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Original Article

Risky decision-making behavior among junior athletes

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Abstract:
This study performed a retrospective analysis of risky behavior and decision-making among junior athletes, identified statistically significant correlations, and determined differences in decision-making across groups with high, optimal, and low levels of risky behavior. **Methods.** The study involved 100 junior athletes. Of these, 47 competed for professional teams in the Premier League, Super League, and First League across team sports such as football, handball, and futsal, as well as fire-applied sports. The remaining 53 athletes participated in individual sports including freestyle wrestling, sambo, boxing, weightlifting, and track and field. Research variables were measured using validated, reliable, and representative psychodiagnostic tools. **Results.** Spearman's correlation analysis revealed a strong association between emotional and behavioral risk propensity ($p < .001$) and decision-making parameters related to constructive coping (vigilance) and unproductive coping (back-passing, procrastination, and hypervigilance). It was found that tolerance of ambiguity performs a mediating function. It was underscored that the mediation of tolerance in juniors' sports activities contributes to manifesting the key parameters of risky behavior in decision-making – the Control-Regulatory Component of Risk and Vigilance. It was established that the group of junior athletes with optimal parameters of risky behavior (G_{II}) has a significant superiority over their counterparts compared to the groups with low and high levels. Four statistical superiorities were identified in G_{II}: two superiorities in the emotional component over G_I ($p = .014$) and G_{III} ($p < .001$), one superiority in the behavioral component over G_{III} ($p < .001$), and one superiority in the control-regulatory component over G_{III} ($p < .001$). It was summarized that the emotional and behavioral components of high risk-propensity are the most dangerous components, which may not always entail vigilance. They are hardly amenable to self-control and self-regulation. **Discussion and conclusions.** It was substantiated that research into junior athletes' risky behavior in decision-making is a successful attempt to establish significant correlations and superiorities of the studied parameters of decision-making: vigilance, back-passing, procrastination, and hypervigilance, determined by psychological regularities of adolescence, junior athletes' stable characteristics that are actualized in extreme conditions of sports activities associated with such personality traits as impulsiveness, autonomy, maximalism, the desire for success, and the tendency to dominate. We recommend that the research findings be used to develop training programs for shaping the optimal profile of risk propensity and improving self-control and self-regulation in sports activities.
Keywords: risk, extreme behavior, self-regulation, fire-applied sports, stress, coping, vigilance.

Introduction

The relevance of studying risky behavior in decision-making among junior athletes is determined by a number of reasons. Over the past decades, there has been an increase in the dynamics of economic, geopolitical, and sociocultural transformations of modern society (Kremen, 2014; Topuzov et al., 2022). The pace of modern life has significantly accelerated. The constant development of technological innovations, which instantly improve and partially revolutionize the previous versions, dramatically impacts social reality. The development of artificial intelligence, which has rapidly become part of our everyday life, particularly the sports industry, has significantly virtualized and algorithmized learning, training, competitive, and restorative activities of athletes. In modern conditions, it is not difficult to model and create probable scenarios of events on the sports ground using artificial intelligence, namely ChatGPT (Huang et al., 2024; Manfredini et al., 2011). This allows the subjects of this process to be better informed and prepared for training and competitive activities and to protect athletes against excessive loads and serious injuries. Notably, the entire burden of performance skills falls on athletes' functional capabilities. At the same time, it is necessary to remember and consider the diversity and scale of crises and the presence of sociogenic situations, which have swept our society and created risk zones. These risk zones are not stable; they are in constant motion and are extended in time. The aforementioned reasons and realities significantly impact modern youth's behavior. Empirical studies prove that the altered conditions of human activities have considerably affected self-efficacy (Hoian et al., 2025; Hoi et al., 2025; Hrys et al., 2024; Koval et al., 2024), competitive (Hudimova et al., 2021; Popovych et al., 2023c; 2023d), academic

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and professional (Popovych et al., 2023a; Popovych & Blynova, 2019), and other activities (Plokhikh et al., 2024; Zinchenko et al., 2023a; 2023b). This has significantly impacted all relevant areas of junior athletes' sports activities. New contours of the altered social reality constantly arouse scientific interest in searching for optimal training systems, effective technologies, and methods and techniques in sports activities, particularly shaping the optimal profile of junior athletes' risky behavior in decision-making. It is important that this search is not intuitive but based on reliable and relevant statistical measurements.

