Original Article

Development of behavioural self-regulation of adolescents in the process of mastering martial arts

IHOR NAKONECHNYI¹, YAROSLAV GALAN¹

¹ Yuriy Fedkovych Chernivtsi National University, Chernivtsi, UKRAINE

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Abstract

The research is devoted to the problem of the development of behavioural self-regulation of adolescents in the process of mastering martial arts. The work presents the results of a theoretical study of the problem of self-regulation of a personality and self-regulation of behaviour; it discloses peculiarities of martial arts influence on the development of behavioural self-regulation of adolescents. The goal of the research is a theoretical and experimental study of the special psychological aspects of behavioural self-regulation of adolescents in the process of mastering martial arts and development of psychological follow-up aimed at the development of the investigated phenomenon during training exercises.

Material and Methods. General theoretical scientific methods (analysis, classification, systematization, comparison and synthesis of theoretical and experimental studies data, theoretical modelling, etc.) empirical methods and research techniques: observation, interview, questionnaire, standardized questionnaires (personality inventory) and special psycho-diagnostic techniques of self-regulation of behaviour study; psycho-pedagogical experiment (summative and formative); active socio-psychological training methods; – methods of mathematical statistics for data processing (Spearman's rank correlation coefficient, comparison of samples by Student's t-test). The study included 210 adolescents.

Results. The study revealed the features of manifestation of structural components (cognitive, motivational, emotional-volitional) and levels of development (high, medium, low) of the behavioural self-regulation of adolescents in the process of mastering martial arts. It was found out that the important factor in the development of self-regulation of behaviour of teenagers is optimization of the relationship with the coach/trainer.

Conclusions. The program of psychological follow-up of the development of behavioural self-regulation of adolescents was proved, developed and tested; the program's implementation evidenced to be expedient and effective during the training sessions of Pankration for the purpose of developmental growth of this phenomenon, for harmonization of relationship in the group and with the trainer, for improving sports performances.

Key words: regulation, self-regulation, fighting arts, Pankration, martial arts

Introduction

The formation of the democratic society in Ukraine actualizes attention to the younger generation, as the process of personality development in many cases is characterized by weakening of the significance of moral and spiritual values, by increasing egocentric tendencies, aggravation of behavioural deviation that might trouble parents, teachers, the whole society and requires close attention of scientists. Gaining moral and spiritual qualities, a growing personality is formed as a subject of personal self-regulation, who follows arbitrary moral decisions, whomey independently implement own planned goals, motivate and analyse own actions based on their social significance. The self-regulation of behaviour in adolescence, characterized by crisis manifestation, is particularly difficult. It is precisely in adolescence, as noted by the researchers, a young personality is going a hard way expressing particular interest in the variety of activities, including sports; having internal conflicts with himself and conflicts with other people; going through external nervous breakdowns, emotional decompensation and internal emotional uplift to new feelings that determines the necessity to focus on the issue of self-regulation of behaviour. A weighty contribution to the study of behavioural regulation and self-regulation was made by both foreign (Zbigniew, 2014; Wojciech, 2017) and Ukrainian scientists (Bekh 1994; Boryshevskiy 1996; Bulakh 2002; Maksymenko 1995; Tatenko 1995; Viskovatova 2013; Sobyenin, 2016; Iermakov, 2016).

In the field of developmental and pedagogical psychology, several researchers have directed their investigative attention to different types of self-regulation: motivational, volitional, emotional, moral, sensomotor, intellectual, style, axiological, personal and communicative (Morosanova 1997; Dolynska 1997; Kyrychenko 2001; Poviakel 2004; Nakonechnyi 2010; Ivanova, 2016).

The influence of martial arts on athletes' psychophysiological state has repeatedly become the subject of research of both domestic and foreign scientists (Starosta 2000; Jaskolski, 2005; Nakonechnyi 2010; Shiyen 2013; Matsaridis, 2014; Korobeinikov 2013; Ivashchenko, 2017).

