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Coping styles and achievement motivation in elite wrestlers

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A Study Design
B Data Collection
C Statistical Analysis
D Manuscript Preparation
E Funds Collection

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Abstract

Background & Study Aim: Coping styles and achievement motivation are factors that, according to some authors, determine athletes' psychosocial sports and life-related effectiveness. The findings of the present study constitute an element of more extensive research plan. The study sought to knowledge about coping styles and dimensions of achievement motivation in elite wrestlers.

Material & Methods: Forty-seven male Greco-Roman wrestlers (members of the Polish Junior and Senior National Team) participated in the study. Two psychological tools were employed in the study: *Coping Inventory for Stressful Situations* (CISS) and *Achievement Motivation Inventory* (LMI).

Results: Wrestlers demonstrated average levels of three examined coping styles and achievement motivation. At the same time, numerous correlations were observed, particularly between task-oriented coping dimension and different dimensions of achievement motivation. Furthermore, it was proved that the age of the participants correlated with coping styles and particular dimensions of achievement motivation. In turn, the length of competitive experience correlated with some dimensions of achievement motivation only.

Conclusions: Further research is needed to explore the issues presented in the study. However, already at this stage their description may provide input to the discussion on psychological training in wrestling. The authors of the study recommend cooperating with sports psychologists and developing sport-specific psychological resources in order to enhance sports effectiveness but also to be able to function optimally outside sport and for the sake of holistically understood health.

Key words: achievement motivation, competitive experience, coping with stress, sport psychology

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Wrestling – Olympic sport which involves a direct combat between two competitors.

Sport psychology – a science that deals with psychological aspects of human functioning in physical culture.

Sports psychology – *noun* the scientific study of the mental state of sportspeople, looking at issues such as motivation, concentration, stress and self-confidence [37].

Achievement – *noun* the successful completion of something demanding [37].

Motivation – *noun* **1.** the act of giving somebody a reason or incentive to do something **2.** a feeling of enthusiasm, interest, or commitment that makes somebody want to do something, or something that causes such a feeling **3.** the biological, emotional, cognitive, or social forces that activate and direct behaviour [37].

Stress – *noun* **1.** physical pressure on an object or part of the body **2.** a factor or combination of factors in a person's life that make him or her feel tired and anxious **3.** a condition in which an outside influence such as overwork or a mental or emotional state such as anxiety changes the working of the body and can affect the hormone balance [37].

Coping with stress – consciously trying to deal with stressful situations.

Competitive – *adjective* **1.** involving competition **2.** tending to want to do something better than others or achieve more than others [37].

Competitive stress – *noun* stress caused by an athlete feeling unable to meet the demands of the competition [37].

INTRODUCTION

A human being constantly takes on various challenges, makes particular decisions and pursues diverse goals. During a sports career, this process is exceptionally dynamic. Its course and effectiveness determine sports- and life-related mastery (understood as an ability to live an optimal and healthy life and to attain one's goals both in sport and in other spheres of life). Therefore, athletes are expected to cope with stress effectively and to be properly motivated. Being aware of how extensive this scientific area is, the authors narrowed it down to analysing ways of coping with stress and achievement motivation.

The present study provides input to the discussion on professionalization of training in wrestling. The authors believe that in wrestling it is necessary to identify the role of psychological factors that determine sports success (and success related to other areas of life) and, simultaneously, to cooperate with sports psychologists.

Coping styles are relatively constant and human-specific dispositions to function in difficult situations in a particular manner. It is a notion that is superior (broader) to coping strategies [1]. Coping styles are conscious behaviours oriented at maintaining balance between environmental demands and capabilities of an individual. In this sense, the effectiveness of coping styles is expressed through optimal adjustment to challenges that one must face. It is assumed that behaviours or reactions regarding the scope of a given style are repeatable. As such, a style is sometimes identified as a feature that is associated with other factors like demographic or personal variables [2, 3]. Coping with stress is a derivative of mechanisms of using psychological resources. Motivation is one of the key resources, while motivation and coping with stress are one of the most important variables associated with sports mastery. They are linked with each other [1, 4-6]. In the present work, particular attention has also been paid to achievement motivation.

