What Predicts the Mood of Athletes Involved in Preparations for Tokyo 2020/2021 Olympic Games During the Covid – 19 Pandemic? The Role of Sense of Coherence, Hope for Success and Coping Strategies

Marta Szczypińska ✉, Aleksandra Samełko and Monika Guszkowska
Jozef Pilsudski University of Physical Education, Warsaw, Poland

Abstract
The aim of the study was to identify coherence, hope for success and coping strategies as predictors of mood among this year's Olympians in the context of coronavirus events. The relationships between the above variables and the mood of athletes were analysed. The study group consisted of 57 athletes – women (29) and men (28) between 18 and 39 years of age – representing various sports disciplines who were preparing for the Tokyo Olympics. The research was conducted in the period of April 7-28, 2020 during the first threat of COVID-19 pandemic, following the decision to move the Summer Olympics to the year 2021. It was time of the greatest national restrictions and information about the postponement of the games had been received. As a result of the step regression analysis, three predictors of vigour were established: sense of meaningfulness, coping with stress through positive reframing, and not using the self-blaming strategy. A positive predictor of anger was the use of substances. Confusion was predicted based on the frequency of behavioral disengagement. Behavioral disengagement predicted the severity of depression. Predictors of fatigue were the sense of meaningfulness, and the strategies of positive reframing and self-blaming. The results obtained emphasize the importance of positive reframing as a factor contributing to maintaining a positive mood state. In contrast, behavioral disengagement and self-blaming were strategies that lowered the mood of elite athletes. The results confirm the importance of factors included in the salutogenic model (sense of coherence, coping strategies) as predictors of athletes' mood during a pandemic.

Key words: Salutogenesis, affective states, athletes, COVID-19, sense of coherence.

Introduction

COVID-19 (coronavirus disease 2019) is a highly contagious disease caused by the Sars-Cov-2 coronavirus (Huang et al., 2020). Its widespread transmission has been declared a pandemic by the World Health Organization (WHO) (Li et al., 2020). An epidemic or pandemic situation, due to the high possibility of infection with a disease that threatens health and life, disturbs the internal balance of the individual can be treated as a strong stressor (Norris et al., 2002). It causes a sense of helplessness and the loss of a fundamental sense of security, makes it impossible to fulfill the need for safety, stability and the ability to predict one's own future. Additional sources of stress are the changes in family life, professional activity or the ways of spending free time, resulting from the pandemic limitations (AIS, 2020, Sarto et al., 2020; Blume et al., 2020).

A pandemic is a universal stressor, but for some social groups it has become a source of additional stress, resulting from special restrictions. Such groups include athletes who had to cease organized daily training almost overnight (Lim and Pranata, 2020). Athletes are just as vulnerable as the general population to the negative psychological consequences of COVID-19 – such as stress, anxiety and depression (AIS, 2020). Isolation at home, limitation of previous physical activity, isolation from members of the team and the sports community, and lack of social support negatively affect their psychophysical state, causing emotional distress (Mehrsafar et al., 2020). An additional source of stress is the inability to participate in sports competitions. In many countries, including Poland, the use of sports facilities has been banned and the activities of sports teams and clubs have been suspended. The lockdown also applied to the organization of sports events, and thus the activities of athletes and sports referees (Reardon et al., 2019; WHO, 2020). According to the results of a study conducted in South Africa, most of the surveyed athletes during the pandemic trained on their own every day, most often for 30-60 minutes, with moderate intensity. However, a significant proportion of the respondents felt depressed and needed additional motivation to maintain physical activity, preferring sedentary behavior in their free time (Pillay et al. 2020).

Decisions to postpone and cancel mass events began as early as February 2020. They concerned competitions of various rank, but the most serious consequences were probably the postponement of the XXXII Summer Olympics to be held in Tokyo in 2020[1]. Participation in the Olympic Games is usually the most important event in a sporting career, and an Olympic nomination is a particularly important long-term goal for many athletes. All obstacles on the way to its implementation are probably a source of frustration, arousing strong negative emotions and requiring adaptation. This is evidenced by studies on the psychological consequences of other events that prevent the achievement of sports goals, such as injuries or retirement (e.g. Jewett et al., 2019; Koukouris, 2005). It can therefore be considered that the athletes involved in the preparations for the Olympic Games experienced additional stress, resulting from the change of the date of the event and the ban on participation in organized training.

According to Antonovsky (1987), whose salutogenic model is the theoretical basis of our research, stressors are the requirements of the environment, for which there are no ready or automated adaptive reactions. They generate states of emotional tension, the content of which, according to the relational approach, will depend on the cognitive assessment of the situation (Folkman and Lazarus 1988). In the case of assessing the situation as

unfavorable (burdensome, exceeding resources and threatening well-being), the subject experiences a state of stress, which consists of strong, most often negative mood (anger), less often hope and the accompanying physiological and biochemical changes exceeding the basic level of arousal (Strelau, 2000). The extent of the stress state is a function of the discrepancy between the requirements and the ability to meet them. Such affective phenomena as short-term emotional states, but also mood, can be treated as indicators of a state of stress. The results of studies on the mood of various populations during the COVID-19 pandemic, as well as earlier epidemics of viral diseases (SARS, MERS, H1N1), show a significant deterioration of the mood of various social groups as compared to the pre-pandemic period (Batawi et al., 2019; Charles et al. 2020; Huang and Zhao, 2020; Lui et al., 2020; Tian et al., 2020).

According to Antonovsky (1987), we constantly encounter stressors – stimuli to which we do not have a ready, adequate adaptive response – but some of us cope with this experience quite well. In his opinion, effective coping with stress is determined by three factors: the types and levels of stressors, generalized immune resources and a sense of coherence. Generalized immune resources are properties of an individual – or a collective entity – that enable the avoidance of stressors or (when it is impossible) coping with the tension they generate (Pasikowski, 2000). Antonovsky (1987) lists them among the beliefs and judgments of individuals allowing them to deal with tension effectively.

One such resource may be hope, understood as the belief that one has the competence to achieve success. This construct, proposed by Snyder et al. (1997; 2000), consists of two related beliefs. The first is the belief that the individual is able to implement the adopted plan (agency). The second component is pathways (goal-directed determination) to find solutions, resulting from perceiving oneself as a capable and resourceful person. Hope understood in this way can be described as hope for success, as it refers to the strength of the expectation of positive effects of one's own actions. These beliefs are relatively stable and have a disposable character. Hope for success in terms of Snyder (2000) is a learned pattern of thinking that shapes the way of interpreting the situation and assessing the chances of undertaken actions. Therefore, it influences the assessment of the situation and one's ability to deal with it. The hypothesis that hope for success may play a role in the process of responding to stressors and coping with stress can therefore be derived from both the salutogenic model and the transactional concept of stress.

Hope positively correlates with positive affective states and negatively with negative affective states; it is associated with a lower number of negative thoughts, greater satisfaction with life and a lower level of depression and anxiety (Łaguna et al., 2005). It buffers the impact of stress on mental well-being (Bernardo et al., 2018). Hope is a positive correlate and predictor of school and academic achievement (Bryce et al., 2019). It can be assumed that this construct also plays an important role in the case of achievements in other spheres (including sports).

