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Application of multidimensional simulation research tools in the diagnosis of aggressiveness among the youth – review of innovative methods

Małgorzata Klimczak[1ABCD], **Jarosław Klimczak**[2ABCDE]

[1] Zespół Szkół nr 1 im. Stanisława Staszica, Szczytno, Poland
[2] Faculty of Environmental Sciences, Department of Tourism and Recreation, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland

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C Statistical Analysis
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Abstract

Background & Study Aim: The catharsis hypothesis proved to be counterproductive. Instead of reducing aggressiveness through, for example, repeatedly viewing scenes of violence and aggression, the effect is reversed. It is impossible to reverse this trend in the Internet age and the expansion of electronic media. From the early years of life, the child participates indirectly in the acts of violence and extreme aggression (despite protests, even animated films are saturated with such scenes). Moving these scenes to the real world and interpersonal relations manifests itself in the destruction of toys and other things, attacking peers or animals. The purpose of this review is the cognitive and applicative advantages of simulation research and direct observation in diagnosing youth aggressiveness as well as limitations in the use of these methods.

Material & Methods: Meta analysis of the methods of diagnosing aggressiveness recommended in the scientific literature.

Results: The paradigm of diagnosing aggressiveness is based – mainly on ethical considerations – on indirect observation. RM Kalina developed (1991), and then empirically verified (1997) the method of not only diagnosing aggressiveness based on indirect observation. A certain category of fun forms of martial arts (FFMA) allows this observation. FFMA used during specific prophylactic and/or therapeutic sessions or permanently during PE classes, health-related trainings, and professional sports training become the main means of reducing aggressiveness. In addition, a simple KS-4M projection test developed by Kalina et al. (1992, 1997) and accepted by respondents of all ages (4 images, simulation of activities on the micro, medium and macro scale) enables verification of test results with data from direct observation. Our long-term observations of young people (but also their educators) provide credible results that the mere undertaking of systematic sports training does not bring the expected effect of reducing of aggressiveness.

Conclusions: The questionnaires developed in the middle of the previous century are no longer useful. The main reason (in our opinion) is the need for the respondent to focus attention for a long time, but also the ability to read with understanding. Apart from professional therapeutic sessions, the universal possibilities of using FFMA (e.g. during warm-up, as a resounding of the monotonous repetition of simple motoric activities, as a separate part of PE, as spontaneous recreational fun) open the prospect of a radical improvement of interpersonal relations. However, it is necessary to have a verbal impact and engaging the media in this promotion of mainly mental health and social health. It is necessary to know this unique methodology.

Key words: catharsis hypothesis • fun forms of martial arts • mental health • social health • tutor

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Author's address: Jarosław Klimczak, Faculty of Environmental Sciences, Department of Tourism, Recreation and Ecology, University of Warmia and Mazury in Olsztyn, Michała Oczapowskiego St. 2, 10-719 Olsztyn, Poland; e-mail: klimczakwmrot@op.pl

INTRODUCTION

The words, such as "aggression" and "aggressiveness" are nowadays so commonly used in media that in particular circumstances they are given by sports commentators a positive meaning. Numerous emotional sports commentators (when they identify themselves with a specific sportsman or team) probably do not notice the semantic nonsense spoken or recorded by professional journalists and experts invited to comment on given sport [1-12]. In spite of appearances, this is not a marginal issue, however it is often ignored. When, for the most part of a sporting spectacle, commentators (a professional journalist and a supporting expert) demand more aggression and aggressiveness (usually from the players they identify themselves with), but on the other hand they reasonably (!) resent an act of aggression leading to bodily injury of a player or combat sports athlete from an opposite team and eliminating them from further game, such situation raises an elementary question about the competence of commentators.

This situation should not be underestimated by media owners (electronic media and traditional press), entities educating journalists or scientists representing numerous fields of knowledge: sport science, psychology, pedagogy, sociology and other more detailed ones, such as applied sciences, arts, behavioural sciences, cognitive sciences, life science, politics, social science. Since psychology is incorporated in education programmes at nearly all universities, a justified question arises whether the *catharsis hypothesis*, according to which watching violence and extreme aggression reduces aggressiveness, is still a valid paradigm (despite the criticism of prominent psychologists [13, 14]).