Junior athletes actively practice their independence, strive to find their place in sports and use various methods and techniques for self-realization, self-fulfillment, and affirmation of their "Self". Undoubtedly, they are aware of their limited capabilities. Moreover, fierce competition also plays a role. Thus, coping strategies come to the fore (Plokhikh & Bilous, 2025; Popovych et al., 2022g). An autonomous, independent, and conscious choice characterized by uncertainty and risk is an optimal behavioral strategy in this period. On the one hand, this may cause anti-social manifestations and even deviant or delinquent behavior. On the other hand, this may lead to a socially acceptable and, probably, innovative variant of risky behavior. Junior athletes are ready to tolerate and take risks, being on the verge of making an alternative decision. Risk combines the process and result of the impact of uncertainty on achieving a goal. Uncertainty is considered a mental state of partial or total lack of information related to a single event or a series of events. Risk is a probable deviation of actual results from expected ones, which may lead to positive or negative consequences, opening up opportunities or posing threats or dangers. Risky behavior with positive consequences is usually called an opportunity. Tolerance of uncertainty is a junior athlete's characteristic, which allows them to positively respond to uncertain situations of competitive, learning, training, and other sports activities, compensating for the lack of operationalized tasks and incomplete information with active actions (Liberati et al., 2021). Adolescence is characterized by impulsiveness, emotional instability, and maximalist intentions, which may lead to dangerous or extreme events and contribute to stressful situations due to risky and adventurous actions (Vdovichenko, 2021). At the same time, weak self-regulation, gaps in critical thinking, and low self-control may push junior athletes to seek compensation, including alcohol, smoking, and other tranquilizers.

The research by B. Zamboanga et al. (2012) found that junior athletes are more likely to be at risk for alcohol than non-athletes. Retrospective analysis of scientific literature shows that there are two groups of factors of risky behavior inherent in junior athletes. The first group of factors traditionally includes the individual's biological, genetic, and innate characteristics manifesting in the need for intense or new experiences and feelings. The second group of factors includes physiological characteristics, which may be congenital but are largely acquired and age-related (Bykova, 2012; Dudek et al., 2016). Sensation-seeking encourages young people to engage in such sports as fire-applied sports, motoball, parachuting, and contact sports including freestyle wrestling, boxing, karate, and others. The research by I. Koval et al. (2024) established that athletes in individual sports have a significant superiority in emotional risk propensity over their counterparts in team sports. Studies underscore the role of junior athletes' functional parameters, which reflect the content of their psychophysiological activity. Researchers studying the professional growth and development of athletes in fire-applied sports recorded high levels of empathy and a high level of readiness for risky behavior (Vavryniv & Yaremko, 2022).

The ability to sympathize and reflect may indicate a high level of self-regulation and self-control. It is likely that junior athletes' self-realization in high-risk sports and the work of rescuers in extreme conditions require a list of well-developed characteristics from the subjects of these activities. Self-efficacy is an essential component in achieving competition results (Popovych et al., 2020a; 2022e), success in academic and professional activities (Shevchenko et al., 2024), and learning and training (Tavrovetska et al., 2023). Junior athletes' self-efficacy, in combination with psychophysiological age-related characteristics, encourage many of them to work hard and surpass their previous achievements. In this context, our attention should be paid to the methodology for examining dominant mental states proposed in a series of studies by I. Popovych et al. (2022h). Dominant mental states of competitive (Popovych et al., 2022a), training (Kurova et al., 2023), and restorative (Popovych et al., 2022d; Shcherbak et al., 2023) activities of athletes are the key components of success. The paradigm of values and meanings (Frankl, 1962), embodied in relevant activities, promotes the highest efficacy and contributes to surviving and healing in adverse conditions.