The results of previous studies provide grounds for the hypothesis that hope for success is related to the mood of athletes during the COVID-19 pandemic. So far, there is little research supporting the role of hope in coping with pandemic-related stress. It was found to affect the mental health and subjective well-being of adults in the early stages of the epidemic (Yıldırım et al., 2020). Indirectly, the premises for such a hypothesis also come from research on the role of similar semantic constructs, such as basic hope or optimism. Research conducted in the Polish population shows that basic hope increases the sense of meaning in life and life satisfaction, which in turn reduces the level of pandemic stress and anxiety related to COVID-19 (Trzebiński et al., 2020). Optimism, on the other hand, can play the role of a resource in dealing with detainment resulting from quarantine (Krumm et al., 2020).

The ways of coping with stress play a special role in the course of a stress transaction. According to the transactional concept of stress, they are conditioned by the result of the secondary assessment – the ability to cope with stress (Folkman and Lazarus 1988). Strategies for coping with stress are specific cognitive and behavioral efforts, aimed at mastering specific external and internal requirements, assessed by an individual as burdening or exceeding their resources, undertaken in a specific stress transaction (Wrześniewski, 2000). Research results show (Heszen, 2014; Strelau, 2000) that people use different coping strategies.

The effectiveness of individual coping strategies varies, mainly depending on the characteristics of the stress transaction (Heszen, 2014; Lazarus, 1993). Predicting which specific coping strategies will be particularly effective against stress related to the COVID-19 pandemic is difficult. While reviewing the literature, we did not find any research on this subject. However, data on epidemics of other viral diseases can be applied here. When examining the relationship between coping with stress and the fear of H1N1 infection during the 2009 epidemic, the authors found that the adults studied applied problem-focused coping strategies slightly more often (such as problem solving, cognitive restructuring, seeking of social support, active distraction and humor) than those focused on emotions (self-blaming, blaming others, rumination, wishful thinking, emotional expression, emotional self-control, cognitive distraction, passive resignation) (Taha et al., 2013). Problem-focused coping correlated positively with fear of swine flu. Both forms of coping were related in direct proportion to each other. The use of strategies focused on affective states increased anxiety, while strategies focused on the problem weakened it. Coping strategies also mediated the impact of intolerance to uncertainty related to H1N1 anxiety (Motoc et al., 2020; Taha et al., 2013).

In accordance with the assumptions of the salutogenic model, however, the sense of coherence plays a key role in effective coping with stress. Sense of coherence is a global orientation of a person, expressing the degree to which a person has a dominant, persistent but dynamic sense of certainty that: 1) The stimuli flowing in the course of life from the internal and external environment are structured, predictable and explainable; 2) There are resources available to meet the demands of these stimuli; 3) For them, these requirements are a challenge worth the effort and commitment (Antonovsky, 1987). It consists of three

components. Comprehensibility – the ability to understand and cognitively evaluate reality as meaningful, information-ordered, coherent, clear and structured. Second one, manageability – the belief of individuals that they have means or resources, both personal and social, allowing them to actively influence the situation; a sense of competence in coping with a stressful situation, resulting from an adequate and realistic assessment of requirements and available resources. The last one- sense of meaningfulness – is the conviction that it is worth engaging in challenging situations, related to the sense of meaning and value in one's own life. It plays a special role in shaping the sense of coherence (Antonovsky, 1987).

Studies have shown a positive relationship between the sense of coherence and various measures of physical health (Eriksson and Lindström, 2005; Hakanen et al., 2007) and a negative relationship with anxiety, depression, negative emotions, aggression, auto-aggression, and isolation (Eriksson and Lindström, 2005 and 2006; Langeland et al., 2007). The sense of coherence is also linked to other personality dimensions that determine effective stress management, such as self-efficacy, hardiness, and internal locus of control, social skills, and some personality traits (Antonovsky, 1987). According to Mayer and Thiel (2014), the sense of coherence should be treated as the basic factor determining not only physical and mental health, but also high sports performance in elite athletes. This is confirmed by the results of the study of young Polish (Rutkowska and Wawer, 2012) and Hungarian (Sipos et al., 2015) athletes.

The sense of coherence is often referred to as a meta-resource because it influences the primary assessment of the stressor – people with a strong sense of coherence are less likely to assess the stimulus as stressful; they are convinced that they will cope with the situation (Pasikowski, 2000). It decides the strength of physiological and emotional reactions under the influence of a stressor (Kaczmarek, 2006). It conditions the undertaken coping actions: people with a strong sense of coherence are more likely to focus on the problem and the available means to change the situation; they choose more appropriate coping strategies, assess the requirements and available resources more realistically, activate them more effectively, make better use of previous experience in coping with stress (Heszen and Sęk, 2008; Sęk and Ścigała, 2000). Another contributes to the development of other immune resources (Pasikowski, 2000).

The salutogenic model allows one to expect strong relationships between the components of the sense of coherence and people's mood – a strong sense of coherence should be associated with a lower level of negative moods. Conversano et al. (2020) indicate the sense of coherence as one of the possible resources to help in coping with stress resulting from the COVID-19 epidemic. The prediction is confirmed by the results of a study carried out during the COVID-19 pandemic in Israel, which indicates that the sense of coherence is a positive predictor of mental health in adults (Mana and Sagy, 2020). These expectations are indirectly supported by the fact that the perceived high stress load and numerous stressful life events were risk factors for depression and anxiety during the COVID-19 pandemic (Vindegaard et al., 2020). People with a strong sense of coherence less frequently assess the stimuli as stressful, so their level of perceived stress is lower.

The aim of the study was to determine the extent to which selected psychological variables affect the well-being of athletes participating in Olympic preparations during the period of blocking participation in sports activities and after the decision to postpone the Olympic Games. Mood predictors were also examined.

Methods

Participants and Procedures

The study group consisted of 57 Polish potential Olympians aged 18 to 39 (M = 26.61; SD = 5.562), including 29 women (52.7%) and 28 men (49.1%) practicing individual sports such as athletics, rowing, fencing, shooting, sport climbing, badminton, swimming, pentathlon, taekwondo, sailing, wrestling, canoeing, judo, cycling, equestrianism and weightlifting. Their professional experience ranged from 4 to 25 years (M = 14.59; SD = 5.981).

The selection for the group was deliberate. The criterion for the inclusion of competitors in the study was to include athletes in Olympic preparation, which meant achieving an Olympic qualification or a strong chance of obtaining it in the next year.

All the subjects were of legal age and consented to participate in the study. The survey was anonymous and voluntary. It was carried out in accordance with the principles of The Code of Ethics of the World Medical Association (Declaration of Helsinki). Competitors received feedback on their individual performance.

Research procedure

The research was conducted in the form of an on-line survey on the https://www.survio.com/pl/ platform, in the period of April 7-28, 2020 during the COVID-19 pandemic, following the decision to move the Summer Olympics to the year 2021.

In Poland, in connection with the regulation of the Council of Ministers of March 31, 2020, the Ministry of Sport introduced a lockdown on participation in sports activities (see Regulations). Throughout the country, it was forbidden to use outdoor sports facilities, indoor sports facilities (including stadiums, racetracks, swimming pools, gyms and other sports and recreational facilities); the activities of sports teams and clubs were suspended. The lockdown also applied to the organization of sports events, the activities of athletes and sports referees. This lockdown lasted until May 4, 2020. All athletes participated in the study during the period of this lockdown. The average test time was approximately 25 minutes.

