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Original research article

Psychological Characteristics of Children's Motivation for Participating in Artistic Gymnastics

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Abstract

Introduction. Sport motivation is generally considered in educational research, while its psychological foundations remain understudied. This study examines the impact of children's sociometric status, anxiety level, and family background, including parental attitudes, on their motivation for participating in artistic gymnastics.

Methods. The study sample comprised 95 preschool-aged and early school-aged children participating in artistic gymnastics for more than a year. In order to identify the psychological and socio-psychological characteristics of children's motivation, the following measurement tools were used in this study: (a) the Parental Attitudes Questionnaire (A. Ya. Varga, V. V. Stolin), (b) the Choose the Right Face test for the assessment of anxiety (R. Tamml, M. Dorky, V. Amen), (c) the Children's Manifest Anxiety Scale, CMAS (modified by A. M. Prikhozhan), (d) the measure for assessing the level of students' sport motivation by N. G. Luskanova (modified by O. N. Stepanova & A. N. Volkova), (e) sociometry, and (f) statistical data processing.

Results. The findings indicated that there are significant differences in characteristics of children with different levels of motivation. Depending on the parenting style, children with a high level of sport motivation had average or high levels of anxiety and high or low sociometric status in their training groups. Parental attitudes towards these children are characterized by a high level of acceptance and cooperation, which manifest itself in a positive attention to their interests, respect, and encouragement of independence and initiative.

Discussion. The results of this study contribute to our understanding of psychological conditions for optimizing children's sport motivation, open up opportunities for further research on the socio-psychological factors for children's sports motivation, and may be readily used in training programs to improve the psychological competence of sports coaches.

Keywords

motivation, sports activity, artistic gymnastics, training group, preschool-aged children, early school-aged children, coach, anxiety, sociometric status, parental attitude

Highlights

- ▶ Parents of children with high motivation for participating in artistic gymnastics are characterized by high levels of acceptance and cooperation in their parenting styles.
- ▶ Extrinsic (non-training) motivation towards sports is characteristic of children from the families with low or average levels of control in parenting styles.
- ▶ Low-motivated children demonstrate low or high levels of anxiety.
- ▶ Children with high status in their training groups have high or low motivation for participating in artistic gymnastics.
- ▶ A high level of anxiety in children is associated with lower levels of acceptance and cooperation in parenting styles.

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Introduction

Nowadays there is a growing popularity of sports. As a rule, the path to achieving high sports results begins in preschool childhood. Since, at this stage of child development socialization occurs in a playful way, novice athletes do not always show readiness for intensive training. In addition, sports exercises cannot always be performed in a playful way.

In recent decades, great importance has been attached to motivation for learning in Russia, Europe, the USA, and Canada (Nikitskaya & Tolstykh, 2018). As a rule, the issues of children's motivation towards sports are considered from the educational perspective (A. V. Rodionov et al., 2016; V. A. Rodionov et al., 2017). However, psychological factors remain important but understudied in the context of motivation for systematic participating in sports (Voronina, Krushelnitskaya, & Terentyeva, 2020; Lagutin & Kochengina, 2015; Jacobson, 1969; Chanal, Cheval, Courvoisier, & Paumier, 2019; Kipp & Bolter, 2020).

Studying how preschoolers are selected for the group of artistic gymnastics, Minnikaeva (2015) came to the conclusion that not only abilities, but also motivation, and children's interest in sports are very important. Highly motivated preschoolers most often show very good results in sports in the future (Minnikaeva, 2015). However, initially good motivation may not be sustainable. For example, the analysis of the developmental trajectories in children aged 8–12 years showed that motivation towards physical education starts to decline already at the primary school (Chanal et al., 2019).

Motivation itself does not always contribute to the aims of learning activity. For example, the experiment by Belgian researchers showed that children who were placed in a situation of choice when solving a creative problem were more likely to show intrinsic motivation and achieve greater results, compared to their peers who were deprived of such a choice (Waterschoot, Vansteenkiste, & Soenens, 2019). Pilishvili & Klinkov (2019) examined the influence of the type of educational institution on the motivational profile of students. Thus, the motives for self-development, aesthetic

pleasure, approval, and encouragement turned out to be the most important for participating in sports activities among adolescents of a comprehensive school. The motives for satisfying spiritual and material needs, collectivist orientation, and physical self-assertion prevailed among their peers who go in for a special sports school.