At the same time, the results of analysis of scientific research suggest that the problem of psychological characteristics and purposive development of behavioural self-regulation of adolescents in the process of mastering different sports activities and, in particular, martial arts, was not the subject of a special study and remains currently important and insufficiently studied.

Materials and Methods

In order to address the challenge adequately we used a set of research methods:

- general theoretical scientific methods (analysis, classification, systematization, comparison and synthesis of theoretical and experimental studies data, theoretical modelling, etc.)
- empirical methods and research techniques: observation, interview, questionnaire, standardized questionnaires (personality inventory) and special psycho diagnostic techniques of behavioural self-regulation study;
- psycho-pedagogical experiment (summative and formative); active socio-psychological training methods;
- methods of mathematical statistics for data processing (Spearman's rank correlation coefficient, comparison of samples by Student's t-test, etc. The calculations were made using the computer programme Statistica). The experimental work was performed during 2010-2012 years in the secondary schools in the city of Chernivtsi (Ukraine), regional physical culture and sports societies, Chernivtsi regional children's and youth sports school and sports clubs of the district centres of Chernivtsi region. The study included 210 teenagers.

Results and Discussion

Experimental research has shown that behavioural self-regulation of adolescents in the process of mastering martial arts is determined by certain features of its structural components: cognitive, motivational, emotional and volitional. The cognitive component of behavioural self-regulation of adolescents, which was studied with the help of the author's questioner "Forming of Pankration athlete personality", is characterized mainly by limited knowledge of the issues of martial arts, inattentive perception of information provided by the coach, insufficient awareness of the dependence of success in the sport on personal characteristics and qualities; lack of confidence about the correctness of own actions, as most teens exhibit medium and low level of cognitive component of behavioural self-regulation (12-13 years: a high level – 11.5%, medium – 45.7%, low – 42.8%; 14-15 years: a high level – 20%, medium – 47.6%, low – 32.4% of adolescents).

For the motivational component of behavioural self-regulation of adolescents during Pankration training, which was studied by means of such techniques as "Motivation to Sports Activity" by A.V. Shabolts, "Motivation to Success" by T. Ehlers, "Scale Of Athlete's Assessment / Estimation of Training Efficiency Conditions" by B. James Cretti, the mostly typical are the following:

- the interest in martial arts;
- existence of objectives and selection of the easiest way to achieving those objectives, because of the lack of self-confidence;
- choice of tasks of average complexity and steady requirements in someone's approval and support of the actions;
- a desire to go in for selected sports, to increase physical development level, study techniques and tactics of the sports, but there is no pursuit to succeed and no desire for long-time training.

As a matter of fact, adolescents aged 12-13 years have as the dominant the motive of physical self-affirmation (46.4%), rational-volitional motive (39.3%), motive of emotional satisfaction that reflects the joy of movement and physical effort (37, 2%). The least pronounced motives in this period are sport-educational, civic and patriotic reasons and motives of social affirmation.

For adolescents aged 14-15-years, the leading position among the sports activities motivation is occupied by the emotional satisfaction motives (43.1%), physical self-affirmation motives (42.3%), but the motive of social self-affirmation becomes more important (41.0%), that is manifested by specific aspiration to express themselves in terms of personal prestige – to gain the respect of friends, spectators and relatives. The latter, in our opinion, is associated with age peculiarities and the ambition for self-affirmation. Accordingly, the least pronounced motives for this period are sport and cognitive, social and emotional reasons and motive of preparation for professional activities.

Most adolescents possess average (58.1%) and low (21.4%) level of motivation to succeed, and only 20.5% of adolescent athletes have a high level of motivation to succeed, the aspiration to achieve significant results in sports activities. The most favourable factors for raising the efficiency of Pankration training are considered watching videos and other visual aids (9.2 points), personal trainer guidance, task-relevant statements (9.0 points) and his support and attention (8.9 points).