The research into junior female athletes' mental states of self-actualization reveals the prevailing role of the value and meaning component in the dimensions of efficient competitive activities and the content of professional self-realization (Popovych et al., 2022c). The study of athletes with disabilities by L. Prokhorenko et al. (2023) also shows that the value and meaning component and functional and tactical preparation come to the fore in self-regulation processes and states.

Research into junior athletes' risky behavior in decision-making is an attempt to establish significant correlations and superiorities in the examined parameters of decision-making: vigilance, back-passing, procrastination, and hypervigilance, determined by psychological regularities of adolescence, and junior athletes' stable characteristics that are actualized in extreme conditions of sports activities associated with such personality traits as impulsiveness, autonomy, maximalism, the desire for success, and the tendency to dominate.

Hypothesis: 1) manifestation of junior athletes' risky behavior is a necessary component of successful sports activities; 2) the parameters of risky behavior will have significant correlations with the dimensions of decision-making; 3) tolerance of ambiguity will perform a mediating function; 4) the optimal level of risky behavior will have a significant superiority in the parameters of junior athletes' decision-making compared to low and high levels of respondents' risky behavior.

The aim is to perform a retrospective analysis of the phenomena of risky behavior and decision-making among junior athletes, establish statistical correlations, and identify differences in the specificity of decision-making in the groups of junior athletes with high, optimal, and low levels of risky behavior.

Methods

Methodology. The methodological foundation of the research into the individual's risky behavior in decision-making includes the concept of emotional risk propensity by S. Bykova (2012); O. Sannikova & S. Bykova (2008); the concept of adventurousness and risk in the structure of decision-making by O. Sannikova & O. Sannikov (2018); the concept of the individual's self-regulation readiness for changes (Rollnick et al., 1992). We also took a systemic approach to considering risk as a combination of risk assessment, risk management, and risk awareness. The conditions of competitive activity are regarded as conditions of continuous changes, causing junior athletes to be in a mental state of uncertainty, leading to an increase in risk value. The current pace of the young individual's life, with its intense dynamics and competition, allows us to consider junior athletes' risky behavior as a natural norm and regard risk as an effective method for achieving the goal.

When analyzing risky behavior as an individual-typological complex of risk propensity, we studied and used the tenets of the empirical research into: psychophysiological aspects of sports activities (Borysenko et al., 2020; Cretu et al., 2021; Kozin et al., 2022; 2023); the emotional component in activity (Chebykin et al., 2024; Karpenko et al., 2024; Popovych et al., 2022f; 2023e); adaptive resource as a deficiency that promotes risk propensity (Blynova et al. 2022a; Halian et al., 2024), and other relevant studies (Nosov et al., 2020; 2021; Popovych et al., 2022b; 2023b).

Participants. The research involved 47 junior athletes who played for professional sports teams of the Premier League (Ukraine), Super League (Ukraine), and First League (Ukraine) in team sports of football, handball, futsal, and a team of fire-applied sports. The research also involved representatives of individual sports with 53 junior athletes engaging in freestyle wrestling, sambo, boxing, weightlifting, and track and field. Gender parity was maintained, with 50 male athletes and 50 female athletes in the research. The total number of respondents was n = 100 athletes. The majority of athletes (n = 87; 87.00%) attended sports schools of the Olympic Reserve for children and youth in Lviv (Ukraine) and Ivano-Frankivsk (Ukraine) and the academies of sports clubs (n = 13; 13.00%).

Organization of research. The research was based on a confirmative strategy. The main aim was to establish a causal relationship between variables and find significant differences using the parameters of descriptive frequency characteristics. All respondents completed questionnaires in Google Forms between October and November 2024. During this period, sports activity is usually at its peak since main competitions take place and game series or tournaments finish. The research was approved by the Teaching and Methodological Council of the Educational and Research Institute of Psychology and Social Protection of Lviv State University of Life Safety (Lviv, Ukraine) and administrations of sports schools of the Olympic Reserve for children and youth, administrations of the academies of sports clubs. The respondents' consent to participate in the research voluntarily was received via Google Forms in advance, and questionnaires were sent to them. Awareness, voluntariness, ethicality, and confidentiality contributed to receiving reliable and quality empirical data.