The analysis of psychological and educational research shows that the desire of preschool-aged and early school-aged children to participate in sports activities, as well as their athletic achievements, largely depend on the pedagogical qualifications of coaches who should take into account their personal and socio-psychological characteristics in educational interaction (Arkaeva, 2015; Voronina et al., 2020; Zhulina & Vaskina, 2016; Lagutin & Kochengina, 2015; Rogaleva, Malkin, Khaerzamanova, & Bogdanova, 2018; A. V. Rodionov et al., 2016; V. A. Rodionov et al., 2017; Pluhar et al., 2019).

A kind of sport can also play an important role in the development of children's skills. Thus, a longitudinal study showed that compared to children participating in team sports, their four-year-old peers practicing individual sports showed greater skills in self-regulation two years later (Howard, Vella, & Cliff, 2018). On the other hand, compared to those participating in team sports, children and adolescents practicing individual sports (gymnastics, running, diving) are more likely to show anxiety and depression (Pluhar et al., 2019).

Artistic gymnastics is one of the most traumatic and difficult-to-coordinate sports. The accuracy of the execution of gymnastics routines is very important. When performing exercises, novice athletes need to take into account the configuration of gymnastic apparatus to purposefully adapt their actions, preventing risk situations, that is, to solve rather difficult problems (Minnikaeva, 2015). Preschool-aged and early school-aged children are not yet ready to make adequate decisions; the satisfaction of their needs depends entirely on close adults, primarily parents. At the same time, personal and family factors of children's well-being are in dynamic interaction. For example, Slobodskaya & Akhmetova (2012) found that the risk of unfavorable development of children increases if negative conditions of upbringing are combined with unfavorable individual characteristics of children. On the other hand, the favorable conditions of family upbringing can reduce such risks (Slobodskaya & Akhmetova, 2012). A family structure can also have a considerable impact on a preschooler's personality. Compared with children living with both parents, their peers from single-parent families showed higher scores on anxiety, depression, self-distrust, hostility, feelings of inferiority, and conflict in communication (Golovey, Vasilenko, & Savenysheva, 2016).

Meanwhile, at this age children start to actively interact with 'social' adults – kindergarten teachers, school teachers, as well as coaches in professional sports clubs. Children's motivation towards sports largely depends on their relations with significant others – parents and other family members, teachers, and peers (Voronina et al., 2020; Lagutin & Kochengina, 2015; A. V. Rodionov et al., 2016; V. A. Rodionov et al., 2017; Shcherbinina, 2018; Al-Mashhadi, 2019). Nurgaleev, Finogenova, & Babiy (2019) found statistically significant differences in the sociometric status of schoolchildren-athletes in the informal structure of the school class. The findings indicated that schoolchildren participating in individual sports are predominantly high-status. Moreover, not a single schoolchild practicing sports was among the outsiders.

Al-Mashhadi (2019) discovered that the desire of girl gymnasts to belong to the significant community affects their sports achievements. The results of the study confirmed a direct relationship between social desirability and girls' desire for high-level skills in rhythmic

gymnastics (Al-Mashhadi, 2019). In addition, teachers' perceptions of children's abilities largely determine their success in developing sports skills (Platvoet et al., 2020). The more parents believe that their children can make a significant improvement in their abilities through efforts, the more children will strive to succeed and actually become successful at school (Matthes & Stoeger, 2018). Apparently, this pattern is universal and manifests itself in mastering various disciplines. For example, Dinkelmann & Buff (2016) found that parental belief in their children's competence promote academic motivation and academic performance in mathematics.

According to the results of a study by Kipp & Bolter (2020), parental behavior is associated with the performance of young football players through shaping a certain motivational climate in family relations. Thus, parents can play a more important role than coaches in shaping achievement motivation in their children. At the same time, authoritative and moderately selfish parents are less likely to insist on early sports specialization for their children than perfectionist parents with authoritative or permissive parenting styles, strongly dependent on their subjectively perceived social prescriptions (Wright, Chase, Horn, & Vealey, 2019).