To study the emotional and volitional component of behavioural self-regulation of adolescents, the following technique was used: "The Research of Volitional Self-regulation" by A.V. Zvierkov, E.V. Eidman and "Diagnostics of Emotional Maturity of Personality" O.Ya. Chebykin. It was found out that most adolescents tend to have an average level of volitional self-regulation, which is characterized by purposefulness, perseverance and, at the same time, by insecurity and lack of confidence in ability to control their own activities (12-13 years:

a high level – 23.8%, medium – 43.8%, low – 32.4%; 14-15 years: a high level – 31.4%, medium – 51.4%, low – 17.2%).

Adolescents in the training sessions mainly reveal average (57.7%) and low (35.2%) levels of emotional maturity, which is characterized by an abrupt change of emotions, reduced control over own behaviour, gestures, actions; lack of understanding and empathy for others, manifestation of egoism and selfishness. Only 7.1% of adolescent athletes have a high level of emotional maturity.

It was found out that adolescents who master the martial art of Pankration, are mostly characterized by the medium level of style self-regulation (12-13 years: high – 4.7%, medium – 42.9%, low – 52.4%; 14-15 years: high – 20.1%, medium – 62.8%, low – 17.1%), that is evidence of standard behaviour, but with deficiencies in planning their activities, regulatory flexibility, choice of solutions. However, with age, it can be observed an improvement of ability of self-regulation of actions, planning of initiated activity, modelling, analysis of disadvantages and victories, evaluation of own results and adoption of positive decisions in difficult situations.

It is established that adolescents in the process of mastering martial arts show mostly low levels of mental stability by all indicators: competitive emotional stability (12-13 years – 63.8%; 14-15 years – 44.8%), self-regulation in the context of mental stability (12-13 years – 60.9%; 14-15 years – 61.9%), motivation and energy rate (12-13 years – 48.6%; 14-15 years – 47.6%), stability to obstacles (12-13 years – 53.3%; 14-15 years – 45.7%). An adolescent might not always notice own mistakes and even does not listen to the advice of relatives and friends; an adolescent cannot properly evaluate the results, and in case of fatigue, failure, sports injuries and monotonous work can carelessly treat initiated work and duties.

A high level of aggressiveness of adolescents (adolescents aged 12-13 years – 62.0%, 14-15 years – 68.0%) who master martial arts, has a negative impact both on the development of self-regulation, and on sports performance. According to the general/compiled quantitative and qualitative data we have identified the following levels of behavioural self-regulation of adolescents in the process of Pankration training: high (21.6%), medium (50.8%), low (27.6%), (Table. 1). Most adolescents have medium and low levels of behavioural self-regulation in the process of mastering martial arts.

Table 1. Generalized quantitative data of behavioural self-regulation of adolescents in the process of mastering Pankration (%) n = 210

Levels of development	Self-regulation rates		
	Middle group (12-13 years)	Older group (14-15 years)	Total
High	20.6	22.5	21.6
Medium	48.2	53.3	50.8
Low	31.2	24.2	27.6

The levels of the behavioural self-regulation of adolescents in the process of mastering the Pankration martial art are characterized by certain features depending on the particular manifestation of the structural components of the behavioural self-regulation.

Thus, a high level of the behavioural self-regulation of adolescents is characterized by: a good command of general knowledge in the sport branch and its psychological components; understanding of the role and importance of Pankration as a form of martial arts; awareness of ways of self-perfecting; attentive perception of information, which is given by the coach; the use of new knowledge about the technologies and techniques for self-regulation improvement; high motivation to win; availability of clear objective, adequate selection of methods, means and ways of their implementation; giving preference to tasks of higher complexity; display of diligence, zeal, perseverance/persistence, determination / resoluteness; emotionally stable self-control, self-confidence, calmness, heightened status of preparedness for new and unexpected; well-developed self-regulation in different life situations, balance of emotional state, the desire to control oneself. The high level of expressiveness and the low level of aggressiveness allow them to be open, increase the circle of acquaintances and friends.