Research tools

The four standard psychological questionnaires described below were used.

Antonovsky's Sense of Coherence Questionnaire (SOC 29) (1987) in the Polish adaptation of Koniarek et al. (1993) is a tool that allows one to estimate levels of three

components (i.e., the sense of comprehensibility, the sense of manageability and the sense of meaningfulness). It consists of 29 statements, with responses on a 7-point Likert scale. The internal consistency of the entire scale is very high. This questionnaire has good properties psychometric: Cronbach's α for the entire scale is 0.85 and from 0.72 to 0.75 for the subscales. Retest stability the scale ranges from 0.72 to 0.83 (p <0.001).

The brief version of the Inventory for Measuring Coping with Stress (brief COPE) (Carver et al., 1989) in the Polish adaptation of Juczyński and Ogińska-Bulik (2009) consists of 28 items and measures 14 strategies for coping with stress (2 statements for each strategy): acceptance, doing something else, active coping, seeking of emotional support, positive reframing, planning, venting, seeking of instrumental support, humor, self-blaming, behavioral disengagement, turning to religion, denial, substance use. The respondents give answers on a scale from 0 = almost never to 3 = almost always. In the instructions, the respondents were asked to relate their answers to the current situation: the postponement of the Olympic Games. The Polish language version is characterized by a satisfactory half reliability (0.86; Guttman's index 0.87) and stability. The validity of the tool was confirmed by the results of the factor analysis. Diagnostic validity was assessed by correlating the brief COPE results with the Mini-MAC scale, designed to study the strategy of coping with cancer, and by predicting the severity of post-traumatic stress symptoms in the group of mothers of children treated for leukemia.

The POMS (Profile of Mood State) Mood Profile Questionnaire by McNair et al. (1971) was used to measure mood, with six scales in the original version: depression, tension, anger, fatigue, confusion, vigour. In addition to the indices of these affective states, the summary index of negative mood can be calculated. In the Polish version, developed by Dudek and Koniarek (1987), supplemented with a kindness scale, it consists of 65 adjectives that define mood. The respondent assesses the degree of intensity of the condition described by the adjective in the last week, using a scale from 0 (definitely not) to 4 (definitely yes). The questionnaire has no standards for the Polish population. The psychometric results of the tool are satisfactory (Cronbach's alpha is in the range 0.74-0.91).

The Hope for Success Questionnaire (HSQ) by Snyder et al. (1991) in the Polish adaptation of Łaguna et al. (2005) allows one to assess the strength of the belief that success will be achieved, and that this success will be related to one's own competences. The tool contains two scales: agency (goal-directed determination) and pathways (planning of ways to meet goals). It also provides a summary indicator of hope for success. The factor structure is in line with the theoretical assumptions. Reliability of the scale of the overall score of KNS, estimated Cronbach's α coefficient is 0.82, the reliability of the agency scale of will is 0.74, and the pathways scale - 0.72.

Statistical analysis
Since the variables did not meet the requirements of the normal distribution, the Spearman rank correlation coefficients were calculated in order to establish relationships between the variables. In addition, step regression analysis was used. Justifying the use of the stepwise regression method, this type of analysis was used because it has a mathematical basis (compared to hierarchical or hierarchical-step regression, where the researcher has to suggest the order of entering variables into the model). Purely mechanically, it enters the best predictors until none can be incorporated into the model anymore. It allows us to realistically obtain information which of the variables we analyze best allow us to predict the level of the dependent variable. This is progressive method, in which there is no predictor in the model at the beginning and new, statistically significant predictors are introduced every step. The size of the maximum error was 11%.

Results

Relationships between the coping, sense of coherence, hope for success and mood
Relationships between mood and sense of coherence, hope for success and coping strategies are presented in Table 1. The sense of meaningfulness was the component of the sense of coherence that correlated most strongly with vigour (Rho = 0.566). The relationships of the sense of manageability were not much weaker (0.478 and from -0.427 to -0.454), irrelevant to tension and anger. Although the sense of comprehensibility correlated significantly with anger (-0.284).

The relationships with the dimensions of hope for success were weaker. The belief in agency correlated positively with vigour (0.485) and negatively with three negative moods (from -0.406 to 0.494). A strong belief in agency was accompanied by a better mood. Only one weak positive relationship was revealed between mood (vigour) and the pathways (0.272).

Among the strategies for coping with stress, behavioral disengagement and substance use were the most strongly associated with mood, positively correlated with negative moods (from 0.281 to 0.561) and negatively with vigour (-0.471 and 0.-410) (Table 1). Self-blaming was significantly and positively associated with all negative mood states, but the correlation coefficients had lower values (from 0.268 to 0.426). Active coping and seeking of emotional support correlated positively with vigour (0.284 and 0.325).

In order to establish the predictors of mood, the following explanatory variables were entered into the regression equation each time: gender, age, professional experience, indicators of the components of the sense of coherence and hope for success, and the coping strategy. The dependent variable were the mood indicators obtained in the POMS results (see Table 2).

Anger
The only and positive predictor of anger was the avoidance strategy of coping with stress – substance use, explaining only 7.3 % of the variation in intensity of anger.

Table 1. Relationships between the coping, sense of coherence, hope for success and mood (Spearman's rank correlation statistically significant coefficients).

Variables	Anger		Confusion		Depression		Fatigue		Tension		Vigour	
	Rho	p	Rho	p	Rho	p	Rho	p	Rho	p	Rho	p
Comprehensibility	-.284	.032	.405	.002	.378	.004	-.306	.021				
Manageability			-.454	<.001	-.441	.001	-.427	.001			.478	<.001
Meaningfulness			-.446	.001	-.535	<.001	-.545	<.001			.566	<.001
Agency (goal-directed determination)			-.482	<.001	-.494	<.001	-.406	.002			.485	<.001
Pathways (planning of ways to meet goals)											.272	.041
Active coping											.284	.033
Positive reframing	.-274	.039	-.324	.014	-.383	.003	-.429	.001			.443	.001
Seeking emotional support											.325	.014
Substance use	.300	.023	.411	.002	.431	.001	.362	.006	.341	.01	-.410	.002
Behavioral disengagement	.281	.035	.514	<.001	.561	<.001	.458	<.001	.466	<.001	-.471	<.001
Self-blaming	.268	.043	.426	.001	.355	.011	.280	.035	.271	.042		

Table 2. Mood predictors (results of step regression analysis).