Thus, characteristics of relationships between preschool-aged and early school-aged children and significant others, especially parents and teachers, are of great importance for shaping motivation towards sports. Due regard for these characteristics can enable coaches and sports psychologists to fully use psychological and educational means adequate to the age characteristics of children, promoting a positive emotional background of classes, a steady interest in systematic and purposeful motor activity, a child's desire to perform various motor exercises, and strive for full development.

Methods

Findings of several studies indicate the importance of anxiety (Arkaeva, 2015; Bozhovich, 2008; Zhulina & Vaskina, 2016; Yakobson, 1969) and the system of relations with significant others (Voronina et al., 2020; Krushelnitskaya & Orlov, 2013) for shaping academic motivation in children. However, we did not find any data on the impact of these variables on motivation towards sports among preschool-aged and early school-aged children.

This study *aims* to identify psychological and socio-psychological characteristics of motivation to practice artistic gymnastics in preschool-aged and early school-aged children.

In our study we used the following *measurement tools*: (a) the Parental Attitudes Questionnaire by A. Ya. Varga and V. V. Stolinn (Karelin, 2001); (b) the Choose the Right Face test for the assessment of anxiety in preschool-aged children by R. Tamml, M. Dorky, and V. Amen (Dermanova, 2002); (c) the Children's Manifest Anxiety Scale, CMAS (modified by A. M. Prikhozhan) for the assessment of anxiety in early school-aged children (Prikhozhan, 1995); (d) the measure for assessing the level of students' sport motivation by N. G. Luskanova, modified by O. N. Stepanova and A. N. Volkova (Stepanova & Volkova, 2019), which diagnoses four categories of educational activity – 'high motivation', 'good motivation' (typical of children participating successfully in sports), 'positive attitude towards training sessions' (predominance of extrinsic, non-training motives), and 'low motivation'; (e) sociometry; and (f) statistical processing of data using the SPSS software package.

The study sample comprised 95 children participating in artistic gymnastics for more than a year, of whom 44 were 5–6 years old preschool-aged children (5 groups, 20 girls, 24 boys) and 51 were 7–8 years old primary school-aged children (5 groups, 26 girls, 25 boys). The study was conducted in February – March 2020.

We examined the intragroup structure of groups of children using the sociometric procedure carried out individually with each child. During the conversation with children, we showed them photos of their groupmates and asked if they knew them. After an affirmative answer, we asked children whether they wanted to perform game-based exercises with them in the same team (the exercise was understood as a training exercise familiar to children that they recently performed under the guidance of their coach). In response, children expressed their consent or disagreement to work with their groupmates, which was recorded in the protocol of the sociometric procedure.

Results

Using the measure for assessing the level of students' sport motivation, we obtained statistically significant findings, indicating that sport motivation was higher in preschool-aged children (Mann–Whitney test; $p = 0.021$). Moreover, girls were more motivated than boys (Mann–Whitney test; $p = 0.003$).

The results of assessing children's motivation by the four levels showed that the majority of children have 'good' and 'extrinsic' levels of motivation (Fig. 1).

Using contingency tables, we found that these levels of motivation are more characteristic of preschool-aged children, especially girls ($\chi^2 = 8.313$; $p = 0.016$). At the trend level, it was found that compared to other children, 'low' motivation is more characteristic of school boys ($\chi^2 = 3.000$; $p = 0.083$).