Meanwhile, the *catharsis hypothesis* proved to be counterproductive. Instead of reducing aggressiveness through, for example, repeatedly viewing scenes of violence and aggression, the effect is reversed. It is impossible to reverse this trend in the Internet age and the expansion of electronic media. From the early years of life, the child participates indirectly in the acts of violence and extreme aggression (despite protests, even animated films are saturated with such scenes). Moving these scenes to the real world and interpersonal relations manifests itself in the destruction of toys and other things, attacking peers or animals.

Unfortunately, it is well established in the so-called universal public awareness that the study of violence and aggression is the exclusive domain of psychology. Both these terms are often treated as synonyms, even by psychologists. This fact is emphasised by Aronnson [13] and Zimbardo & Ruch [14]. Most psychology textbooks only define the term aggression as a deliberate behaviour by the perpetrator intended to either hurt the opponent, harm or distress him/her in any other way, cause pain (regardless of whether this aim is achieved), or destroy things.

The terms "violence" and "aggression" (which in fact are similar phenomena) are clearly differentiated in science practiced by few scientists, namely praxeology (see glossary). In praxeology aggression means initiating a destructive fight or moving in a verbal dispute from material arguments to those causing distress to the opponent [15]. In turn violence is defined as physical pressure (physical force) or use of chemical, electrical, or other stimuli, etc., which results in subject being thrown into undesired situation and becoming an object of somebody's action [15].

The terms "aggression" and "aggressive" are understood in sports completely different than in psychology and praxeology. According to *Dictionary of Sport and Exercise Science* [16] **aggression** *noun* the state of feeling violently angry towards someone or something; **aggressive** *adjective* **1.** describes a type of in-line skating, skateboarding, or snowboarding that focuses on performing

Catharsis hypothesis – *noun* the idea that playing sport provides a safe outlet for negative emotions such as frustration and aggression [16].

Athlete – *noun* **1.** someone who has the abilities necessary for participating in physical exercise, especially in competitive games and races **2.** a competitor in track or field events [16].

Player – *noun* someone taking part in a sport or game [16].

Praxiology – science about good work. *A Treatise on Good Work*, a fundamental lecture of praxiology by T. Kotarbinski (the first edition in 1955 [18]) has been translated into majority of the so-called congress languages (English, German, Russian) and as well: Czech, Japanese, and Serbo-Croatian.

PE – *abbreviation* physical education [16].

Training session – *noun* a period of time during which an athlete trains, either alone, with a trainer or with their team [16].

Simulation – caused in model an event, which under some circumstances is similar to the event occurring in examined real object [15].

F-Index – the percentage of fights won relative to all fights conducted by given subject [52-55].

S-Index – the percentage of scuffles won relative to all scuffles conducted by given subject [52-55].

Field testing – *noun* testing for something such as biomechanical analysis, carried out at the athlete's usual training ground, for maximum authenticity of results [16].

stunts **2**. used for describing medical treatment that involves frequent high doses of medication". In this dictionary, the term "violence" is only used when defining the words "hooligan" and "hooliganism". This is an evident paradox. After all, hooliganism at stadiums is part of violence in sport. The second part is mutual violence of athletes. It is reasonable to separate a third part – intellectual violence related to sport (it is justified in the simplest manner in the first paragraph of this article).

Due to this semantic chaos or even a "cognitive conflict" "media tutoring" and peer-teaching impose a narrative deviating from the etymology of the term **aggressiveness.** Freud, who was the first one to define this term, saw only negative aspects in aggressiveness – rape, destruction; from Latin *aggredi*, to approach, advance, attack, assail [17]. In such circumstances, the widespread public opinion and social life organizers (experts responsible for creating educational standards in all types of schools, in particular) fail to recognise the issue of diagnosing, preventing and treating aggressiveness by teachers of physical education and sport. They are the only group of teachers who have the opportunity to repeatedly and directly observe pupils (students) during various forms of sport combat and exercises based on direct body contact (games, combat sports and fun forms of martial arts). However, two conditions must be met. First of all, the educational programmes should primarily include exercises (sports) listed above in brackets. Second of all, PE and sport teachers should have appropriate pedagogical qualifications based on a unique science – agonology [18-20] and innovative agonology [21-23].

The purpose of this review is the cognitive and applicative advantages of simulation research and direct observation in diagnosing youth aggressiveness as well as limitations in the use of these methods.