Mood	Step	Predictor	Beta	t; p	R^2	F; p
Anger	1.	Substance use	.300	2.308; .025	.073	5.327; .025
Confusion	1.	Behavioral disengagement	.511	4.371; <.001	.248	19.109; <.001
	2.	Behavioral disengagement	.421	3.079; .001	.335	14.877; <.001
		Meaningfulness	-.326	2.850; .006		
	3.	Behavioral disengagement	.347	3.079; .003	.397	13.057; <.001
		Meaningfulness	-.306	2.801; .007		
		Self-blaming	.277	2.508; .015		
Depression	1.	Behavioral disengagement	.559	4.958; <.001	.300	24.578; <.001
	2.	Behavioral disengagement	.446	4.279; <.001	.447	23.255; <.001
		Meaningfulness	-.326	2.850; <.001		
Fatigue	1.	Meaningfulness	-.543	4.749; <.001	.282	22.553; <.001
	2.	Meaningfulness	-.477	4.386; .001	.375	17.503; <.001
		Positive reframing	-.328	3.013; .004		
	3.	Meaningfulness	.347	4.147; .003	.413	13.902; <.001
		Positive reframing	-.306	3.226; .002		
		Self-blaming	.277	2.105; .040		
Tension	1.	Behavioral disengagement	.463	3.836; <.001	.200	14.715; <.001
Vigour	1.	Meaningfulness	.564	5.022; <.001	.306	25.218; <.001
	2.	Meaningfulness	.497	4.680; <.001	.404	19.629; <.001
		Positive reframing	.334	3.145; .003		
	3.	Meaningfulness	.450	4.267; <.001	.439	15.371; <.001
		Positive reframing	.239	2.120; .039		
		Self-blaming	-.240	2.089; .042		

Confusion

24.8 % of variation in the level of confusion was predicted, based on the frequency of use of the behavioral disengagement. The introduction of the second predictor – sense of meaningfulness – increased the coefficient of determination to 33.5%. Almost 40% of confusion was predicted when the self-blaming was included as a third predictor. A high level of confusion is to be expected in competitors who display little sense of meaning and are willing to use the behavioral disengagement and self-blaming strategy.

Depression

Behavioral disengagement predicted 30 % of the severity of depression. The introduction of the second predictor – the sense of meaningfulness – increased the coefficient of determination to almost 44.7 %. Severe depression is to be expected in athletes who are prone to stopping under stress and have a low sense of meaningfulness.

Fatigue

There were three predictors of fatigue. 28.2 % of variation in the sense of meaningfulness allowed for this prediction. The predictor revealed in the second step was the strategy of positive reframing, and in the third it was self-blaming. In over 41.3 % of variation in these three predictors predicted the level of fatigue.

Tension

The only and positive predictor of the tension was the frequency of using the behavioral disengagement strategy, which predicted 20% of the variance in tension.

Vigour

As a result of the step regression analysis, three predictors of vigour were established, which together predicted 43.9 % of the variation in vigour. A high level of vigour was to be expected in competitors with a strong sense of meaningfulness, often coping with stress through positive reframing, and rarely using the self-blaming strategy.

The predictors of negative mood (summary index) turned out to be the strategy of behavioral disengagement (positive predictor) and sense of meaningfulness (negative

predictor), which together allowed the level of negative mood to be predicted in 40.2 % (Table 3).

Table 3. Negative mood predictors (results of step regression analysis).

Step	Predictor	Beta	t; p	R^2	F; p
1.	Behavioral disengagement	.542	4.743; <.001	.281	22.494; <.001
2.	Behavioral disengagement	.439	4.045; <.001	.402	19.472; <.001
	Meaningfulness	-.374	3.451; .001		

Discussion

Our research results clearly support the importance of the sense of meaningfulness as the resource most strongly associated with the mood of athletes during a pandemic. It is worth recalling that the meaningfulness is treated by some authors (e.g., Pasikowski, 2000) as a meta-resource that determines the ability of a person to use other personal and environmental resources. The sense of meaningfulness was the component of the sense of coherence that correlated strongly with mood and was the only component to be a predictor of four (apart from anger and tension) mood states and its total mood disturbance. The results of our research confirm the-importance of this dimension. They predict that athletes who demonstrate a strong sense of meaningfulness will maintain a better mood in a stress situation resulting from the COVID-19 pandemic.

The other components of the sense of coherence – the sense of comprehensibility and the meaningfulness – although they correlated significantly with mood, did not allow it to be predicted. This suggests that their importance as a determinant of the mood of athletes – potential participants in the Olympic Games – is lower in the period of a pandemic and suspension of sports activities.

Research shows that the sense of coherence increases with age (Antonovsky, 2005). The relationship between age and sense of coherence was not tested. Our respondents were of various ages, which suggests that they may have differed in terms of the sense of coherence. However, it can be assumed that sports activity creates good conditions for shaping a sense of coherence due to the high level of structure and challenges that are set before a competitor (Mayer and Thiel, 2014). This is confirmed by the results of research in a group of students practicing sports. Both in studies conducted in Japan (Endo et al., 2012) and the USA (Skirka, 2000), they revealed a stronger meaningfulness than their non-sports practicing colleagues. Research results also suggest that involvement in sports may increase the sense of coherence (Endo et al., 2012). Due to the negligible number of studies on the role of the sense of coherence in coping with the stress of the COVID-19 pandemic, our results should be related to studies that analyzed the significance of variables similar in content.

Component of hope for success- the belief in having agency (goal-directed determination) was correlated with almost all mood states (except anger), but it did not allow them to be predicted. The belief in the ability to find solutions (pathway) was significantly (and positively) related only to vigour. Thus, the results of our research revealed differences in the importance of the immune resources included in them. The sense of coherence turned out to be more strongly associated with the general mood of athletes during the COVID-19 pandemic.

Dependencies on the content of affective states in the case of confusion, depression and fatigue not only occurred more often in athletes but were even more intense. Tension did not significantly correlate with any of the resources included in our study, while anger was associated only with the sense of comprehensibility. The researched resources also made it impossible to predict the intensity of these moods.

The regulatory importance of anger is yet another matter. It is an affect accompanied by an increase in the level of arousal and an increase in the drive to act, also in the form of aggressive behavior (Łosiak, 2007). Our results suggest that only a sense of comprehensibility is related to how intense anger was experienced by potential Olympians during the COVID-19 pandemic. For a person with a low sense of comprehensibility, reality appears to be difficult to explain, understand and organize. This can be a source of frustration and contribute to anger. Frustration has proven to be a factor in increasing emotional distress in people quarantined during the pandemic (Brooks et al., 2020).

The results of the correlation and regression analyzes revealed a very strong correlation between the strategies related to the decline in mood. The strongest of them are self-blaming, behavioral disengagement and substance use. The only positive strategy turned out to be positive reframing. The role of behavioral disengagement, the essence of which is to give up efforts to achieve the goal, is particularly clear. This strategy correlates positively and strongly with all negative moods, but negatively with vigour, and is a positive predictor of confusion, depression, tension (the only one) and negative mood. Of course, in the case of correlation, it is impossible to say what is the cause and what is the effect.

Self-blaming was a positive correlate of all negative mood states, a positive predictor of confusion and fatigue, and a negative predictor of vigour. This strategy also seems to be related to depression, and cause-and-effect relationships may go in both directions or (as in the case of behavioral disengagement) result from the fact that both negative moods (Gurvich et al., 2020).

In the light of the results of our research, the only strategy to strengthen positive mood is positive reframing, which correlated negatively with almost all negative moods (except tension) and positively with vigour and was a negative predictor of fatigue and a positive predictor of vigour. Positive reframing, (i.e., perceiving a stressful situation in a more positive light) seems to be a particularly effective coping strategy when the stressful situation remains beyond our control. This is the case for a pandemic and its limitations. The results of previous studies confirm that the strategy of positive reframing is associated with a lower intensity of stress, especially when the individual

cannot influence the change of the stressful situation. Research on coping strategies during the COVID-19 epidemic indicates that a positive style of coping with stress (considered to be a task-oriented style) is a predictor of lower stress levels and mental well-being (Fredrickson et al., 2003).