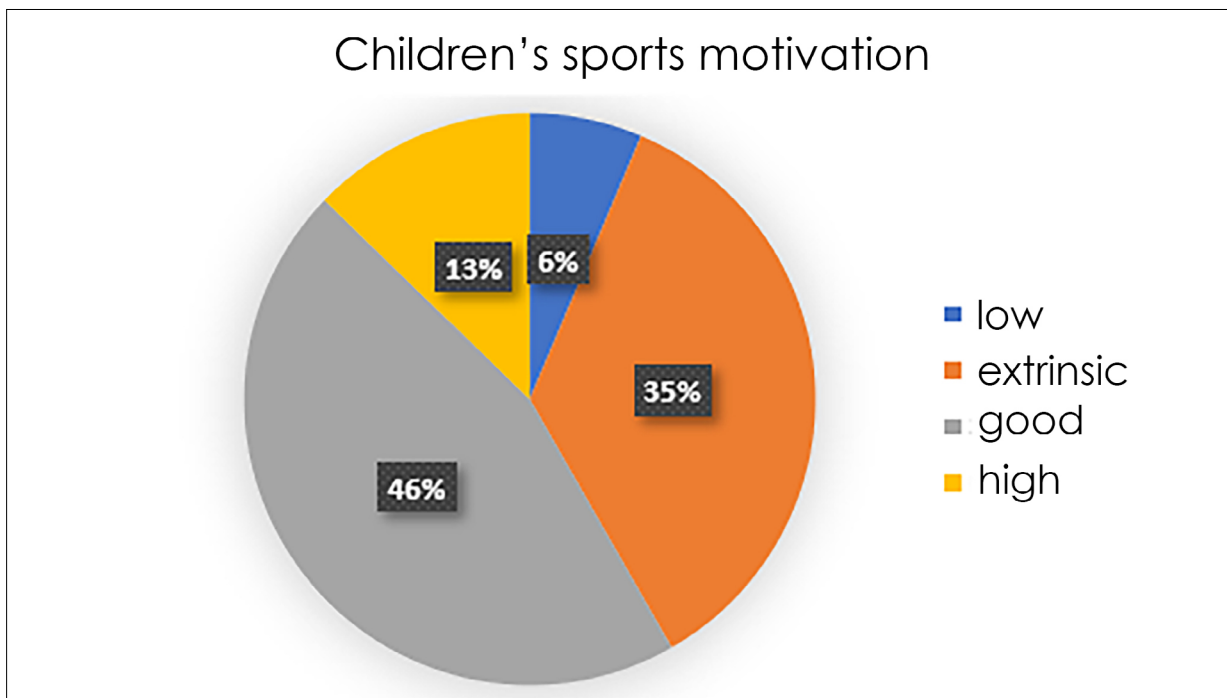


Figure 1. Percentage of children with different motivation for participating in artistic gymnastics

We diagnosed anxiety in preschool-aged children using the Choose the Right Face projective test corresponding to their age. This measurement tool examines a child's anxiety characteristics in typical life situations. For early school-aged children, we used the Children's Manifest Anxiety Scale, CMAS. Both assessment tools identified low, average, and high levels of anxiety (Fig. 2). The results showed that compared with preschoolers, early school-aged children are more likely to have high scores of anxiety (Mann–Whitney test; $p \leq 0.05$). Apparently, the increased anxiety of early school-aged children may be a consequence of the experience of difficulties in their adaptation to the educational environment at the first form.