The average level of the behavioural self-regulation of adolescents is characterized by: an interest in martial arts training, the presence of a conscious purpose, but with frequent self-doubts, which makes the purpose unattainable, superficiality of knowledge, confusion in terms, lack of awareness about the history of martial arts and favourite sport. Those adolescents have a desire to go in for favourite sports, improve physical development and activity, to master techniques and tactics of the sports, but they have no desire to achieve sports tops and have long-term training. There exists a need to encourage and support other athletes at a loss or failure in the competition, but an interest in training reduces. The strong-willed self-regulation is expressed by overcoming the ever-increasing difficulties, provided that they are of average complexity. Negative emotions, anger and aggression display may become apparent in complex situations. The control of behaviour and compassion for others are not always the case.

The low level of the behavioural self-regulation of adolescents is characterized by almost not-pronounced sporting and educational motive, limited knowledge of technical training and history in martial arts; lack of awareness of the role of self-regulation in learning Pankration; apathy, low intensity of work, negative emotions, fear during martial arts trainings. There is no stimulus for victories in competitions; the interest in studies is very

low. The training objective is uncertain; victory is considered to be unattainable. The low level of volitional qualities development is caused by sensitivity, vulnerability, confusion, emotional instability. Reflexivity is low, but the general background of activity is, as a rule, undervalued. There exists impulsiveness and intentions instability. Increased lability, uncertainty can lead to inconsistent and uncontrolled behaviour of an individual.

The reported peculiarities of the behavioural self-regulation of adolescents demonstrate, in general, its lack of development in the process of mastering martial arts and encourage to find ways and means of purposeful formation of this phenomenon during training sessions.

The experimental work was conducted at the Chernivtsi Children's and Youth Sports School "Avangard" in 2010-2011 academic year. For the experiment there were selected two groups (the control and experimental groups – a total of 120 participants (60 adolescents in each – 2 subgroups of middle aged and older adolescents).

Formative program included diagnostic, theoretical and practical parts.

During the diagnostic phase, we found features of manifestation of the behavioural self-regulation of adolescents of the experimental and the control groups in the process of mastering all Pankration techniques of the summative experiment.

The aim of the theoretical stage was assimilation of knowledge on the behavioural self-regulation in sports activities by adolescents. Mini-lectures, discussions, seminars/workshops were held with the aim to give psychological education to adolescents. The theoretical block contained information on the history and peculiarities of Pankration as one of the varieties of martial arts, on the importance of psychological training of the regulation of mental states, willpower, behavioural self-regulation, information on the components of self-control, moral education and the role of aggression in human behaviour. Awareness raising work improved the cognitive component of the behavioural self-regulation of adolescents. Along with increasing of the cognitive component, the acquired knowledge became an incentive for learning and training work, adaptation to training activities that affects the growth of adolescent's performance in Pankration training. Parents meetings were also conducted as it is important to get parents' understanding and support in the development of behavioural self-regulation of children in the process of training of this type of martial art.

The practical part of psychological follow-up of Pankration training process for adolescents was planned for 13 two-hours training sessions. The content of the practical part of the training was the activities aimed at improving of the structural components of the behavioural self-regulation of adolescents that could be objectively formed in a relatively short period of time. This led to the inclusion in the training program of the tasks for the development of self-awareness of martial arts training motives, development of a motive to achieve success, purposefulness, volition self-regulation, emotional maturity, decrease of aggression manifestations.

The following methods and techniques of active social psychological study were used: group discussions, analysis of situations, exercises for self-cognition and self-assessment, exercises on relaxation, role playing games, communicative psycho-technical exercises, staging and relay races with the elements of martial arts, which naturally were included into the content of the lesson.

The special/separate task of the formative experiment was the work with the trainers, organized in the form of theoretical and practical training concerning communication problems with the trainees, implementation of which helped to harmonize relationships, moral and psychological climate in training groups, to increase the authority of the coach and perception of his guidelines by adolescents.

Upon completion of the implementation of the program on development of the behavioural self-regulation of adolescents, control determination of levels of the behavioural self-regulation of adolescents showed significant structural and level changes of this psychological phenomenon in the experimental groups.