Active coping positively correlated with vigour, and negative associations with depression were on the verge of significance. Problem-focused strategies are believed to be adaptive in situations where active coping is effective. They reduce the perceived stress. In the situation of sports rivalry, athletes are more likely to use task-oriented strategies (Litwic-Kamińska and Izdebski, 2016). Research results confirm that problem-focused strategies better serve the level of athletic performance than strategies focused on emotions or avoidance (Folkman, 1992; Nicholls et al., 2012). Problem-focused coping, including active coping, was associated with positive affect and higher self-esteem of athletic performance (Ntoumanis and Biddle, 2000).

In a situation where the athlete has limited ability to change the situation, avoidance strategies may be more effective (Carver et al., 1989). However, they are not widely used by athletes (Nicholls and Polman, 2007). They provide only temporary relief (Suls and Fletcher, 1985). It seems that in a pandemic situation, their effectiveness may be greater than in relation to typical stressors in competitive sports.

Most studies indicate that athletes relatively rarely apply emotional strategies (Polman, 2012). In our research, the relationships between emotional strategies and mood turned out to be weak. Seeking of emotional support correlated positively with vigour.

Finally, let us take a look at the strategy for substance use. The tendency to use this method of coping with stress correlated significantly and strongly with all mood states. It seems that in this case we may be dealing with a positive feedback loop. In an attempt to deal with stress and the resulting tension, athletes used psychoactive substances that temporarily improved their well-being, but in the long run caused a drop in mood and increased the readiness to use them. The substance use, however, was a weak positive predictor of only one mood state – anger.

Limitations

Of course, our work is not free from limitations. Its weak point is the small number of respondents. However, it should be remembered that the criterion for inclusion in the research was the athlete's participation in the preparations for the XXXII Olympic Summer Games representing Poland. Only elite sportspeople took part in the study. Additionally, this was a cross-sectional study, and as such causal inference is not possible. Second, as mentioned, the potential that the study was underpowered also needs to be acknowledged within the discussion of the small sample size in this study. Also, in our study, some scales (eg brief Cope) had low internal consistency / reliability.

We considered only a few factors that potentially determine the mood of athletes. We chose those that should be considered particularly important based on the salutogenic model. In the online survey, the risk of discouraging participants with too many questions is greater than in the case of auditorium surveys. This forced the limitation of the research tools used. Of course, the variables studied by us do not exhaust the potential predictors of athletes' mood during the COVID-19 pandemic. When interpreting the results of the study, we particularly lacked data on the severity of depression symptoms. Knowledge on this subject would allow for more certainty to infer about possible relationships between the variables.

Conclusion

The results of the study confirm the importance of the some coping strategies and one dimension of sense of coherence-the sense of meaningfulness, as a predictors of the mood of elite athletes – potential participants of the Tokyo Olympics during the COVID-19 pandemic. This suggests that psychological support for athletes during the epidemic should be focused on observation of coping strategies and strengthening the sense of coherence, which is confirmed by both the conclusions of the study of Israeli athletes (Mana and Sagy, 2020) and the postulates of psychologists-practitioners (Conversano et al., 2020). Coping mechanisms are some kind of skill with which people can survive difficult conditions. Individuals use them to deal with stress, pain as well as the current state of the pandemic. According to Antonovsky (1987), it develops even in the early years of early adulthood, up to around 30 years of age, and may be the subject of deliberate influence. Experience favors the sense of coherence.

Coping with stress was another important factor linked to athletes' mood during the COVID-19 pandemic. The results obtained by us emphasize the importance of positive reframing as a factor contributing to maintaining a good mood. In the light of the research reported here, behavioral disengagement and self-blaming are strategies that lower the mood of elite athletes. Psychological interventions should therefore be aimed at encouraging athletes to find positive aspects in the experience of a pandemic and to activate them during the period of suspension of training. The need to support athletes in coping with the stress of a pandemic is emphasized by many researchers (Mehrsafar et al., 2020; Yang et al., 2020).

The relatively low importance of problem-focused coping strategies confirms the observations made so far (Carver et al., 1989) that this type of coping may play a smaller role in the case of stress, the sources of which are beyond the control of the individual. For athletes who prefer active coping (Polman, 2012) it is worth being aware of this.

References

Antonovsky, A. (1987) Unravelling the Mystery of Health: How People

Manage Stress and Stay Well. San Francisco: Jossey-Bass.

Antonovsky A. (2005) Rozwikłanie tajemnicy zdrowia - jak radzić sobie ze stresem i nie zachorować Instytut Psychiatrii i Neurologii. Wydawnictwo, Warsaw wyd.1. (In Polish).

AIS framework for rebooting sport. COVID-19 and Sporting Activity. (2020). *Australia, The Australian Institute of Sport*. Available from URL: https://ais.gov.au/health-wellbeing/covid-19#ais.framework.for.rebooting.sport.

Batawi, S., Tarazan, N., Al-Raddadi, R., Al Qasim, E., Sindi, A., Al Johni, S., Al-Hameed, F. M., Arabi, Y. M., Uyeki, T. M. and Alraddadi, B. M. (2019) Quality of life reported by survivors after hospitalization for Middle East respiratory syndrome (MERS) Health and Quality of Life Outcomes **17**:101. https://doi.org/10.1186/s12955-019-1165-2

Bernardo, A. B. I., Yeung, S. S., Resurreccion, K. F., Resurreccion, R. R. and Khan, A. (2018) External locus-of-hope, well-being, and coping of students: A cross-cultural investigation within Asia. *Psychology in the Schools* **55**, 908-923. https://doi.org/10.1002/pits.22155.

Blume, Ch., Schmidt, M.H. and Cajochen, Ch. (2020). Effects of the COVID-19 lockdown on human sleep and rest-activity rhythms. *Current Biology* **30(14)**, 95-797. https://doi.org/10.1016/j.cub.2020.06.021

Brooks, S., Webster, R., Smith L., Woodland L., Wessely S., Greenberg N. and Rubin G. J. (2020) The psychological impact of quarantine and how to reduce. *Rapid Review* **395(10227)**, 912-920. https://doi.org/10.1016/S0140-6736(20)30460-8

Bryce C.I., Alexander B.L., Fraser A.A.M. and Fabes R. A. (2019) Dimensions of hope in adolescence: Relations to academic functioning and well-being. *Psychology in Schools* **57(2)**, 171-190. https://doi.org/10.1002/pits.22311

Carver, C.S., Scheier, M.F. and Weintraub, J.K. (1989) Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology* **56**, 267-283. https://doi.org/10.1037/0022-3514.56.2.267

Charles, N. E., Stronga, S. J., Burnsa, L. C., Bullerjahna, M. R. and Serafineb, K.M. (2020) Impact of covid-19 pandemic on well-being. Increased mood disorder symptoms, perceived stress, and alcohol use among college students during the COVID-19 pandemic. *PsyArXiv Preprint*. https://doi.org/10.31234/osf.io/rge9k

Chmielewska, A. and Trzebiński, J. (2004) Basic hope and adaptation to flood trauma. In: *Conference of the Society for Philosophy and Psychology*, Barcelona. 1-6

Clarke, D. and Goosen, T. (2009) The mediating effects of coping strategies in the relationship between automatic negative thoughts and depression in a clinical sample of diabetes patients. *Personality and Individual Differences* **46(4)**, 460-464. https://doi.org/10.1016/j.paid.2008.11.014.