Achievement motivation is not treated as an independent variable either. It is defined in a variety of ways. Different perspectives of this issue can be found in the literature of the subject. It is usually identified with a tendency to achieve one's own goals or goals indicated by others and to compete with others. It means being ready to act in a manner that stems from one's needs and a tendency to achieve one's goals as well as being ready to overcome possible difficulties that may arise on the way to success and to deal with difficult situations [6, 7]. Besides knowledge and skills, motivation is another variable that determines achievements (professional ones in particular). Therefore, achievement motivation measurements are particularly interesting (and possible) in a group of persons that are independent, decision-making and have a certain degree of freedom in functioning [8]. Sportspeople belong to that group.

The study **sought** to **knowledge about** coping styles and dimensions of achievement motivation in elite wrestlers.

MATERIAL AND METHODS

Forty-seven male Greco-Roman wrestlers (members of the Polish Junior and Senior National Team) participated in the study. All the study participants were 18-25 years of age (M = 19.40, SD = 1.93) and they had been doing wrestling for 6-18 years. On average, their competitive experience was over 8 years long (M = 8.30, SD = 2 .59).

Study design

Psychological factors were analysed using questionnaires completed in a pre-season period during a sports camp. Two tools were applied, i.e. *Coping Inventory for Stressful Situations* (CISS) [3] and *Achievement Motivation Inventory* (LMI) [8].

CISS was developed with reference to Lazarus and Folkman's [2] transactional stress model in order to be used for determining various coping styles. Each of the scales measures one of the three styles (the original names abbreviations in {brackets}): TOS {SSZ} – task-oriented style – refers to task-oriented efforts aimed at solving the problem, attempting to alter the situation or cognitively restructuring the problem; EOS {SSE} – emotion-oriented style – describes emotional reactions that are self-oriented (the purpose is to reduce stress related to a difficult situation through, inter alia, fantasizing or daydreaming); AOS {SSU} – an avoidance-oriented style – refers to activities that make it possible to avoid experiencing or thinking about stressful situations. It should be noted that there are two subscales for this scale (ESA {ACZ} – the

engagement in substitute activities (distraction seeking); SSC {PKT} – the search for social contacts (social diversion) [3]).

In turn, LMI (*Leistungsmotivationsinventar* – in German) of H. Schuler, G. C. Thornton, A. Frintrup and M. Prochaski [8] was developed with reference to several psychological theories that make it possible to characterise the issue of achievement motivation fully. It explains the complexity of the tool. The measurement is made on the basis of results obtained from 17 scales. The following dimensions are measured using the scales (abbreviations used below can also be found in tables and figures, the original names abbreviations in {brackets}): FL {EL} – flexibility – refers to a willingness to accept changes and/or to perform particular activities in new situations in which, even if there is a risk of failure, it is satisfying to experience enjoyment of challenging new tasks; FE {OD} – fearlessness which is treated as a lack of fear of failing and being judged by others (it means being ready to perform under time pressure without affecting performance effectiveness); PDT {PTZ} – preference for difficult tasks understood as a tendency to select risks or demands at a certain level as well as seeking out challenging and ambitious tasks (when a difficult task has been completed, greater challenges are sought in order to raise expectations towards oneself); IN {N} – independence understood as responsibility for one's own actions rather than taking direction from others; CS (WS) – confidence in success associated with anticipating that one's efforts will lead to success despite possible unfavourable circumstances (ultimately, it is connected with self-confidence even when facing new and challenging tasks); DO {DO} – dominance linked with a tendency to exercise power and take initiative or even a readiness to take responsibility for others; EL {ZN} – eagerness to learn that is significant in terms of learning motivation (it is associated with a tendency to learn new things on one's own and to extend one's knowledge for knowledge sake); GS {UC} – goal setting – a significant element of achievement motivation associated with high aspirations and awareness of the goal itself as well as the road to its achievement; CE {WK} – compensatory effort, i.e. considerable effort as a reaction to the possibility of failure; SO {DP} – status orientation understood as being oriented at attaining high status in a community and a social hierarchy (achievements determine efficiency, and the need to achieve something is connected with the need to be recognised); PP {SO} – pride in productivity – a sense of accomplishment that results in high self-esteem (self-esteem depends on achievement); E {Z} – engagement perceived as a readiness to perform long-term and/or high-level activity (even without rest) associated with positive emotions only; C {NR} – competitiveness – orientation at competing and comparing with others understood as a motivator/effort enhancement of those who are willing to win; F {F} – flow – satisfactory engagement in work (it is a tendency that makes it possible to perform intensive task-oriented activity without being distracted; it can be observed in individuals who get motivation from expectations of success); IN {IN} – internality defined as a sense of internalised control that occurs when a person is convinced of their agency/responsibility/influence and believes that their behaviour and efforts produced specific results; P {W} – persistence that corresponds with energy, endurance, consequence (even when greatly distracted) and energy expenditure aimed at achieving particular goals; SC {S} – self-control associated with intense concentration on a task and conscientiousness expressed through self-discipline and task-oriented organisation/realisation. Moreover, an overall score (OS) obtained with the use of LMI is also diagnostic [8].