Procedures and instruments. The questionnaire "Risk Traits" (RT) (Sannikova & Bykova, 2008) was selected as a tool that relevantly reflects the content components of risky behavior, as a methodology that is valid, reliable, and representative. The methodology consists of forty statements and a four-point Stapel scale, where 1 – definitely yes – 0 points; 2 – probably yes – 1 point; 3 – probably no – 3 points; 4 – definitely no – 4 points. The variables used in the research outlined the content parameters of risk propensity: emotional (ERP), cognitive (CRP), behavioral (BRP), and control-regulatory (CRRP). Reliability of the methodology variables was assessed using α-Cronbach. .815 (medium level) was recorded. According to the model of the "Melbourne Decision Making Questionnaire" (MDMQ) (Mann et al., 1997), the decision-maker is regarded as a subject under stress seeking to cope with motivational and emotional efforts as contradictions in regulating a choice. Vigilance is the main style characteristic of the individual related to cognitive complexity and the need for tolerance of uncertainty. The proposed model combined five main patterns of coping with stress associated with making difficult and threatening decisions: 1) the individual ignores the information about the risk of losses and continues to follow the planned course of actions; 2) uncritical acceptance of the course of actions, which is the most apparent or imposed by others; 3) defensive escape – due to procrastination, shifting responsibility, and rationalizing questionable alternatives; 4) hypervigilance that does not include the intellectual component of

searching for a way out of the dilemma, i.e., impulsive avoidance of the situation, which can be accompanied by panic in extreme situations; 5) vigilance – specifying the aim and objectives, considering an alternative related to the search of information. According to this model, vigilance is constructive coping that allows individuals to make rational decisions. The questionnaire contains twenty-two statements and a three-point scale. The research scales include vigilance, back-passing, procrastination, and hypervigilance. The Cronbach's alpha was recorded at a high level (.933). The "Questionnaire of Personal Readiness for Changes" (QPRC) (Rollnick et al., 1992) was used to assess the only parameter – tolerance of ambiguity (TA). The methodology contains thirty-five statements and a direct six-point Likert scale. The rest of the scales were not employed in the research. The Cronbach's alpha was recorded at .815 (medium level).

Statistical analysis. The computer software "IBM SPSS Statistics" v. 27.0.0.0 (112) was employed to identify descriptive frequency characteristics and perform statistical transformations. "MS Excel" was used to create an empirical matrix and export data from Google Forms. All the used statistical parameters are standard and non-parametric. The absence of a normal empirical data distribution prompted us to use these parameters. The significance that was relevant and valuable in the context of our research was at $p \leq .050$; $p \leq .010$; $p \leq .001$.

Results

The proposed confirmatory strategy involved a number of successive statistical operations. Empirical data were presented through descriptive frequency characteristics to ensure the research's reproducibility. Next, the parameters of the methodology scales were interpreted. In the descriptive frequency characteristics, asymmetry (A) and excess (E) are given along with the main characteristics (the mean (M), the median (Me), and the squared deviation (SD)). Asymmetry and excess were used to identify a normal distribution for all the scales of the empirical dataset. Tabl. 1 shows all the parameters for the research methodologies.

Table 1. Descriptive frequency characteristics of the research parameters (n = 100)

Research Parameter	M	*Me*	SD	A	E
"Risk Traits" (RT) (Sannikova & Bykova, 2008)					
Emotional Component of Risk (ECR)	27.12	*27.50*	±4.52	-.012	-1.045
Cognitive Component of Risk (CCR)	17.78	*18.00*	±2.96	.572	-.976
Behavioral Component of Risk (BCR)	21.12	*21.00*	±3.51	.143	-1.089
Control-Regulatory Component of Risk (CRCR)	13.87	*14.00*	±2.31	.029	-.167
"Melbourne Decision Making Questionnaire" (MDMQ) (Mann et al., 1997)					
Vigilance (V)	84.92	*85.00*	±14.15	.185	-1.322
Back-passing (BS)	61.29	*62.00*	±10.05	-.189	-.546
Procrastination (P)	51.75	*52.00*	±8.63	-.743	-.021
Hypervigilance (H)	37.21	*37.00*	±6.20	-.398	-1.345
"Questionnaire of Personal Readiness for Changes" (QPRC) (Rollnick et al., 1992)					
Tolerance of ambiguity (TA)	27.44	27.50	±4.58	-.151	-1.056

Note: M – mean; *Me* – median (given *in italics*); SD – squared deviation; A – asymmetry; E – excess.