Conversano, C., Marchi, L. and Miniati, M. (2020) Psychological distress among healthcare professionals involved in the Covid-19 emergency: vulnerability and resilience factors. *Clinical Neuropsychiatry* **17(2)**, 94-96.

Custodio, P.C. and Siy, L.C. (2017) Needs, Difficulties and Coping Mechanisms of Women as Professionals and as Managers of Households. *Asia Pacific Journal of Multidisciplinary Research* **5(2)**, 147-155.

Dudek, B. and Koniarek, J. (1987). Adaptacja Testu D.M. McNair, M. Lorr L.F. Droppleman – Profile of Mood States (POMS). *Przegląd Psychologiczny* **3**, 753-762.

Endo, S., Kanou, H. and Oishi, K. (2012) Sports Activities and Sense of Coherence (SOC) among College Students. *International Journal of Sport and Health Science* **10**, 1-11. https://doi.org/10.5432/ijshs.201114

Eriksson, M. and Lindström, B. (2005). Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal Epidemiology and Community Health* **59**, 460-466. https://doi.org/10.1136/jech.2003.018085

Eriksson, M. and Lindström, B. (2006) Antonovsky's sense of coherence scale and the relation with health: a systematic review. *Journal Epidemiology and Community Health* **60**, 376-381. https://doi.org/10.1136/jech.2005.041616

Folkman, S. (1992) Making the case for coping. In: *Personal coping: Theory, research and applications*. Ed: Carpenter BN. Westport, CT: Praeger. 31-46.

Folkman, S., and Lazarus, R. (1988) Coping as a mediator of emotion. J*ournal of Personality and Social Psychology* **54(3)***, 466-475. https://doi.org/10.1037/0022-3514.54.3.466

Fredrickson, B. L, Tugade, M. M, Waugh, C. E. and Larkin G. R. (2003) What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology* **84(2)**, 365-376. https://doi.org/10.1037/0022-3514.84.2.365.

Gaudreau, P. and Blondin, J.P. (2002) Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport Exercise* **3**, 1-34. https://doi.org/10.1016/S1469-0292(01)00017-6

Gaudreau, P., Nicholls, A. and Levy, A.R. (2010) The ups and downs of coping and sport achievement: an episodic process analysis of within-person associations. *Journal of Sport and Exercise Psychology* **32**, 298-311. https://doi.org/10.1123/jsep.32.3.298

Gurvich C., Gur, T.N. and Thomas E. (2020) Coping styles and mental health in response to societal changes during the COVID-19 pandemic. *International Journal of Social Psychiatry* 1-10. https://doi.org/10.1177/0020764020961790

Gustafsson H., Hassmén, P. and Podlo L. (2010) Exploring the relationship between hope and burnout in competitive sport. *Journal of Sports Sciences* **28**, 1495-1504. https://doi.org/10.1080/02640414.2010.521943

Hakanen, J.J., Feldt, T. and Leskinen, E. (2007) Change and stability of sense of coherence in adulthood: Longitudinal evidence from the Healthy Child study. *Journal of Research in Personality* **41**, 602-617. https://doi.org/10.1016/j.jrp.2006.07.001

Heszen, I. (2014) Psychologia stresu. Warszawa: PWN. 140-146. (In Polish).

Heszen, I. and Sęk, H. (2008) *Psychologia zdrowia*. Warszawa: PWN. 81-84. (In Polish).

Hollifield, M., Hewage, C., Gunawardena, C. N., Kodituwakku, P., Bopagoda, K. and Weerarathnege K. (2008) Symptoms and coping in Sri Lanka 20–21 months after the 2004 tsunami. *British Journal of Psychiatry* **192(1)**, 39-44. https://doi.org/10.1192/bjp.bp.107.038422

Huang, C.L., Wang, Y.M., Li, X.W., Ren, L.L., Zhao, J.P., Hu, Y., Zhang, L., Fan, G., Xu, G. and Gu, X.(2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China, *Lancet* **395(10223),** 497-506. https://doi.org/10.1016/S0140-6736(20)30183-5

Huang, Y. and Zhao, N. (2020) Generalized anxiety disorder, depressive symptoms and slee p quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Research* **(288)**, 112954. https://doi.org/10.1016/j.psychres.2020. 112954.

Jewett, R., Kerr, G., and Tamminen, K. (2019) University sport retirement and athlete mental health: A narrative analysis. *Qualitative Research in Sport, Exercise and Health* **11(3)**, 416-433. https://doi.org/10.1080/2159676X.2018.1506497

Juczynski, Z. and Ogińska-Bulik, N. (2009) Narzędzia pomiaru stresu i radzenia sobie ze stresem (Methods to measure stress and coping). (In Polish). Warszawa: Pracownia Testów Psychologicznych

Kaczmarek, Ł. (2006) Związek między poczuciem koherencji a afektem pozytywnym i negatywnym w zależności od poziomu stresu. W Psychologia zdrowia - Teoria, metodologia, empiria, (red.) H. Sęk, T. Pasikowski. Poznań: Bogucki Wydawnictwo Naukowe. 73-84. (In Polish).

Kaczmarek, Ł. (2007) Związek między poczuciem koherencji a afektem pozytywnym i negatywnym w zależności od poziomu stresu [The association between the sense of coherence and positive affect depend on the levels of stress].H. Sęk (Ed.) *Psychologia zdrowia. Teoria, metodologia i empiria.* Poznań: Bogucki Wydawnictwo Naukowe. 73-84. (In Polish).

Koniarek, J., Dudek, B. and Makowska, Z. (1993) Kwestionariusz Orientacji Życiowej. Adaptacja The Sense of Coherence Questionnaire (SOC) Aarona Antonovsky'ego. *Przegląd Psychologiczny* **36**, 491-502. (In Polish).