Assessment was made in standard conditions by the same research team. The subjects filled in the questionnaires in their free time (before noon). They were provided with precise information on measurement procedures. Also, all the participants gave their written informed consent prior to the study.

Statistical analysis

Raw data regarding each person (on each scale) were referred to appropriate norms (sten scores). Owing to this, mean converted results could be calculated. Changing raw data into converted results (with reference to sten scores) allowed for their categorisation. The authors used the division into low scores (within 1-4 sten), average scores (5-6 sten) and high scores (7-10 sten) [9]. The authors used the categorisation of sten scores described in the manuals on this method [8, 10]. The following categories were applied: very low scores 34 and less; low scores 35 to 44; average scores 45 to 55; high scores 56 to 65; very high scores 66 and more.

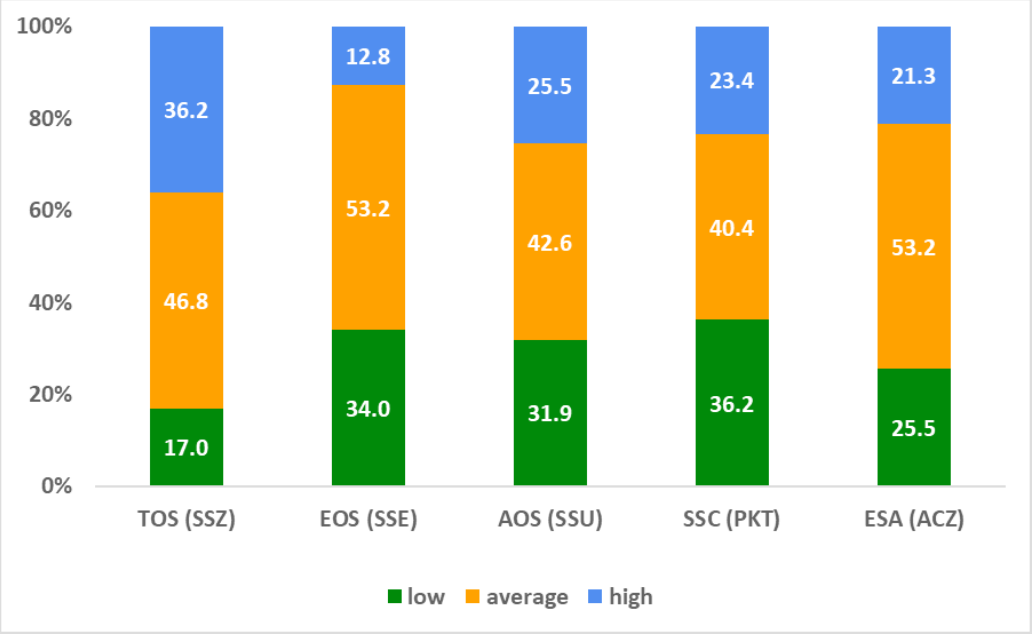

Figure 1. Categories of converted sten results obtained in the course of CISS examination.

The arithmetic mean (M), standard deviation (SD or ±) and proportion indicator (%) were calculated. The Pearson correlation coefficient was calculated for indices of selected empirical variables.