The descriptive frequency characteristics for the "RT" (Sannikova & Bykova, 2008) showed the superiority of the "Emotional Component of Risk" (M = 27.12; *Me = 27.50;* SD = ±4.52). The superiority of the emotional component is quite expected for juniors' samples. The parameters of the "Behavioral Component of Risk" and the "Cognitive Component of Risk" had lower values. The lowest value of the "Control-Regulatory Component of Risk" (M = 13.87; *Me = 14.00;* SD = ±2.31) was expectedly recorded. Adolescents' self-regulation systems are at the stage of developing since self-control, self-regulation, and self-discipline require systemic training.

The descriptive frequency characteristics for the "MDMQ" (Mann et al., 1997) showed superiority in the "Vigilance" parameter (M = 84.92; *Me = 85.00;* SD = ±14.15), which testified to a high indicator of vigilance in the sample. The second most pronounced parameter is "Back-passing" (M = 61.29; *Me = 62.00;* SD = ±10.05). Escape and unwillingness to take responsibility have above-average values of the parameter. It was followed by the parameters of "Procrastination" (M = 71.75; *Me = 52.00;* SD = ±8.63) and "Hypervigilance" (M = 37.21; *Me = 37.00;* SD = ±6.20). These values indicate a medium level of procrastination and a below-average level of hypervigilance. The dominance of the vigilance scale indicates the superiority of constructive coping and the prevalence of junior athletes' constructive decisions. The descriptive frequency characteristics for the "QPRC" (Rollnick et al., 1992) and its only scale used, "TA," showed a relatively high level of tolerance of ambiguity. The asymmetry and excess results indicate a "flattened" Gaussian curve and an asymmetrical distribution, allowing us to state the absence of a normal distribution. The next statistical operation involved establishing correlations between the research scales.

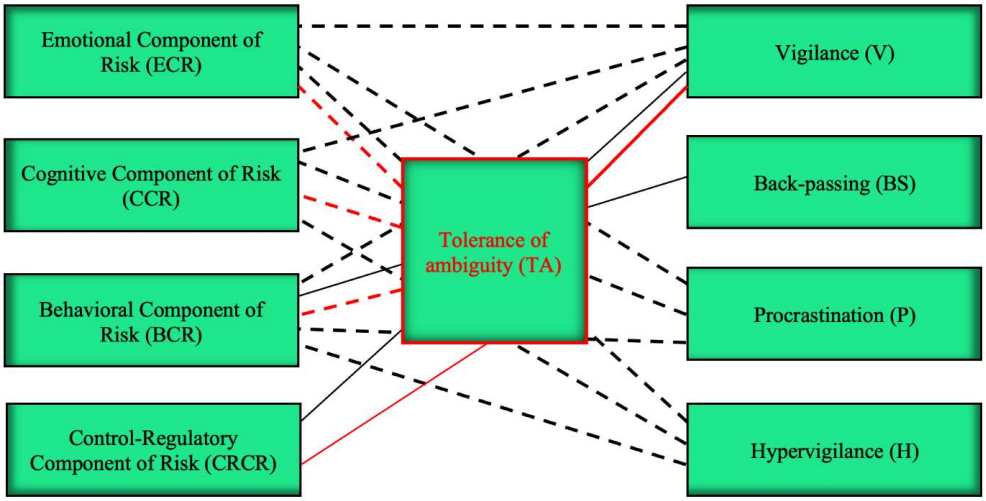
The absence of a normal distribution prompted us to use Spearman's correlation coefficient (r_s). Tabl. 2 shows correlations between the research parameters.