MATERIAL AND METHODS

The review focuses on manuscripts published since 1991 [24], i.e. when the theory of struggle defence and the basic premises and assumptions of *agonology* developed since 2015 [20] under the name of *prophylactic and therapeutic agonology* [21]. The main result (conclusion) of the articles analysed pertains either to theoretical studies or empirical studies, or both of them combined.

RESULTS

RM Kalina has not only developed a method used to diagnose aggressiveness based on direct observation but also has found out how to reduce this trait in individuals of various ages and how to develop its opposition, i.e. bravery [24]. Initially, the basic measures – ensuring continuous direct observation and adaptive effects (40% of 2,800 minutes from a nine-month defence training) – included appropriately selected exercises of combat sports (mainly judo) and self-defence [25, 26], and FFMA afterwards [27]. Measures supporting the reduction of aggressiveness of military cadets EG included relaxing and focusing exercises and terms: aggression, bravery, defence struggle, responsibility, fair action, wicked action (the cognitive aspect of the experimental programme) were analysed before starting to exercise. Aggressiveness was measured using the recommended clinical diagnostic tools [28, 29]. A special defence training has proved to be an effective means of counteracting aggressiveness in a preventive sense. The aggressiveness of the military cadets from the experimental group did not undergo a statistically significant change during the first year of studies. At this time, a statistically significant increase in the aggressiveness of the military cadets from the control group is proof that the specificity of military studies conducted in line with traditional standards stimulates this negative phenomenon (Table 1).

Over time, Kalina has discovered that the potential of fun forms of martial arts (FFMA) in the sense of diagnosing and reducing aggressiveness while developing bravery goes beyond the standards of oriental combat sports and martial arts [27, 30]. The experimental programme based on "universal defence preparation" consisted of 20 different FFMA (specific exercises), which were repeated 155 times (on average almost two times during each training session), and the total time was 8 hours 12 minutes. Only 5 FFMA were applied in the control group. They were repeated 25 times and took 1 hour 40 minutes in total. The most important adaptive effects were measured using a projection test developed by Kalina and Supiński [25] with subsequent modifications [30], proprietary surveys [30] and self-defence skills test [30]. Members of the experimental group were chosen based on the results of Buss-Durkee Questionnaire [29]. The

Lab testing – *noun* testing for something such as biomechanical analysis that is carried out in a controlled private environment [16].

Healthcare – *noun* the provision of medical and related services aimed at maintaining good health, especially through the prevention and treatment of disease [16].

TFVP – testing fights in a vertical posture [53-55].

Self-defence skills test – comprises three groups of defence action; each group consists of one-, two-, or multi-element tasks (all in all twelve tasks): G1 – safe fall technique; G2 – defence by pre-emptive strike; G3 – defence against embrace, strangling and strikes [30, 58].

Table 1. Theoretical basics and results of pilot studies.

Author(s)	Year	Material	Study design	Results, conclusion, recommendations
Kalina [24]	1991	articles, books	research approach: analysis of biodata, hindsight, data analysis, indepth analysis	monograph: theory of struggle defence; criteria defensive struggle
Report of the research project KBN/5 (EN/39) [25]	1992	first years military cadets (n = 130): EG with increased aggressiveness (n = 28); CG (n = 102)	pilot experiment (9 months defence training; 80 minutes sessions per week, 40% hand-to-hand fighting exercises & EG plus: autogenic training by Schultz; Jacobson training; mental and cognitive impact); frequency 39% to 78%; Psychological Inventory of Aggression Syndrome by Z. B. Gaś [28]	before the experiment , higher indicators (EG: tendency to retaliatory actions*, hidden aggression**, external aggression*, hostility towards the environment*, verbal aggression*, IGAS*;CG: higher control of aggressive behaviour*); after the experiment, higher indicators (EG: self-aggression*, physical self-aggression*; CG: higher control of aggressive behaviour*); after – before experiment: EG all indicators p>0.05; CG higher indicators: tendency to retaliatory actions*, aggression directed to the outside*, hostility towards the environment*, indirect aggression*, verbal aggression**, physical aggression*, IGAS*
Kalina, Supiński [26]	1993	complete results were analysed: EG (n = 22); CG (n = 39)		
Kalina (with Kumala co-participation) [27]	1996	military cadets (n = 23 from 58 candidates), age 19.47 years	experiment (14 sessions judo training, 5 per week); inclusion criterion – higher aggressiveness than others); participant observation (external criterion for the assessment of aggressive behaviour during 3 special FFMA); Buss-Durkee Questionnaire [29]; KS-4 projection test [25]	correlation: GAIndex with UA (0.481*); UA with WD (0.433*); KS-4 is a more accurate tool for measuring aggressiveness than Buss-Durkee Questionnaire; temporary standards: of UA & UAG and NA & NAG