After this formative impact, among the studied/surveyed experimental groups it was identified that there were by 28.3% more adolescents with high cognitive component of behavioural self-regulation, by 21.5% more – with high motivational component and by 20.1% more – with high levels of emotional and volitional component as a result of reducing the number of surveyed adolescents with low level of manifestation of structural components of behavioural self-regulation.

Among the adolescents of control groups there were also revealed certain changes in the levels of the behavioural self-regulation owing to training sessions according to traditional methods. There were by 8.3% more adolescents with high cognitive component of the behavioural self-regulation, by 6.8% more – with high motivational component and by 3.5% more – with high emotional and volitional component.

To state the significant changes that occurred in the experimental and control groups, we used the Student's t-test. The differences in the rates of the cognitive component of the behavioural self-regulation of adolescents in the control group before and after the experiment are statistically significant ($t = 2.006$) at the level of $p = 0.05$, while the experimental group differences in the levels of cognitive component of the behavioural self-regulation of adolescents before and after the experiment have a high level of statistical significance ($t = 9.64$ with $p = 0.001$).

The differences in the rates of the levels of the motivational component of the behavioural self-regulation of adolescents in the control groups before and after the experiment are statistically significant ($t = 2.27$) at $p = 0.05$, while the experimental group differences in levels of motivational component of behavioural self-regulation of adolescents before and after the experiment are statistically significant at a high level ($t = 7.95$ with

$p = 0.001$). As a result of mathematical calculations, differences in the rates of emotional and volitional component of the behavioural self-regulation of adolescents in the experimental groups before and after the experiment were statistically significant at a high level ($t_{0.001} = 9.15$) and, conversely, in the control group statistically significant differences could not be found ($t = 0.67$).

A comparative analysis of the behavioural self-regulation of adolescents showed an intense dynamic changes in the results before and after formative effect (Table 2).

Table 2. Changes in the levels rates of behavioural self-regulation of adolescents in the experimental and control groups before and after the development experiment (%)

Levels of development of behavioural self-regulation	Experimental groups									Control groups								
	Middle group (12-13 years)			Older group (14-15 years)			Total			Middle group (12-13 years)			Older group (14-15 years)			Total		
	Before experiment	After experiment	Difference	Before experiment	After experiment	Difference	Before experiment	After experiment	Difference	Before experiment	After experiment	Difference	Before experiment	After experiment	Difference	Before experiment	After experiment	Difference
High	21.5	37.8	16.3	23.7	39.9	16.2	22.6	38.9	16.3	20.6	21.4	0.8	22.5	24.3	1.8	21.6	22.9	1.3
Medium	46.3	54.6	8.3	54.1	58.7	4.6	50.2	56.7	6.5	48.2	51.3	3.1	53.3	54.5	1.2	50.8	52.9	2.1
Low	32.2	7.6	-24.6	22.2	1.4	-20.8	27.2	4.4	-22.8	31.2	27.3	-3.9	24.2	21.1	-3.1	27.6	24.2	-3.4

Thus, among the studied experimental groups after the formative impact 38.9% of adolescents were characterized by a high level of the behavioural self-regulation, while at the beginning of the experiment such were 22.6%; 56.7% – the average level of the behavioural self-regulation of (before the formative impact this group was 50.2%) and 4.4% – low (compared to 27.2%).

Upon completion of the experiment, the group of adolescents who exhibit high (by 16.3%) and average (by 6.5%) levels of the behavioural self-regulation increased and the number of adolescents with low behavioural self-regulation (by 22.8%) decreased.

Adolescent athletes in the control group did not show significant changes in the levels rates of the behavioural self-regulation (1.3%, 2.1%, 3.4% respectively). The obtained results have confirmed the effectiveness of the psychological follow-up program for targeted development of the behavioural self-regulation of adolescents in the process of mastering Pankration as martial arts and harmonization of the relationship with the coach. The basis of the formative experiment was systematic and personality-oriented approach to the development of behavioural self-regulation that involves consideration of this phenomenon as an integrated structure that includes cognitive, motivational, emotional and volitional components, formation of which occurs interdependently (Dolynska, 1997; Kyrychenko, 2001; Poviakel, 2004; Nakonechnyi, 2010).