RESULTS

Coping Inventory for Stressful Situations

The participants are characterized relatively by the highest results in task-oriented style (TOS). Results obtained within each CISS scale fall within the range of average results (Table 1). The biggest group (almost 40% of the participants) are characterized by high scores on the scale that referred to TOS. Relatively the lowest number of high scores was observed in the case of emotion-focused coping style (EOS) (Figure 1).

Achievement Motivation Inventory

It was noted that in most of the scales, the subjects obtained average scores. They exhibited average levels of achievement motivation. High scores were observed in the following scales: engagement, competitiveness and persistence (Table 2).

The lowest number of high scores was found in the dimension of independence. In the case of this scale, more than a half of the respondents achieved low and very low scores. The analysis of the comparison revealed that almost 70% of the subjects had high or very high scores in the field of engagement. More than 60% of the study participants obtained high or very high scores in the scale of competitiveness (none of the subjects achieved low or very low scores within this scale) and persistence, while over 50% in the case of pride in productivity (Figure 2).

Correlations

Task-oriented coping style was positively correlated with the following dimensions of achievement motivation: flexibility, independence, confidence in success, dominance, goal setting, compensatory effort, status orientation, pride in productivity, engagement, competitiveness, flow and overall score related to the LMI examination. Negative correlations were noted between emotion-oriented coping style and flexibility, fearlessness, independence, pride in productivity, internality, persistence and overall score. Avoidance-oriented coping style was negatively correlated with fearlessness and persistence. A positive correlation was found between social diversion and status orientation, whereas negative correlations were revealed between distraction seeking and fearlessness, internality as well as persistence (Table 3).

Table 1. Results obtained with the use of CISS – raw data (RD) and converted sten results (CSR).

CISS	Results	
	RD	CSR
TOS task-oriented style	59.34 ±6.89	6.02 ±1.59
EOS emotion-oriented style	41.47 ±7.85	5.15 ±1.43
AOS avoidance-oriented style	47.45 ±10.19	5.04 ±1.95
ESA engagement in substitute activities	21.00 ±6.04	5.30 ±2.11
SSC search for social contacts	17.85 ±3.77	5.15 ±1.76

Table 2. *Achievement Motivation Inventory* results obtained with LMI – raw data (RD) and converted sten results (CTR).

LMI	Results	
	RD	CTR
FL flexibility	46.85 ±6.15	52.34 ±8.26
FE fearlessness	40.30 ±8.23	52.81 ±9.22
PDT preference for difficult tasks	44.62 ±6.20	52.02 ±7.36
IN independence	42.02 ±6.69	46.04 ±9.32
CS confidence in success	48.49 ±8.59	53.36 ±10.55
DO dominance	45.85 ±9.19	51.51 ±10.20
EL eagerness to learn	43.74 ±6.73	49.53 ±8.91
GS goal setting	47.23 ±6.93	52.04 ±9.18
CE compensatory effort	48.53 ±8.14	52.62 ±10.22
SO status orientation	50.59 ±8.99	54.53 ±9.17
PP pride in productivity	56.70 ±7.40	55.19 ±9.54
E engagement	45.32 ±6.62	56.96 ±6.98
C competitiveness	48.62 ±5.70	57.79 ±6.21
F flow	48.36 ±6.65	50.74 ±7.92
IN internality	47.38 ±6.80	53.77 ±8.41
P persistence	48.25 ±7.52	56.81 ±8.20
SC self-control	43.25 ±5.23	52.32 ±6.39
OS overall score	796.13 ±76.48	55.30 ±8.40

Furthermore, the values of correlations of CISS and LMI results with age and the length of competitive experience were calculated. Age was positively correlated with task-oriented coping style 0.43 ($p<0.01$) and negatively correlated with emotion-focused coping style −0.32 ($p<0.05$). The length of competitive experience was not correlated significantly with CISS results. However, it was positively correlated with confidence in success 0.38 ($p<0.01$), eagerness to learn 0.39 ($p<0.01$), compensatory effort 0.41 ($p<0.01$), engagement 0.38 ($p<0.01$), persistence 0.32 ($p<0.05$) and LMI overall score 0.42 ($p<0.01$). Results obtained by the examined wrestlers within particular scales of LMI were also positively correlated with their age. The scales include flexibility 0.29 ($p<0.05$), fearlessness 0.31 ($p<0.05$), independence 0.34 ($p<0.05$), confidence in success 0.43 ($p<0.01$), pride in productivity 0.40 ($p<0.01$), persistence 0.41 ($p<0.01$) and LMI overall score 0.39 ($p<0.01$) (Table 3).