Table 2. Correlation matrix of the research parameters in the sample of junior athletes (n = 100)

Scales	Spearman's coefficient	Research Parameters				
		V	BS	P	H	*TA*
ECR	r_s	**-.239****	-.112	**-.443****	**-.279****	**-.564****
	p	.009	.053	<.001	.003	<.001
CCR	r_s	**-.415****	-.043	**-.372****	**-.432****	**-.823****
	p	<.001	.649	<.001	<.001	<.001
BCR	r_s	**-.343****	**.197***	**-.442****	**-.753****	**-.572****
	p	<.001	.011	<.001	<.001	<.001
CRCR	r_s	**.193***	-.115	.064	-.043	**.190***
	p	.012	.054	.498	.649	.013
TA	r_s	**.555****	.083	-.072	.084	1.00
	p	<.001	.532	.511	.536	-

Note: ECR – Emotional Component of Risk; CCR – Cognitive Component of Risk; BCR – Behavioral Component of Risk; CRCR – Control-Regulatory Component of Risk; r_s – Spearman's coefficient; p – significant values; *TA* – tolerance of ambiguity (given *in italics*); V – Vigilance; BS – Back-passing; P – Procrastination; H – Hypervigilance; * – correlation at p ≤ .050; ** – correlation at p ≤ .010 and p < .001 (given **in bold**).

Fig. I illustrates a correlation pleiade of the parameters of junior athletes' risk propensity and decision-making. Tolerance of ambiguity is given as an additional value to identify its mediating function.



Note: ——— direct correlations at p ≤ .050; ——— direct correlations at p ≤ .010 and p <.001; inverse correlations at p ≤ .010 and p <.001.

Figure I. Correlation pleiade of the parameters of junior athletes' risk propensity and decision-making (n = 100)

Sixteen correlations were established, twelve correlations being inverse and four being direct. The strongest direct correlation was recorded between vigilance and TA (r_s = .555; p < .001). The strongest inverse correlation was established between CCR and TA (r_s = -.823; p < .001). Notably, tolerance of ambiguity is dependent on the two strongest inverse correlations.

The existence of direct correlations between CRCR and TA (r_s = .190; p = .013); CRCR and V (r_s = .193; p = .012) and TA and V (r_s = .555; p < .001) suggests that tolerance of ambiguity is a mediator in difficult situations of competitive, learning, and training activities, which is the key to making constructive decisions. Since vigilance is constructive coping, this combination of psychological correlations reveals some specificity of junior athletes' decision-making.

According to the confirmative research strategy, the next statistical operation involved differentiating between three groups of risky behavior: with a low level – Group I; an optimal level – Group II, and a high level – Group III. The levels were determined using descriptive frequency characteristics (see Tabl. 1). Tabl. 3 shows the results of significant differences in the three groups by the decision-making parameters.

Table 3. Results of a comparison between the three groups by the decision-making parameters

Scale	Groups	Vigilance		Back-passing		Procrastination		Hypervigilance	
		U	*p*	*U*	*p*	*U*	*p*	*U*	*p*
ECR	G_I and G_{II}	**923.000**	.014						
	G_I and G_{III}								
	G_{II} and G_{III}	**675.000**	< .001						
CCR	G_I and G_{II}								
	G_I and G_{III}			**912.000**	.011			**688.000**	< .001
	G_{II} and G_{III}								
BCR	G_I and G_{II}								
	G_I and G_{III}			**383.000**	< .001			**435.500**	< .001
	G_{II} and G_{III}	**599.500**	< .001						
CRCR	G_I and G_{II}								
	G_I and G_{III}					**835.000**	.003		
	G_{II} and G_{III}	**435.000**	< .001						

Note: U – Mann-Whitney's criterion; p – the level of significance; ECR – Emotional Component of Risk; CCR – Cognitive Component of Risk; BCR – Behavioral Component of Risk; CRCR – Control-Regulatory Component of Risk; G_I – group with a low level of risk propensity; G_{II} – group with an optimal level of risk propensity; G_{III} – group with a high level of risk propensity.