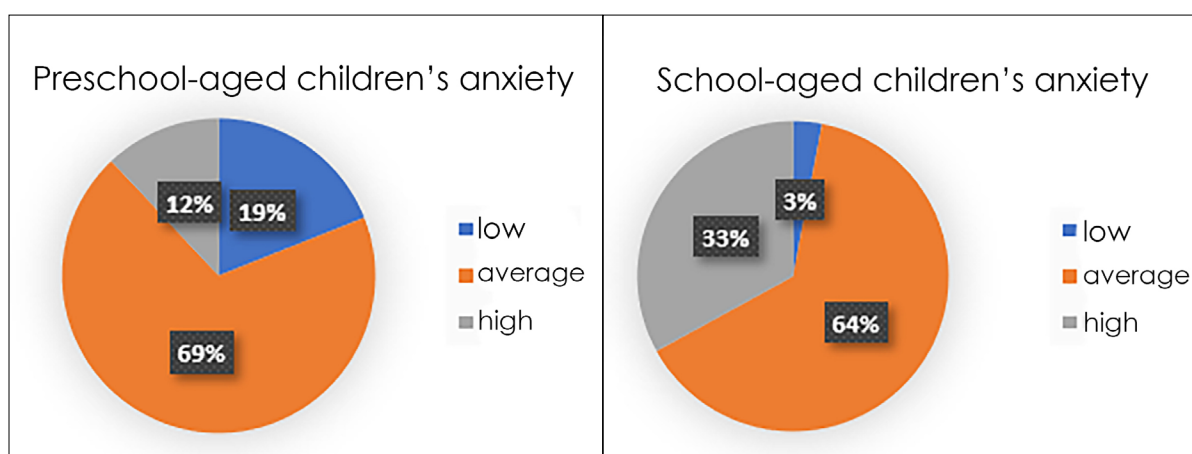


Figure 2. Percentage of anxiety scores for preschool-aged (5–6 years old) and early school-aged children (7–8 years old)

In preschool-aged and early school-aged children, the distribution sociometric statuses turned out to be standard for all the groups. Thus, about half the children were of average sociometric status in their training groups, 10 % of children were of low sociometric status, and 35–45 % of children were of high sociometric status. In general, the status structure of interpersonal relations in the groups turned out to be favorable.

The findings from the Parental Attitudes Questionnaire by A. Ya. Varga and V. V. Stolin indicated that the interviewed parents (all the participants in the study were mothers) most often showed a high level of acceptance of their children and had average scores on the other scales. Therefore, parents show a positive interest in the areas that are important for their children, are ready for cooperation, and strive to meet their reasonable needs (Fig. 3).

To identify the associations between children's sport motivation and other variables (styles of parenting, anxiety, and sociometric status of children in their training groups), we used contingency tables. For statistical significance the Pearson's χ^2 test was performed.

The statistical analysis showed that the parents of highly motivated children (with high educational activity, responsibility, conscientiousness, desire to perform all tasks of coaches), as a rule, show a high level of cooperation in relationships with children ($\chi^2 = 8.456$; $p = 0.048$). Parents of children with low sport motivation have a low level of cooperation (Pearson's criterion $\chi^2 = 11.144$; $p = 0.025$). Parents of children with 'good' motivation for participating in artistic gymnastics (according to the measurement tool developers, this motivation is characteristic of the majority of

children who successfully cope with sports activities), as a rule, have average scores on the 'cooperation scale', i.e. have a moderate level of cooperation with children, do not always show a sincere interest in them and take part in their affairs.