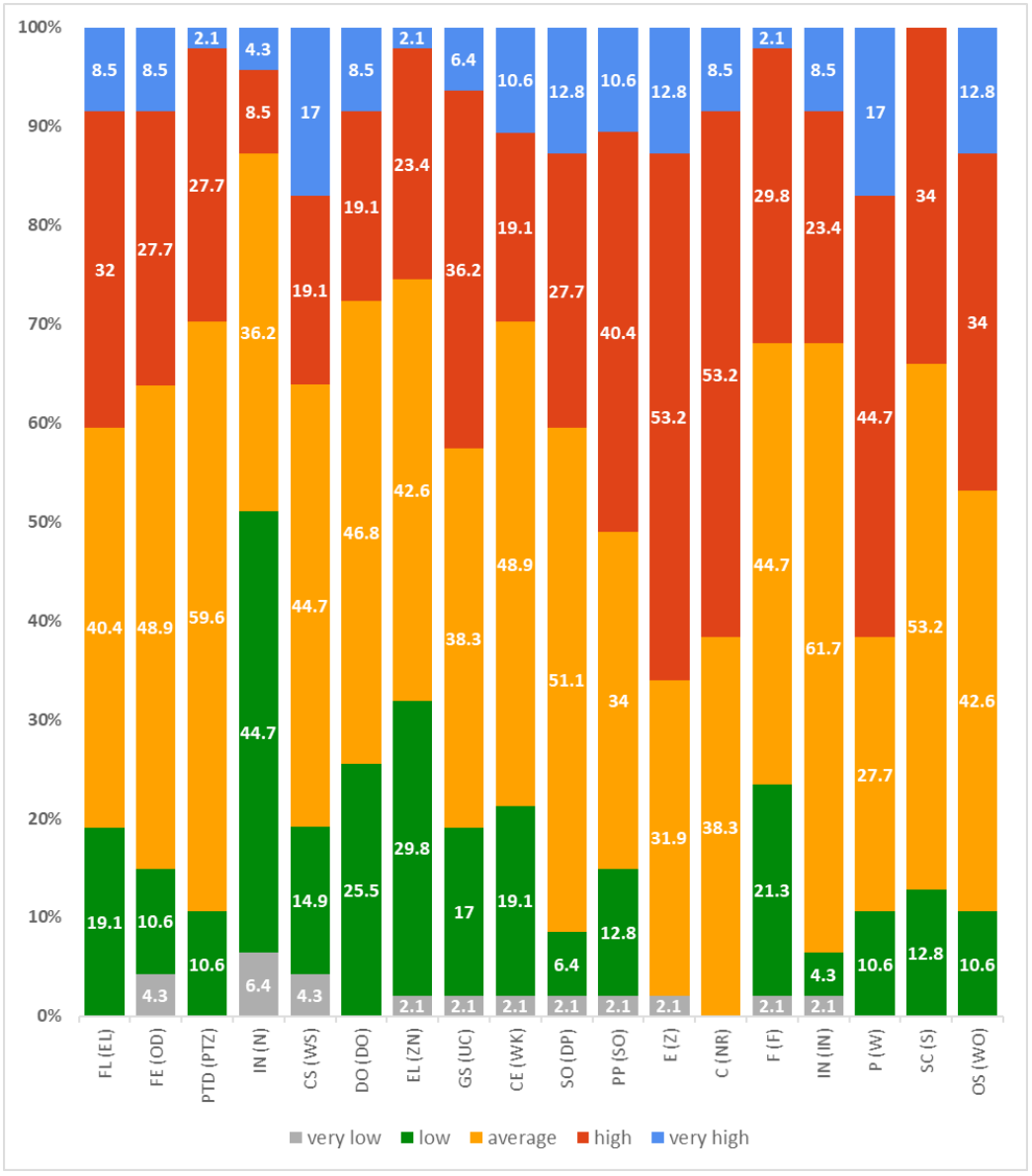

Figure 2. Categories of converted sten results obtained by the study participants (n = 47) in the course of LMI examination.