EG experimental group; **CG** control group; ; **FFMA** fun forms of martial arts; **IGAS** indicator general aggression syndrome; **UA** disclosed aggressiveness (individual); **UAG** disclosed aggressiveness (group); intensification of aggressiveness (individual / group); **WD** bravery Index; **NAG NAG** *p<0.05; **p<0.01

average result of this questionnaire (WO index of 89.36) is one of the highest published so far [30]. All the more so the result showing a significant reduction of aggressiveness and development of bravery during an eight-month experiment in military cadets selected in this manner proves that the "universal defence preparation" is effective, with FFMA being an important element of this method. Military cadets from the control group (even though classified as individuals with low aggressiveness according to the Buss-Durkee Questionnaire) turned out to be very susceptible to negative educational influences based on established military training standards (Table 2).

The results of observations and experiments summarized in Table 1 and 2 were used to classify FFMA for the purposes of physical education and sports training [31], and also in recreation [32]. Although the authors of *Combat sports propaedeutics – basics of judo* [33] place emphasis on safe falling and avoiding collisions (motor competences necessary in combat sports), several FFMA were proposed in each of 14 lessons (a fifteenth one was an exam), including mandatory as warming up exercises. FFMA that have been empirically verified [30, 34, 35] as easy to use and most useful in diagnosing and reducing aggressiveness are often recommended. A strong negative correlation ($r = -0.966$, $p<0.01$) of S-Index with fear and aggressiveness ($r = -0.856$, $p<0.05$) means that young female participants who are able to win all testing fights in a vertical posture (F-Index = 1) exhibit a low degree of fear and aggressiveness [35] (Table 3).

Knowledge and pedagogical experience obtained after analysis of results and recommendations summarised in Tables 1-3 were the basis for implementing these achievements in the practice of teaching sport animators of children and adolescents in Poland using a short course method – two grants of the Ministry of Sports [39, 40]. The most important cognitive effect of these courses was first of all: changed perception of "aggression", "aggressiveness", "violence" by pedagogues who, as volunteers, attempt to help the youth overcome difficulties associated with social adaptation [40, 41]; second of all, accepting FFMA as a simple means of diagnosing aggressiveness, but also their possible use in prevention and treatment of this phenomenon during leisure activities (Table 4).

DISCUSSION

In this review, we almost exclusively analyse the results of empirical studies based on *psychomotor simulation* [43] with an emphasis placed on FFMA. Attention should be drawn to the word "psychomotor", because unlike simple motoric

Table 2. Results of the main pedagogical experiment.

Author(s)	Year	Material	Study design	Results, conclusion, recommendations
Kalina [30]	1997	military cadets: EG with increased of aggressiveness (n = 19), average age 19.68 years; CG (n = 75) average age 20.04 years	8 months pedagogical experiment: EG the training with the method of "universal defence preparation" (which includes physical exercise, relaxation exercises, verbal actions); CG hand-to-hand fight training according to military standards; evaluated variable and measuring tools: the level of bravery and the opposite, or aggressiveness (KS-4M), selected defence disposition (author's inquiry sheet), level of self-defence skill ("basic self-defence skills test"); criteria for inclusion in the EG and measuring tool: higher level of aggressiveness (Buss-Durkee Questionnaire [29])	WO average: 89.36 (high level of aggressiveness) EG; 41.73 (low level of aggressiveness) CG; bravery level before experiment: EG 10.5% very high, 21% high, 5.3% defensive tendencies, 10.5% prone to violence, 26.3% high aggressiveness, 26.3% very high aggressiveness; CG 18.7% very high, 36% high, 5.3% defensive tendencies, 12% prone to violence, 22.7% high aggressiveness, 6.7% very high aggressiveness; bravery level after experiment: EG 26.3% very high, 26.3% high, 15.8% defensive tendencies, 15.8% prone to violence, 15.8% high aggressiveness, 0% very high aggressiveness; CG 18.7% very high, 16% high, 6.7% defensive tendencies, 14.7% prone to violence, 30.7% high aggressiveness, 12% very high aggressiveness; WD correlation with the degree of self-defence instinct development: EG before 0.361 after experiment 0.641**; CG before 0.226* after experiment 0.050; number of training sessions: EG 81 and total time 135 hours; CG 44 and total time 58 hours 40 minutes; number of FFMA and repetitions: EG 20 & 155 rep. (total time 8 hours 12 minutes); CG 5 & 25 rep. (total time 1 hours 40 minutes); training according to "universal defence preparation" tuned out to be more effective for development of bravery and elementary defence dispositions than hand-to-hand fight training under military standards