Koukouris, K. (2005). Premature athletic disengagement of elite Greek gymnasts. *European Journal for Sport and Society* **2(1),** 35-56. https://doi.org/10.1080/16138171.2005.11687764

Krumm, Ch.M., Tarquinio, C. and Tarquinio, C. (2020) Optimism and COVID-19: A resource to support people in confinement? *Annales Médico-psychologiques, revue Psychiatrique* **178(7)**, 728-737. https://doi.org/10.1016/j.amp.2020.06.004

Langeland, E., Wahl, A.K. and Kristoffersen, K. (2007) Promoting coping: salutogenesis among people with mental health problems. *Issues in Mental Health Nursing* **28(3)**, 275-95.

https://doi.org/10.1080/01612840601172627

Lazarus, R.S. (1993) Coping theory and research: Past, present, and future. *Psychosomatic Medicine* **55**, 234-247. https://doi.org/10.1097/00006842-199305000-00002

Li, S., Wang, Y., Xue, J., Zhao N., Zhu, T. and Environ, J. (2020) The Impact of COVID-19 Epidemic Declaration on Psychological Consequences: A Study on Active Weibo Users *Res. Public Health* **17(6)**, 2032. https://doi.org/10.3390/ijerph17062032

Lim, M.A. and Pranata, R. (2020) Sports activities during any pandemic lockdown. *Nature Public Health Emergency Collection* **4**, 1-5. https://www.doi.org/10.1007/s11845-020-02300-9

Litwic- Kaminska, K. and Izdebski, P. (2016) Resiliency against stress among athletes. *Health Psychology Report* **4(1)**, 79-90. https://doi.org/10.5114/hpr.2016.54393

Liu, C.H., Zhang, E., Wong, G.T., Hyun, S. and Hahm, H. C.H. (2020) Factors associated with depression, anxiety and PTSD symptomoatology during the COVID-19 pandemic: Clinical implications for U.S. young adult mental health. *Psychiatry Research* **290**, 113172. https://doi.org/10.1016/j.psychres.2020. 113172

Łaguna, M., Trzebiński, J. and Zięba, M. (2005) *Kwestionariusz Nadziei na Sukces. Podręcznik.* Warszawa: Pracownia Testów Psychologicznych PTP. 10-15. (In Polish).

Łosiak, W. (2007) *Psychologia emocji.* Warszawa, Wydawnictwa Akademickie i Profesjonalne. 23-26. (In Polish).

Mamun, M. and Griffiths, M. (2020) First COVID-19 suicide case in Bangladesh due to fear of COVID-19 and xenophobia: Possible suicide prevention strategies. *Asian Journal of Psychiatry* **(51)**, 102073. https://www.doi.org/10.1016/j.ajp.2020.102073

Mana, A. and Sagy, S. (2020) Brief report: can political orientation explain mental health in the time of a global pandemic? Voting patterns, personal and national coping resources, and mental health during the coronavirus crisis. *Journal of Social and Clinical Psychology* **39(3)**, 165-171. https://doi.org/10.1521/jscp.2020.39.3.165

Mayer, J. and Thiel, A. (2014) Health in Elite Sports from a Salutogenetic Perspective: Athletes' Sense of Coherence. *Plos One* **9(7)**, e102030. https://www.doi.org/10.1371/ journal.pone.0102030

McNair, D.M., Lorr, M. and Droppleman, L.F. (1971) *Profile of Mood States*. Educational and Industrial Testing Service. 27

Mehrsafar, A.H., Gazerani, P., Zadeh, A.M. and Sanchez, J.C.J. (2020) Addressing potential impact of COVID-19 pandemic on physical and mental health of elite athletes. *Brain, Behavior, and Immunity* **87**, 147-148. https://doi.org/10.1016/j.bbi.2020.05.011.

Motoc, N.S., Necrelescu, O.L., Bondor, C.I., Chis, A.F., Lesan, A., Pop, C.M., Todea, D.A., Dantes, E., Puiu, R. and Rajnoveanu, R.M. (2020) Disease Perception and Coping with Emotional Distress During COVID-19 Pandemic: A Survey Among Medical Staff. *International Journal of Enviromental Research and Public Health* **17**, 4899. https://doi.org/10.3390/ijerph17134899

Nicholls, A.R. and Polman, R.C.J. (2007) Coping in sport: A systematic review. *Journal of Sports Science* **25**, 11-31. https://doi.org/10.1080/02640410600630654

Nicholls, A. R., Polman, R. C. J. and Levy, A. R. (2012) A path analysis of stress appraisals, emotions, coping, and performance satisfaction among athletes. *Psychology of Sport and Exercise* **13(3)**, 263-270. https://doi.org/10.1016/j.psychsport.2011.12.003

Ntoumanis, N. and Biddle, S.J.H. (2000) Relationship of intensity and direction of competitive anxiety with coping strategies. *The Sport Psychologist* **14**, 369-371. https://doi.org/10.1123/tsp.14.4.360

Norris, F.H., Friedman, M.J. and Watson, P.J. (2002) 60,000 disaster victims speak: Part II. Summary and implications of the disaster mental health research. *Psychiatry Interpersonal and Biological Process* **65**, 240-260. https://doi.org/10.1521/psyc.65.3.240.20169

Olympic Channel. (2020) *New Tokyo 2020 Olympic* dates will be 23 July to 8 August 2021. Available from URL: https://www.olympic-channel.com/en/events/detail/tokyo-2020 and https://www.olympic.org/tokyo-2020

Pasikowski, T. (2000) Stres i zdrowie. Poznań, Wydawnictwo Fundacji Humaniora. 177-183. (In Polish).

Pillay, L., Janse van Rensburg, D.C.Ch., Jansen van Rensburg, A., Ramagole, D.A., Holtzhausen, L., Dijkstra, H.P. and Cronje, T. (2020) Nowhere to hide: The significant impact of coronavirus disease 2019 (COVID-19) measures on elite and semi-elite South African athletes. *Journal of Science and Medicine in Sport* **28**, 670-679. https://doi.org/10.1016/j.jsams.2020.05.016

Polman, R.C.J. (2012). Elite athletes' experiences of coping with stress. In: *Coping and emotion in sport.* Eds: Thatcher J, Jones M, Lavallee D, eds. London, UK: Routledge, 284-330. https://doi.org/10.4324/9780203852293_chapter_13

Reardon, C.L., Hainline, B., Aron, C.M. and Baron, D. (2019) Mental health in elite athletes: International Olympic Committee consensus statement. *British Journal of Sports Medicine* **53**, 667-699. https://doi.org/10.1136/bjsports-2019-100715

Rutkowska, K. and Wawer, M. (2012) Wybrane psychologiczne zasoby sportowców – studentów uprawiających [futsal selected psychological resources of futsal athletes – students]. *Medycyna Sportowa* **1(4)**, 15-26. https://doi.org/10.5604/1232406X.991343

Sarto, F., Impellizzeri, F., Sporri, J., Porcelli, S., Olmo, J., Requena, B., Suarez-Arrones, L., Arundale, A., Bilsborough, J., Buchheit, M., Clubb, J., Coutts, A., Nabhan, D., Torres R. L., Mendez-Villanueva, A., Mujika, I., Maffiuletti, N.A. and Franchi, M.V. (2020) Impact of potential physiological changes due to COVID-19 home confinement on athlete health protection in elite sports: A call for awareness in sports programming. Available at: https://osf.io/preprints/sportrxiv/4zb3a/.

Sęk, H. (2001) Salutogeneza i funkcjonalne właściwości poczucia koherencji. [W:] Sęk H, Pasikowski T (red.): *Zdrowie – stres – zasoby. O znaczeniu poczucia koherencji dla zdrowia.* Wydawnictwo Fundacji Humaniora, Poznań. 13-42. (In Polish).

Sęk, H. and Ścigała, I. (2000) Stres i radzenie sobie w modelu salutogenetycznym. In: I. Heszen-Niejodek, Z. Ratajczak (eds.). *Człowiek w sytuacji stresu. Problemy teoretyczne i metodologiczne. Katowice*: Wydawnictwo Uniwersytetu Śląskiego. 133-149. (In Polish).