DISCUSSION

The study was conducted on a relatively small group of subjects. Therefore, the authors are aware of limitations in terms of drawing conclusions. It mainly concerns using percentage values in the analysis. In the present study, these values constituted rough approximation and were only used for assessment of proportions of result categories. However, taking into account the specificity of wrestling as well as the fact that this sport is still not too popular in Poland (compared to other sports, relatively few people do wrestling), the participation of almost 50 wrestlers at a similar age and at a similar high sports level in the study can be regarded as highly satisfactory.

The study constitutes a part of an interdisciplinary research project *'Determinants of sports results in the context of a martial art, gender and the level of mastery'*, which sought to analyse several success factors. At the study design stage, it was assumed that variables corresponding with sports results might include coping styles and achievement motivation. It is worth continuing such research. It seems that the application of CISS and LMI proved useful in this group in terms of diagnosis. The obtained results as well as their assessment constitute an interesting study on sports psychology in wrestling. The analysis of their results not only in the context of a group but also with reference to history, life

Table 3. The values of Spearman's rank correlation coefficients (only significant correlation: *p<0.05; **p<00.1).

Tool		*Coping Inventory for Stressful Situations* (CISS)					*Achievement Motivation Inventory* (LMI)																
	TOS	EOS	AOS	SSC	ESA	FL	FE	PDT	IN	CS	DO	EL	GS	CE	SO	PP	E	C	F	IN	P	SC	OS	
	TOS	X					.37**			.50**	.47**	.39**		.43**	.38**	.37*	.53**		.31**	.52**				.49**
	EOS		X				−.30*	−.54**		−.35*							−.29*				−.40**	−.38**		−.31*
CISS	AOS			X	.82**	.91**		−.37*														−.41**		
	SSC				X	.57**										.30*								
	ESA					X		−.35*													−.33*	−.42**		
	FL						X	.42**	.40**	.40**	.68**	.53**	.30*	.55**	.36*	.55**	.51**	.43**		.60**	.51**	.53**		.80**
	FE							X		.53**	.44**	.39**						.33*			.40**	.67**	.33*	.48**
	PDT								X	.37*	.49**	.41**	.30*	.34*	.44**	.29*	.34*	.41**	.48**	.51**		.37*		.57**
	IN									X	.52**	.56**		.49**		.36*	.39**					.46**		.60**
	CS										X	.76**	.45**	.66**	.47**	.75**	.54**	.52**	.44**	.62**	.34*	.47**		.89**
	DO											X	.47**	.59**	.35*	.54*	.30*	.43**		.41**				.74**
	EL												X	.34*	.42**	.31*		.43**						.46**
	GS													X	.48**	.70**	.48**	.50**	.32*	.46	.31*			.75**
LMI	CE														X	.44**	.46**	.55**		.61**				.59**
	SO															X	.53**	.32*	.32*	.54**	3.2*			.74**
	PP																X	.38**	.60**	.69**	.41**	.33*		.68**
	E																	X	.37*	.45**		.36*	.32*	.62**
	C																		X	.51**				.44**
	F																			X				.68**
	IN																				X	.52**		.43**
	P																					X	.49**	.54**
	SC																						X	.33*

goals and a sports career of an individual may be an essential element of psychological preparation performed in cooperation with a sports psychologist [11]. Furthermore, it is achievement motivation and coping styles that can exert an influence on sports effectiveness and endorse a decision to carry on with a sports career [1, 5, 6].