In addition, the development of program focused on the development of the behavioural self-regulation of adolescents, we relied on the provisions of the scientists that the formation of this phenomenon is closely connected with the formation of an adequate self-esteem, self-acceptance, level of aspiration, reflection, internal control, self-actualization; decrease of manifestation of aggressive behaviour; mastering relaxation techniques and anger management (Gusak, 2012); mastering of structural components of performing activities (motive, purpose, objectives of activities, methods of performance (Konopkin 2004), psychophysical state regulation (Galan, 2016). The development of behavioural self-regulation of adolescents is possible in terms of goal-directed impact on its structural components (Morosanova 2007; Galan, 2017).

The specific component of the formative experiment under the study was a program of psychological support/follow-up of adolescents, which was a part of the structure of the Pankration training process and was aimed at the development of structural components of behavioural self-regulation of adolescents and harmonization of their relationship with the coach.

Conclusions

The study presents a theoretical synthesis and experimental study of the problem of the development of the behavioural self-regulation of adolescents in the process of mastering martial arts, which was to identify the peculiarities of manifestation of structural components of the behavioural self-regulation of adolescents (cognitive, motivational, emotional and volitional), levels of development of the behavioural self-regulation of adolescents; to justify, to develop and to test the program of psychological follow-up and correction of the behavioural self-regulation of adolescents, to harmonize relationship with the coach during training exercises.

Going in for Pankration as a type of martial arts has a great potential for the development of the behavioural self-regulation of the younger generation: they form moral qualities of adolescents, stabilize their mind, make it possible to control their emotions, develop concentration and volitional qualities, to raise the level of self-control, affect interpersonal relationships. Training process maximizes physical activity, physical development, health and well-being of adolescents.

Manifestations of behavioural self-regulation of adolescents in the process of mastering martial arts are defined by certain features of development of its structural components, such as:

- cognitive, characterized by the predominance of a limited amount of knowledge on the issues of martial arts, insufficient awareness of dependence of success in the sport on personality characteristics and qualities, lack of accuracy of own actions;

- motivational, characterized by an interest in martial arts, presence of goals and choice of the simplest ways to achieve them because of lack of self-confidence; choice of tasks of average complexity and constant need for approval and support of carried out activities by others;

- emotional and volitional, for which is inherent, the average level of emotional maturity and volitional self-regulation; reduced control over behaviour, gestures, actions, lack of understanding and compassion for others, manifestations of egoism, selfishness, aggressiveness.

The peculiarities of formation of structural components of the behavioural self-regulation of adolescents can be characterized by high, medium and low levels.

Adolescents with a high level of the behavioural self-regulation possess good command of general knowledge in the sport branch; understanding of the role and importance of Pankration as a form of martial arts; awareness of ways of self-perfecting; the use of new knowledge about the technologies and techniques for improvement of self-regulation; high motivation to win; availability of clear objective, adequate selection of methods, means and ways of their implementation; giving preference to tasks of higher complexity; display of diligence, zeal, perseverance/persistence, determination/ resoluteness; emotionally stable self-control, self-confidence, calmness, heightened status of preparedness for new and unexpected things; well-developed self-regulation in different life situations, balance of emotional state, the desire to control oneself.

The effectiveness of the implementation of the author's program manifested itself in increasing awareness of the role of Pankration as a sport and ways of self-perfection, motivation to win, setting specific goals, preference of tasks of high complexity, displays of diligence, integrity, behavioural self-regulation in other situations, balance of emotional state, a positive perception of others, harmonization of the relationship with the coach.

The study has not covered all aspects of behavioural self-regulation of adolescents. Further study is required to investigate of the issue of behavioural self-regulation of adolescents in connection with other personal characteristics, identifying the importance of various factors in the development of behavioural self-regulation in adolescence in the process of mastering martial arts.

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