I say it to him.
6	I am not afraid to reprimand my boss if I know that he is wrong.
9	I argue with referees and my coach (or with my manager at work) when I am convinced that they are wrong.
12	I am not afraid to defend my point, even before the persons at higher positions
15	For a good cause I am ready to express criticism of my boss.

Then, we conducted first psychometric analyses designed to determine the discriminatory power of each item. We conducted the factor analysis in a mixed group of 686 men and women. At this stage we assumed that the basis of any decision should be the theoretical consistency, especially in terms of aggressiveness rating. This is why we conducted only the factor analysis restricted to three types of studied aggression without any additional exploratory analyses. The criterion of item inclusion in a given factor was the factor weight higher than 0.70 in a given category. Second comes the detailed psychometric analysis that was conducted on two independent groups.

Method

Participants

The first group numbered 686 individuals (522 women and 164 men; M=31,10; SD=10,54; age minimum = 19, age maximum = 82).

The second group numbered 2499 individuals (1335 women and 862 men; M=24,39; SD=9,16; age minimum = 19, age maximum = 82).

The study participants were University of Gdansk and Gdansk Technical University full-time and evening study students from different study fields.

Reliability and discriminatory power

In the Table 1 we present the reliability rates of three scales (dimensions) and discriminatory power of each item based on data from a study on 686 adult Polish men and women.

Table 1. Properties of individual questionnaire items and scales reliability

Variable	Number of items	Research group (N=686)		Women (N=522)		Men (N=164)	
		Cronbach's Alpha	Average r	Cronbach's Alpha	Average r	Cronbach's Alpha	Average r
„Go-ahead”	5	0,83	0,51	0,83	0,49	0,85	0,53
„Tripping someone up”	5	0,86	0,57	0,84	0,53	0,89	0,64
„Assertiveness”	5	0,89	0,61	0,88	0,61	0,88	0,58

Factor validity

We used the confirmatory factor analysis using the maximum likelihood method for the structural model.

Statistics of the assessment of fit

The indices of model fit in the first group (N=686) are: RMSEA=0,057; PCLOSE=0,058; Chi-sq=267,83; $p < 0,001$, GFI=0,943, ECFI=0,529, for the second group (N=2499) these indices are: RMSEA=0,055; PCLOSE=0,020; Chi-sq=732,58, $p < 0,001$, GFI=0,961, AGFI=0,320. We can say with high probability that the factor structure is the same in both groups.

As it is shown in Table 2, there exist statistically significant differences between women and men concerning the level of “Tripping someone up” and “Assertiveness”. Higher mean level of these factors was found in men. The “Go-ahead” factor does not differentiate these two groups.

Table 2. Differences in assertiveness degree in women and in men.

Variable	Women			Men			t	p	Cohen's d
	N	M	SD	N	M	SD			
„Go-ahead”	686	14,8	4,01	180	15,37	4,22	-1,66	>0,001	0,14
„Tripping someone up”	686	8,76	3,60	180	10,18	4,74	-4,41	>0,001	0,34
„Assertiveness”	686	17,6	3,79	180	19,36	3,67	-5,45	>0,001	0,47

As it can be seen in the Figure 1 in the group of women the correlation between „Go-ahead” and „Tripping someone up” amounted to 0,74 and in the group of men to 0,84 (very strong correlation). The correlation between “Tripping someone up” and “Assertiveness” in women amounted to 0,19 and in men to 0,05 (weak correlation). Whereas the correlation between “Go-ahead” and “Assertiveness” in women amounted to 0,31 and in men to 0,34 (moderate correlation). Thus we can state that in the studied population the correlation between factors was similar, which allows us to ascertain with high probability that the factor structure is the same in men and in women.

Fig. 1. The outcome diagram of the questionnaire structure in the group of women (N=452) and in the group of men (N=180).

The model indices of fit for women (N=452) are: RMSEA=0,056; PCLOSE=0,013; Chi-sq=212,03; $p<0,001$, GFI=0,937; AGFI=0,915, for men (N=180): RMSEA=0,063; PCLOSE=0,0111; Chi-sq=148,43; $p<0,001$, GFI=0,889; AGFI=0,848. We can state with high probability that the factor structure in both groups is the same.

Participants

In the study participated 463 sportsmen, divided into three groups. In the first group there were sportsmen practicing non contact sports: athletes, cyclists, swimmers, those doing climbing (84 women, 159 men, $Mage = 28.0$ years, age range: 15–63 years). Second group consisted of football, volleyball and ice hockey players (34 women, 67 men, $Mage = 28.5$ years, age range: 19–58 years). In the third group there were sportsmen practicing combat sports: boxing, judo, kick-boxing, Muay Thai, MMA, climbing (28 women, 91 men, $Mage = 23.9$ years, age range: 15–48 years).

Fit indices of the three-factor model of aggression in four studied groups are presented in Table 3.

Table 3. Fit indices of the three-factor model of aggression in four studied groups

Model fit indices	chi-square	chi-square/df	p	RMSEA	LO	HI	PCLOSE	GFI	ECVI
Sportsmen	900,75	2,58	<0,001	0,039	0,036	0,042	0,922	0,898	1,129
Non contact sports	131,67	1,51	0,001	0,048	0,030	0,64	0,567	0,922	0,882
Team sports	112,93	1,3	0,032	0,055	0,017	0,081	0,381	0,849	1,790
Combat sports	125,9	1,45	0,004	0,065	0,038	0,089	0,687	0,842	1,810

To sum up, it may be concluded that presented goodness of fit tests in all presented models answer positively to the question whether the hypothetically created model may be verified by means of the distributions of scores originated from data matrix.

Discussion and conclusion

Aggression manifestation in different situations demanding competitive activities, strategies, is a more and more frequently occurring phenomenon. One aggression type will be found in people taking part in warfare, another aggression type will be found while riding a motorcycle at high speeds, and yet another one in sport or in business. Therefore, the structure of a research tool measuring the level of aggressiveness in sportsmen seems to be a reasonable project. The baseline adopted by the Authors of the questionnaire was A.H. Buss's (1961) aggression understanding as a relatively stable individual's feature. On the basis of the available literature and our own experiences, we assumed that aggressiveness in sport may be defined by three factors: "Go-ahead", "Tripping someone up" and "Assertiveness". The closest to the classical aggression definition is "Tripping someone up", i.e. actions aimed at making it impossible for the rival to reach his or her goal, and by the same to increase the probability of reaching one's own goal. Performed statistical analyses showed that the presented tool is highly promising in studying people engaged in sport activities. Presented here results of own research demonstrated that different sportsmen groups manifest different intensity of aggression operationalized in the form of three factors. Thus, it is possible to recommend the use of this tool in scientific research in sport psychology. It has a certain application value, hence it may also be useful in a broadly understood diagnosing and training of people practicing or intending to practice different sport disciplines.

The Questionnaire may be used in individual and group testing. Individual answers are rated as follows: Absolutely NOT = 1; Rather NOT = 2; Hard to say = 3; Rather YES = 4; Absolutely YES = 5.

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