Sęk, H. (2006) *Psychologia zdrowia. Teoria, metodologia i empirii.* Poznań: Bogucki Wydawnictwo Naukowe, 73-84. (In Polish).

Scheenen, M., van der Horn, H., de Koning, M., van der Naalt. J. and Spikman J. (2017) Stability of coping and the role of self-efficacy in the first year following mild traumatic brain injury. *Social Science & Medicine* **181**, 184-190 https://doi.org/10.1016/j.socscimed.2017.03.025

Sipos, E., Jeges, S. and Tóth, A. (2015) Sport, sense of coherence, and self-esteem among 16 and 17-year-olds. *European Journal of Mental Health* **10**, 62-78. https://www.doi.org/10.5708/EJMH.10.2015.1.4

Skirka, N. (2000) The relationship of hardiness, sense of coherence, sports participation, and gender to perceived stress and psychological symptoms among college students. *Journal of Sports Medicine and Physical Fitness* **40**, 63-70.

Snyder, C.R., Sympson, S.C., Michael, S.T. and Cheavens J. (2000) Optimism and hope constructs: variations on a positive expectancy theme. In: E.C. Chang (ed.), Optimism and pessimism: Implications for theory, research and practice. Washington, DC: American Psychological Association, 101-123. https://doi.org/10.1037/10385-005

Snyder, C.R., Irving, L.M. and Anderson, J.R. (1991) Hope and health. In: C.R. Snyder, D.R. Forsyth (eds.), Handbook of social and clinical psychology: The health perspective. Elmsford: Pergamon Press, 285-305.

Snyder, C.R., Cheavens, J. and Sympson, S.C. (1997) Hope: An individual motive for social commerce. *Group Dynamics: Theory, Research and Practice* **1(2)**, 107-118. https://doi.org/10.1037/1089-2699.1.2.107

Strelau, J. (2000) Temperament a stres: Temperament jako czynnik moderujący stresory, stan i skutki stresu oraz radzenie sobie ze stresem. In: I. Heszen- Niejodek, Z. Ratajczak (eds.). *Człowiek w sytuacji stresu. Problemy teoretyczne i metodologiczne.* Katowice: Wyd. Uniwersytetu Śląskiego. 88-132. (In Polish).

Suls, J. and Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies: A meta-analysis. *Health Psychology* **4(3)**, 249-288. https://doi.org/10.1037/0278-6133.4.3.249.

Taha, S., Matheson, K., Cronin, T. I. and Anisman, H. (2013) Intolerance of uncertainty, appraisals, coping, and anxiety: The case of the 2009 H1N1 pandemic. *British Journal of Health Psychology* **19**, 592-605. https://www.doi.org/10.1111/bjhp.12058

Tian, F., Li H., Tian S., Yang S., Shao J. and Tian Ch. (2020) Psychological symptoms of ordinary Chinese citizens based on SCL-90

during the level I emergency response to COVID-19. *Psychiatry Research*, 288. https://doi.org/10.1016/j.psychres.2020. 112992.

Trzebiński, J., Cabański, M. and Czarnecka, J.Z. (2020). Reaction to the COVID-19 Pandemic: The Influence of Meaning in Life, Life Satisfaction, and Assumptions on World Orderliness and Positivity. *Journal of Loss and Trauma. International Perspectives on Stress & Coping* **25(6-7),** 544-557. https://doi.org/10.1080/15325024.2020.1765098

Wang, Y., Zhang D. and Du G. (2020) Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial. *Lancet* **395,** 1569-1578. https://www.doi.org/10.1016/S0140-6736(20)31022-9.

Wrześniewski, K. (2000) Style a strategie radzenia sobie ze stresem. Problemy pomiaru. In: *Człowiek w sytuacji stresu. Problemy teoretyczne i metodologiczne*. Eds: I. Heszen-Niejodek, Z. Ratajczak. Katowice: Wyd. Uniwersytetu Śląskiego. 44-64. (In Polish).

World Health Organization (2020) *Considerations for sport federations/sports event organizers when planning mass gatherings in the context of COVID-19: interim guidance*. Available from URL: http://euro.who.int/en/heath-topics/health-emergencies/coronavirus-covid-19/news/2020/3/mental-heath-and-psychological-resilience-during-the-covid-19-pandemic. Access 22.04.2020

Yang, J., Meng, F., Feng, Q., Ma, H., Shi, C. and Kang, C. (2020) Characteristics and challenges of psychological first aid in China during the cOVID-19 outbreak. *Brain, Behavior, and Immunity* **87**, 113-114. https://doi.org/10.1016/j.bbi.2020.04.075

Yıldırım, M., Arslan, G., Cecen, A.I. and Ersoy, M. (2020) Exploring the Associations Between Resilience, Dispositional Hope, Preventive Behaviours, Subjective Well-Being, and Psychological Health Among Adults During Early Stage of COVID-19. *PsyArXiv Preprints.* https://doi.org/10.31234/osf.io/vpu5q

Vindegaard, N. and Benros E. M. (2020) COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity* **89**, 531-542 https://doi.org./10.1016/j.bbi.2020.05.048

Regulations

1. https://www.gov.pl/web/sport/stan-epidemii-w-polsce-zakazy-w-obszarze-sportu
2. Regulation of the Council of Ministers of March 31, 2020 on the establishment of certain restrictions, orders and bans in connection with the epidemic
   http://dziennikustaw.gov.pl/DU/2020/566/D2020000056601.pdf
3. Regulation of the Minister of Health of March 31, 2020 amending the regulation on the declaration of an epidemic in the territory of the Republic of Poland
   http://dziennikustaw.gov.pl/DU/2020/565/D2020000056501.pdf
4. The Act of March 31, 2020 amending certain acts in the field of the health care system related to preventing, counteracting and combating COVID-19
   http://dziennikustaw.gov.pl/DU/2020/568/D2020000056801.pdf
5. The Act of March 31, 2020 amending the Act on special solutions related to the prevention, prevention and combating of COVID-19, other infectious diseases and crisis situations caused by them and certain other acts
   http://dziennikustaw.gov.pl/DU/2020/567/D2020000056701.pdf

Key points

- The results of the study confirm the importance of the sense of coherence.
- Psychological support for athletes during the epidemic should be focused on strengthening the sense of coherence.
- Managing stress was another important factor linked to athletes' mood during the COVID-19 pandemic.

AUTHOR BIOGRAPHY

Marta SZCZYPIŃSKA
Employment
Jozef Pilsudski University of Physical Education in Warsaw, Poland.
Degree
MSc
Research interests
Sport psychology.
E-mail: marta.szczypinska@awf.edu.pl

Aleksandra SAMEŁKO
Employment
Jozef Pilsudski University of Physical Education in Warsaw, Poland.
Degree
PhD
Research interests
Sport psychology and affective states.
E-mail: al.samelko@gmail.com

Monika GUSZKOWSKA
Employment
Jozef Pilsudski University of Physical Education in Warsaw, Poland.
Degree
Professor
Research interests
Psychology of physical activity.
E-mail: monika.guszkowska@awf.edu.pl

✉ **Marta Szczypińska**
Jozef Pilsudski University of Physical Education in Warsaw, Marymoncka 34, 00-809 Warszawa, Poland