Nine significant superiorities were recorded in the groups by risk propensity. Expectedly, the group with an optimal level of risky behavior (G_{II}) surpasses their counterparts in vigilance by the following parameters: ECR – G_I (U = 923.000; p = .014) and G_{III} (U = 675.000; p < .001). Additionally, a superiority of G_{II} was recorded by BCR (U = 599.500; p < .001) and CRCR (U = 435.000; p < .001). The group with a low level of risky behavior (G_I) surpasses their counterparts in back-passing by the following parameters: CCR – G_{III} (U = 912.000; p = .011) and BCR – G_{III} (U = 599.500; p < .001). Moreover, the group with a low level of risky behavior (G_I) has superiority in hypervigilance by the following parameters: CCR – G_{III} (U = 688.000; p < .001) and BCR – G_{III} (U = 435.500; p < .001). The only significant superiority in procrastination was recorded in G_I over G_{III} (U = 835.500; p = .003).

Discussion

Decision-making is a complex process and result of a volitional action based on motivation, freedom, and intentionality. Theoretical studies show that decision-making is a multi-component psychological formation that is characterized by the variability of functional structure and multiple interrelationships of expected dispositions (Popovych et al., 2020b; 2024), which requires operationalizing the actual activity (Popovych et al., 2021; 2023f).

The attempt to assess junior athletes' risky behavior is a positive variant of numerous scientific endeavors to establish significant relationships and find differences between research variables. Since the main characteristics of risk are uncertainty and alternativeness, the attempts to identify typical algorithms and establish a limited number of scenarios of events seem rather complicated and unrealistic. It is noteworthy that uncertainty is a phenomenon that is heterogeneous in form, manifestation, and content. The predominant characteristics of junior athletes' uncertainty include the elements of randomness and spontaneity; the features of sports activities; the interinfluence of the surroundings; the impact of significant others, which is usually important and sometimes ambiguous; the innovative content of the main activity; the level of awareness and knowledge about objects, processes, and phenomena pertaining to decision-making; limited human capabilities to collect and process information; the localization of decision-making in spatial and temporal dimensions; altered conditions and changes in information about the actual objects of relevant activity. Some studies involving junior samples demonstrate that innovative activity is accompanied by complex stressful situations and subjects' permanent movement into the unknown (Tsiuniak et al., 2024); the lack of safe educational space negatively affects junior athletes' motivation (Blynova et al., 2022b), whereas adolescents' assertiveness in temporal dimensions can play a constructive role (Raievska et al., 2025). The sports activities to which junior athletes devote themselves are full of great hopes and expectations. They are characterized by constant dynamic and rapid ups and downs of self-realization. C. Liberati et al. (2021) paid much attention to finding tolerance dimensions. Risk in the situation of self-realization manifests as the uncertainty of opportunities to realize one's life plans according to one's abilities and inclinations, express oneself in the outcomes of one's activity, and feel one's individuality and independence from circumstances. Unlike other human activities (educational, academic, training, and rehabilitative), the resultant component of competitive activity depends on making the right decisions in extreme conditions. A mistake in an important sports event or final performance can mean much for a team or an individual athlete. The value of justified and rational risk, not an adventurous one, in competitive activity is

growing. Studies statistically prove that tolerance of uncertainty is mainly maintained by the action of a rational and reflective system of decision-making (Darvishov, 2020).

The obtained descriptive frequency characteristics of the research variables of risk propensity (see Tabl. 1) placed the emotional and control-regulatory components on the scale of this characteristic as extreme positions. Undoubtedly, the superiority of the emotional component is understandable and logical. However, a low level of the control-regulatory component, which is surpassed by the cognitive and behavioral components, is unexpected. Emotional and intellectual development may outpace the work of control-regulatory systems. This work depends on social experience and the level of self-regulation and motivation. Changeable situations of competitive, learning, and training activities are the same for all participants, and attitudes to training, applying a pre-game set-up, implementing the competition plan, and psycho-emotional readiness for the competition depend on each athlete and their personal responsibility and professionalism.