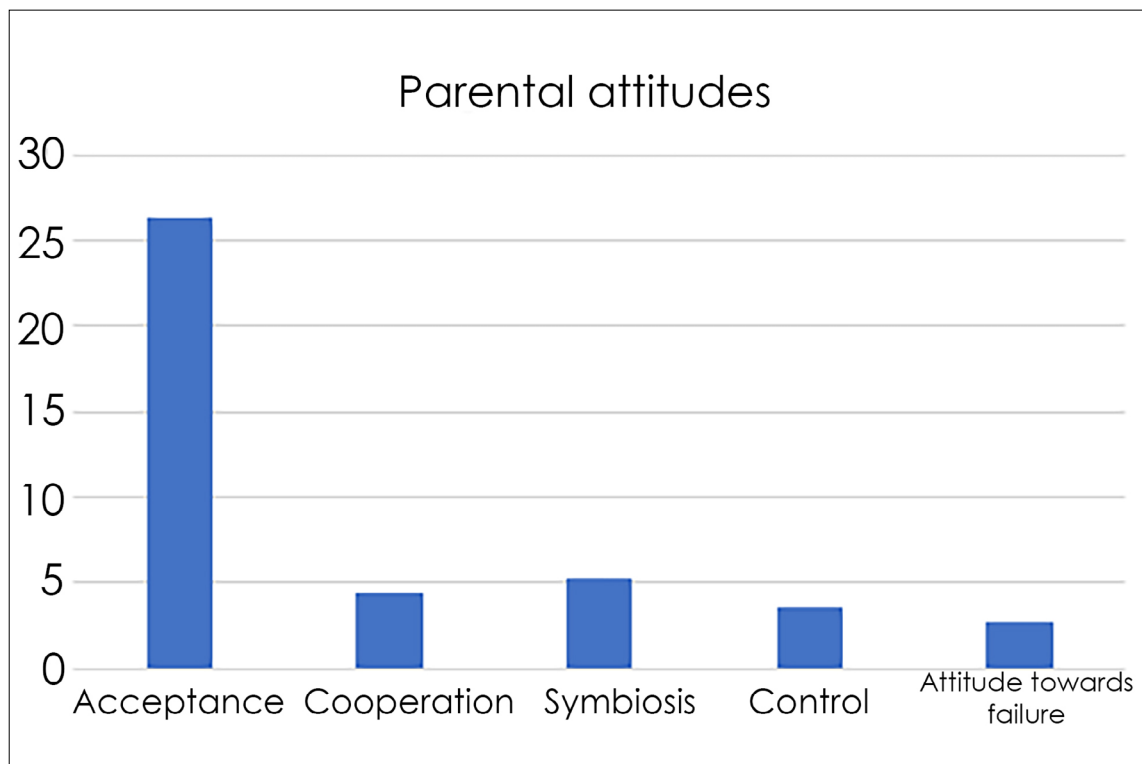


Figure 3. Characteristics of parental attitudes (mean scores)

The high level of children's motivation corresponds to high scores of 'acceptance' in the structure of parental attitudes ($\chi^2 = 13.583$; $p = 0.009$). The scores for the 'symbiosis' scale are at the average level. Apparently, a general emotionally positive attitude towards a child, combined with a moderate psychological distance in contact with a close adult, contributes to a child's desire to go in for sports.

High scores on the 'control' scale were characteristic of parents of children with 'good' but not the highest motivation for participating in artistic gymnastics ($\chi^2 = 12.034$; $p = 0.022$). Extrinsic motivation is most common in children of parents with low and moderate control in their parenting style. At the trend level ($\chi^2 = 6.431$; $p = 0.092$), the findings indicate that average and high scores on the infantilization scale (non-constructive attitude to child's failures) are generally characteristic of parents of children with reduced sport motivation.

Children with low motivation most often have low or high anxiety. The average level of anxiety was mainly observed in children with 'extrinsic' and 'good' sport motivation ($\chi^2 = 10.009$; $p = 0.042$).

High-status children are most often characterized by the highest or lowest motivation ($\chi^2 = 7.738$; $p = 0.050$).

Table 1 shows the characteristics of children's motivational profiles.

Table 1
 Motivational profiles of children participating in artistic gymnastics

Motivation	Children		Parents				Attitude towards failure
	Anxiety	Group status	Cooperation	Acceptance	Symbiosis	Control	
High	Average, high	High, low	High, average	High, average	Average	High	Low
Good	Average	Average	Average	High	Average	Average	Average
Extrinsic	Average	Average	Average	High	High	Average	Average, high
Low	High, low	High, low	Low	Average, low	Average	Average	Average, high

Thus, the highest motivation is characteristic of children (depending on the style of parenting) with both average and high levels of anxiety, high and average scores of acceptance, cooperation, and control in parenting styles, as well as with high or low sociometric status in their training groups.

We should also emphasize the importance of the results of studying the relationship between additional variables in our study – anxiety and characteristics of parental attitudes (using the Spearman’s rho test), since they can affect children’s sport motivation (Table 2).

Table 2
 Correlation analysis of associations between anxiety and parental attitudes towards children (Spearman’s rho test)

	<u>Acceptance</u>	<u>Cooperation</u>	<u>Symbiosis</u>	<u>Control</u>	<u>Attitude towards failure</u>	
Anxiety	r	–0.320*	–0.257*	–0.170	0.059	0.259*
	p	0.012	0.045	0.191	0.652	0.044

Note: * correlation is significant at the 0.05 level (2-tailed).

Table 2 shows that the high level of anxiety in children is associated with lower scores of acceptance and cooperation in parental attitudes as well as with more negative attitudes towards failures.

The contingency tables confirm that high scores of parental acceptance are associated with an average level of anxiety in children, and average scores of acceptance are associated with a high level of anxiety ($\chi^2 = 12.560$; $p = 0.002$).