EG experimental group; **CG** control group; **FFMA** fun forms of martial arts; **WO** general indicator of the Buss-Durkee Questionnaire; **WD** bravery Index; *p<0.05; **p<0.01

tests (e.g. jumping, running, sit-ups [44, 45]) engaging mostly energy, the simulations used in line with the FFMA formula also significantly activate the cognitive sphere of personality. The premise for such an approach is the prospect of wide application of this category of psychomotor simulations (self-defence exercises, avoiding collisions, safe falls and tests of this phenomena) and most of all FFMA as early in physical education (mandatory in all types of schools) and in sport of youth as possible [31-33].

FFMA have the universal advantage that as psychomotor multidimensional simulation they allow for direct observation and simultaneously serve three functions, i.e. diagnostic, therapeutic and preventive one. This rule is not solely limited to the phenomenon of aggressiveness. There are plenty of empirical evidence that diagnosis using the appropriate FFMA category is accurate [25, 26, 34, 35, 39-41]. However, the smaller number of reports discussing the modifying effect of these training measures (if they are used frequently and for long periods [30, 35]) does not give grounds to doubt their effectiveness in preventing (prophylaxis of) and reducing (therapy of) aggressiveness.

This principle is most clearly documented by the results of studies on safe falls. Many groups of students and the elderly (the oldest were 47-, 49-, 55 years old [46]) were taught how to fall safely with a mixed method which combined formal exercises and FFMA [33, 35, 36, 47]. It is difficult to question the assumption that each of them has fallen at least once in their life and effects of unpleasant experiences are encoded in their minds. It is the variety of psychomotor simulations that end with a controlled fall and safe collision with the ground [48] (or a vertical obstacle [49]) that are effective measures to reduce fear of such events and negative memories from the past (therapeutic aspect). A systematic training based i.e., on such simulations fulfils the expected preventive function. These conclusions may be drawn based on results of pedagogical experiments carried out by Kalina [30] and Syska [35]. In both experiments, safe fall exercises were at first the basis for safe repetition of self-defence exercises (techniques) and during further training sessions they became an attractive method to improve these skills by creatively setting probable events up in the future [26, 27, 33 31-33].

Although pilot and original studies enrolled the academic youth (adults), but all fun forms of exercises are attractive for children and the youth,

Table 3. Fun forms of martial arts for practice – methodological and methodical details.