In our opinion, the four-factor structure of the decision-making process including vigilance, back-passing, procrastination, and hypervigilance (Mann et al., 1997), which was applied in this research (see Tabl. 1), quite relevantly outlined the examined phenomenon. The conflict theory by *I. Janis and L. Mann (1977), which was used as a methodological foundation, posits that three conditions determine the individual's resistance to coping in a stressful situation:* 1) awareness of serious risks; 2) expectation of finding a better alternative; 3) belief in sufficient time for making an optimal decision. This model ideally works in difficult situations of junior athletes' competitive activity. The athlete making a decision is in a stressful situation and tries to cope with motivational and emotional "stimuli" that are in constant contradiction and conflict in regulating a choice. The outlined profile of decision-making, with a predominance of vigilance, gives hope for the work of constructive coping. This indicates that junior athletes' search for constructive solutions prevails in stressful competitive situations. Vigilance is the main style characteristic of the junior athlete. It is related to cognitive complexity, the need for cognition, and tolerance of uncertainty. Introducing the additional variable, tolerance of ambiguity, proved to be effective in the statistical operation of establishing correlations (see Tabl. 2). The correlation matrix (see Tabl. 2) and correlation pleiade (see Fig. I) statistically corroborated and visualized that tolerance of ambiguity performs a mediating function. This fact confirms the third hypothesis and testifies that the mediation of tolerance in juniors' sports activities contributes to high values of Control-Regulatory Component of Risk and Vigilance. We can state that the first and second hypothesis are also confirmed. The given empirical measurements and statistical operations convincingly show that junior athletes' risky behavior is a necessary component of successful sports activities, and the parameters of risky behavior have significant correlations with decision-making parameters. The fourth hypothesis, which added integrity to our research, was also confirmed. The optimal level of risky behavior has a significant superiority in the parameters of juniors' decision-making compared to low and high levels of respondents' risky behavior. We recorded four statistical superiorities (see Tabl. 3) of the optimal level (G_{II}): two superiorities in the emotional component over G_I ($U = 923.000$; $p = .014$) and G_{III} ($U = 675.000$; $p < .001$), one superiority of G_{II} in the behavioral component over G_{III} ($U = 599.500$; $p < .001$), and one superiority in the control-regulatory component over G_{III} ($U = 435.000$; $p < .001$). To summarize, excessive risk propensity is the most dangerous since it is not always accompanied by constructive coping – vigilance – and is not amenable to self-control and self-regulation.

Conclusions

It was substantiated that research into junior athletes' risky behavior in decision-making is a successful attempt to establish significant correlations and identify superiorities of the examined decision-making parameters: vigilance, back-passing, procrastination, and hypervigilance, determined by psychological regularities of adolescence, junior athletes' stable characteristics, which are actualized in extreme conditions of sports activities, related to such personality traits as impulsiveness, autonomy, maximalism, the desire for success, and the tendency for dominance. It was underscored that changeable situations of competitive, learning, and training activities are the same for all participants, and attitudes to training, applying a pre-game set-up, implementing the competition plan, and psycho-emotional readiness for competitions depend on each athlete, their personal responsibility, and professionalism. It was found that tolerance of ambiguity performs a mediating function. It was emphasized that the mediation of tolerance in juniors' sports activities promotes the key parameters of risky behavior in decision-making: Control-Regulatory Component of Risk and Vigilance. It was established that the group of junior athletes with optimal parameters of risky behavior (G_{II}) has a significant superiority over their counterparts compared to the groups with low and high levels. Four statistical superiorities were identified in G_{II}: two superiorities in the emotional component over G_I ($p = .014$) and G_{III} ($p < .001$), one superiority in the behavioral component over G_{III} ($p < .001$), and one superiority over the control-regulatory component over G_{III} ($p < .001$). It was summarized that excessive risk propensity is the most dangerous since it is not always accompanied by vigilance and is not amenable to self-control and self-regulation.

The aim was achieved, and the four hypotheses were confirmed. We recommend that the research findings be used to develop training programs for shaping the optimal profile of risk propensity and developing self-control and self-regulation in sports activities.

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