Discussion

Anxiety is a significant factor in the success of any, including sports, educational activity. The characteristics of a child's interpersonal relations with peers and significant adults can both enhance and impede the development of high motivation when performing educational activities. Unfavorable relationships with significant others may lead to increased psychological stress in children, which prevents motivation to perform various, including sports, activities.

Compared to early school-aged children, preschool-aged children have higher level of sport motivation and lower level of anxiety. This may be explained by the fact that preschool-aged children still do not perceive sports as an activity that requires constant and hard work associated with responsibility for current and future results. For them, participating in sports sessions is rather an interesting way of spending time, when they can enjoy moving, playing, and chatting. In older preschoolers, sport motivation is facilitated by the high physical activity characteristic of this age, the development of cognitive functions and psychomotor skills, interest in communication, and the accumulation of social experience. Play as the leading type of activity for preschoolers enables children to relate to their sports achievements without excessive worry, even if the results are not very good.

First-graders have just made a very important transition from kindergarten childhood to the position of a junior schoolchild. They master a new social status, go through a difficult stage of adaptation to the learning environment at school (according to A. V. Petrovsky, at the primary school age, the processes of socio-psychological adaptation prevail over the processes of individualization and integration of children into the learning environment) (Krushelnitskaya & Orlov, 2013). Educational activity is the leading activity, which determines primary school-aged children's relations with adults that fundamentally differ from those of preschoolers. The social situation of their development is supplemented with the expansion of the range of tasks, completing homework assignments, which can also reduce the interest and motivation of first graders towards additional sports activities.

The higher sport motivation in girls can be explained by the fact that the level of girls' motivation for learning is generally higher than in boys (Bozhovich, 2008; A. V. Rodionov et al., 2016; V. A. Rodionov et al., 2017) as well as conformity towards significant adults which is more typical of them.

The findings of our study indicated that the most popular (high-status) children in their sports groups are characterized by high and low motivation. This result may be explained by the desire of children unpopular among peers to raise their status, which can be done by diligence in studies and mastering sports skills (since for preschool-aged and early school-aged children, the coach is a highly respected person, whose assessments structure the system of interpersonal relations in the group). Children can also raise the status in their group through their communication skills, 'skills to be friends', while not trying to diligently fulfill the teacher's requirements.

We should also note that a child may show an increased desire to achieve a high status in a group of peers because of unsatisfactory relationships in the family, first of all, relations with parents. The child may seek to compensate for dissatisfaction with the parenting style by increasing his/her status in the peer group. In our study, we studied parental attitudes only on the basis of a survey of adults; therefore we do not have data on how much a child's subjective perception of the style of parenting coincides with the opinion of his/her parents.

The results of various studies show that parents are the most significant persons for their children (Krushelnitskaya & Orlov, 2013). Therefore, the results of our research enable us to argue that the parent-child relationship is the key factor that considerably affects the children's anxiety, their relationship with peers and, as a consequence, sport motivation.

Conclusion

A theoretical analysis of the issues of motivation for participating in artistic gymnastics among preschool-aged and early school-aged children shows that they are still underdeveloped in psychology. The findings of our research indicate that, depending on the parental attitude, the children most motivated for participating in artistic gymnastics have an average or high level of anxiety, and a high or low sociometric status in their training group. Parents of children with the highest sport motivation demonstrate 'acceptance' and 'high level of cooperation' towards them.

The results of the study confirmed that motivation for participating in artistic gymnastics in children is associated with the parental attitudes, anxiety, and the characteristics of interpersonal relationships with peers in a sports training group.

In our opinion, the results obtained in the current study can be used to improve the effectiveness of training sessions. Data on the characteristics of motivation and anxiety of novice athletes can help coaches to build individual teaching strategies, to adapt the style of pedagogical communication, taking into account children's personality traits. Moreover, the coach will be able to give parents psychologically grounded recommendations to optimize their interaction with children in order to increase interest in gymnastics classes.

Taking into account the patterns identified in the study can also be useful in the development of training programs for sports psychologists, coaches, and other specialists working with novice athletes.

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No conflict of interest