Author(s)	Year	Material	Study design	Results, conclusion, recommendations
Kalina, Jagiełło [31]	2000	military cadets (n = 308), PE students: female (n = 154); male (130)	research approach participant observation	divisions and classifications of fun forms of martial arts (FFMA): 1) avoiding a collision; 2) putting the opponent out of balance; 3) releasing oneself from grips; 4) restraining the opponent's movements; 5) removing the opponent from the area; 6) putting the opponent in a specified place; 7) defending the territory and property; 8) comprehensive settling of close combat.
Kalina [32]	2000		scientific explanation – theoretical argumentation and illustrative pictures	simple explanation of the essence of safe fall and the mechanics of body injuries during a fall; FFMA: (1) avoiding a collision ("matador"), (5) removing the opponent from the area ("sumo"), (6) putting the opponent in a specified place ("puddle")
Kalina, Jagiełło, Kruszewski, Włoch [33]	2003	PE students: female (n = 154); male (n = 130)	research approach participant observation; systematic of exercises in teaching of fall; test of making safe fall; FFMA all category [31]	among 7 the basis presumptions and assumptions: feeling of self-confidence in situations of sudden loss of balance or necessity of counteracting to criminals in defence of oneself or other endangered persons; learning respect the body of one's own and of other people, as well as soft methods of immobilisation of opponent's body; development of self control in situations of social approval for application of physical force in relation to others; simplified theory of safe falls and premises as regards preventing body injuries; training structure of 15 lessons (the last: test of making safe fall)
Syska, Jasiński, Kalina [34]	2004	female students: EG (n = 23, age 21.17 years); CG (n = 97, age 20.67 years)	9 months pedagogical experiment: EG the special programme of modern gymnastic and dance forms with elements of self-defence which includes physical exercise, relaxation exercises, verbal actions (2 times a week for 9 months, each time for 60 minutes), 66 training sessions and 30 PE each 90 minutes; CG only 90 minutes PE per week; in structure training sessions 10-15 minutes FFMA from 8 classifications groups [31]; evaluated variable and measuring tools: weighted arithmetic mean of "declared bravery" KS-4M [30] and K-K'98 questionnaire [37]; aggressiveness (Buss-Durkee Questionnaire [29]) anxiety (STAI scale of Spilelberger et al. [38]) special adaptation for hand-to-hand fight: results of "sumo" as testing fights in a vertical posture (F-Index and S-Index)	the level of aggressiveness: EG before 76.61 points, after 61.91**; CG before 82.10 after 80.81 (difference after 3.620**); the level of anxiety as state (X-1): EG before 36.7 points, after 33.13; CG before 36.42 after 38.26 (difference after 2.759**); -fear as trait (X-2) EG before 36.91 points, after 34.93; CG before 39.94 after 40.51 (difference after 3.399**); this special programme of several months may be considered to be an effective way of decreasing aggressivity and feeling of anxiety in young women
Syska [35]	2005			a strong negative correlation (r = –0.966, p<0.01) of S-Index with fear and aggressiveness (r = –0.856, p<0.05) means that young female participants who are able to win all testing fights in a vertical posture (F-Index = 1) exhibit a low degree of fear and aggressiveness;
Harasymowicz, Kalina [36]	2006		scientific explanation – theoretical argumentation and video on CD	playful forms of fighting as a synonym

EG experimental group; **CG** control group; **FFMA** fun forms of martial arts; *p<0.05; **p<0.01

in particular. The advantage of the research presented in this review is that opinions about FFMA were expressed both by students, the vast majority of whom did not have such experience at the initial stages of institutional education (preschool, primary school, junior high school, high school), and most creative teachers (volunteers – animators of sport – working with schoolchildren in their free time). The study results reveal mental diversity among this undoubtedly creative group of volunteers. For example, 98% of them gave an affirmative answer to the question whether increasing sports activity leads to a decrease in aggressiveness, but merely 50% were aware before training that the terms "aggression", "aggressiveness", "violence" denote various phenomena related to each other in a substantive sense. These terms were considered as synonyms by 48% of them. After the course, these proportions slightly changed, to 56% and 37%, respectively. The authors of the study reasonably conclude that the meaning of these concepts is distorted by the media and that more attention should be paid to semantic aspects in future courses [40].

There are few reports on studies documenting effective use of martial arts to reduce aggressiveness [11, 35, 50]. Valuable empirical data are provided by Trulson's experiment [51]. The

Table 4. Application of fun forms of martial arts.

Author(s)	Year	Material	Study design	Results, conclusion, recommendations
Kalina, Klimczak [39]	2014	articles, books	review	secondary verification of the accuracy of aggressiveness indicators measured by indirect methods; therapeutic aspects of sanctions; recommended FFMA from category xx and possibilities of new strategies
Kalina, Klimczak [40]; Klimczak, Kalina, Jagiełło [41]	2015	animators of sport for children and youth from all over Poland stage I: (n = 1056); stage II (n = 877)	authors questioner stage I: 22 questions, stage II: 14 questions); modified behavioural documenting sheet during FFMA (indicators: KDW control of own actions, UAZ revealed aggressiveness during diagnostic FFMA, NAZ intensification of aggressiveness during diagnostic FFMA, UAGZ revealed aggressiveness of group during diagnostic FFMA, NAGZ intensified aggressiveness of group during diagnostic FFMA	sport animators after course rated 7.9 (1 very low; 10 very high) the legitimacy of including FFMA in the education of children and young people and as a simple means of diagnosing aggressiveness; 89% declare that they will apply FFMA in practice; declarations of nearly 60% of interested in obtaining such qualifications are a significant social effect; recommended FFMA as a means of diagnosing aggressiveness: "playing tag by names", "playing tag by names with revenge", "playing tag by numbers", "limping fox"
Klimczak, Kalina, Jagiełło [41]	2015	1,076 and 618 sports animators, recruited mainly from among PE teachers and sport coaches, participated in two one-day courses (in 2014 and 2015, respectively), 237 of them (38%) also participated in course I; women accounted for (23% and 13%), men (77% and 87%); persons with work experience of over 10 years dominated (67% and 70%)	authors questioner; detailed research questions: does training change the perception of the phenomena of "aggression", "aggressiveness" and "violence" (courses I and II)? is a one-day course enough to convince the most creative participants to take effort to specialize in diagnosing and therapy of aggressiveness based on cognitive-behavioural methods, including fun forms of martial arts (courses I and II)?	the result of course II shows a positive, long-lasting educational effect: from among persons who participated in the course for the second time, 62% declared that the concepts of "aggression", "aggressiveness", "violence" mean various phenomena related to each other in substance (50% who participated first time), but 34% still thought that they were synonyms of the same phenomenon (48% who participated first time); Clearly the most positive training effect shows in the structure of answers to the question about taking the trouble in the future to specialize in the treatment of aggressiveness based on cognitive behavioural methods. The majority (56%) want to gain such qualifications; a large percentage of sports animators who are determined to take the trouble to specialize in the treatment of aggressiveness based on cognitive behavioural methods gives optimistic educational prospects and expected social effects; the result of the study also indicates a possibility of a successful promotion of widely understood martial arts (and FFMA) in the prevention and therapy of aggressiveness, positive education and health promotion defying the expansion of neo-gladiatorship
Jagiełło, Kalina RM, Klimczak, Ananczenko, Ashkinazi, Kalina A [42]	2015	articles, books	review	mental bridge with the tradition of fighting on the border of fun; fun forms of physical activity and FFMA in different cultures;

author measures the effects with laboratory testing tools recommended by classical psychology, pedagogy and psychology. The potential of FFMA, as simple means to diagnose, reduce and prevent aggressiveness (classified as field testing in a sense), still needs to be properly promoted throughout the world (made more known in education, sports and healthcare).

A fascinating issue in the cognitive sense and from the perspective of possible applications is to verify the diagnostic values of FFMA (already recommended as apt tools for diagnosing aggressiveness) in relation to the results of KS-4M (indirectly assessing bravery and aggressiveness) and S-Index (indicator of the effectiveness of test fights in vertical position recommended in the most recent publications as TFVP [52-55]). The premises include: on one hand, high correlation of "declared bravery" (weighted arithmetic mean of results of KS-4M [30] and K-K'98 questionnaire [37]) with Buss-Durkee Questionnaire ($r = 0.656$) and with ($r = 0.796$, $p<0.05$) determined by Syska; and on the other, very high negative correlation of S-Index with these indicators: S-Index÷STAI $r = -0.966$; S-Index÷Buss-Durkee Questionnaire $r = -0.856$; S-Index÷"declared bravery" $r = -0.849$ [35].

These correlations apply merely to 6 female students [35], which is why the studies should be repeated on a large population sample, including individuals of different ages, as well as to compare volunteering men and women (predicting effectiveness in self-defence). An attractive research perspective goes beyond the possibility formulated above. The latest studies on children training judo (both boys and girls) demonstrated wide possibilities of using non-apparatus and quasi-apparatus tests based on formal techniques of hand-to-hand fighting in different combat sports or martial arts – this recommendation applies to the use of quasi-apparatus *shime waza* test [56].

A comparative analysis of the results of KS-4M (women and men) in relation to interpersonal aggression stimulated visually is also an important premise of such exploration. A police officer appearing in the second of stimulated situations turned out to be a significant factor modifying behaviour of different individuals hypothetically participating in both situations being monitored (the participants were instructed to point to themselves) [57].

CONCLUSIONS

The questionnaires developed in the middle of the previous century are no longer useful. The main reason (in our opinion) is the need for the respondent to focus attention for a long time, but also the ability to read with understanding. Apart from professional therapeutic sessions, the universal possibilities of using FFMA (e.g. during warm-up, as a resounding of the monotonous repetition of simple motoric activities, as a separate part of PE, as spontaneous recreational fun) open the prospect of a radical improvement of interpersonal relations. However, it is necessary to have a verbal impact and engaging the media in this promotion of mainly mental health and social health. It is necessary to know this unique methodology.

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