The findings of the study revealed an average level of the examined variables. However, it appears that in terms of psychosocial demands that contemporary sportspeople must face, these results are not satisfactory. Therefore, it can be stated that in the case of the examined group, it is necessary to implement psychological training aimed at improving adaptive coping styles. Professional cooperation with sports psychologists is recommended. Athletes should develop their task- and skill-specific concentration as well as proper motivation oriented at achieving success and not at avoiding failures [12-14]. The results of the study revealed relatively similar levels of the variables, i.e. dimensions of achievement motivation. However, relatively the lowest scores are those related to independence (IN, EL). It may be an important training hint when working with wrestlers. In the literature of the subject, we can find several handy tips on how to profile psychological work with wrestlers. It will contribute to enhancing their performance in sport as well as in other spheres of life [13, 15-18]. Apart from theoretical suggestions for practitioners, it is significant to consider capabilities, personal convictions and experiences of athletes, particularly when it comes to coping with stress. The knowledge of what athletes find useful and which psychological skills and strategies are necessary and effective is valuable. It is also crucial to develop their sense of self-efficacy, intrinsic motivation and inner containment [19, 20].

As far as the wrestlers under investigation are concerned, the predominant motivation dimensions (the ones that are on the highest level among average results) include engagement,

persistence and competitiveness. There is no single prevailing coping style. Furthermore, the study showed positive correlations between task-oriented coping style and several components of achievement motivation. It is in line with the findings of other researchers [21]. Therefore, it can be understood that athletes who can effectively cope with stress and focus on a task when faced with a difficult situation will also be (based on the work of Klinkosz and Sękowski [8]) ready to accept changes and open (FL), independent, self-sufficient, with a sense of freedom (IN), optimistic, hopeful and self-confident (CS), dominant, tending to take initiative and exercise power and control, or even adopting a demanding attitude (DO), setting themselves a variety of goals and challenges, ambitious, fostering their own personal development and aiming high (GS), courageous, avoiding mistakes and compensating their fear with extra achievement-oriented effort (CE), focused on attaining high status, respect and fame and on boosting their career (SO), hooked on success and satisfaction derived from it (PP), engaged, hard-working and diligent (E), oriented at competing and comparing with others (C), focused on tasks (F). Some of these dimensions are negatively correlated with the levels of emotion-focused coping style and avoidance coping style.

Similar results were obtained in the study into the validity of the Polish version of LMI [8]. At the same time, it also confirms the fact that adaptive coping styles are positively correlated with motivation. What is interesting is that the present study revealed a deviation from correlations described in the method-related manual. Task-oriented coping style is positively (and not negatively) correlated with competitiveness. It may be explained by a competitive spirit of sport in which competing is immanently present within rules of functioning in elite sport. Hence, athletes may follow but also perceive these rules in a specific manner.

The study into the validity of the tool included not athletes but workers, university students and pupils. In the future, it might be worth conducting parallel studies on athletes and untrained individuals [22]. Such comparisons could provide an interesting insight into the influence of sports environment on personality. Do people who take up wrestling manifest a particular type of personality? Does wrestling change an athlete's personality?

To receive answers to these questions would require carrying out simultaneous longitudinal or comparative studies on athletes who would differ in their sports experience [23]. For the time being, the results of the present study indicate that the length of competitive experience is correlated with confidence in success, eagerness to learn, compensatory effort, engagement and persistence. In a sense, a similar relationship was noted in other sports. Higher-level athletes demonstrated higher levels of features characteristic of the area of achievement motivation than lower-level competitors or individuals who did sports for all or did not do any sports at all [7, 24]. It is interesting that our research proved that the length of competitive experience is correlated with achievement motivation but is not related to coping styles. In turn, the age of the study participants is correlated with coping styles and particular dimensions of achievement motivation. This variability of correlations linked with achievement motivation may stem from numerous factors. One of them is certainly lower stability of motivation (lower than in the case of coping styles, which are relatively stable and refer to a wider area of functioning). The findings show that there exist mechanisms of amotivation whose levels differ throughout a sports career. The youngest wrestlers are the most prone to lose their motivation, while older competitors exhibit the levels of motivation that sometimes change considerably [25].

Due to the fact that wrestling is usually perceived as a male sport, future studies ought to involve comparing male and female wrestlers in terms of psychological variables. There are several differences in how they behave when faced with stressful situations as well as challenges associated with achievements. Research in the field of sport (wrestling) may provide new information regarding similarities and differences [26]. Analyses performed by the authors so far [27] indicate that male wrestlers demonstrate higher levels of task-oriented coping style, while in the case of their female counterparts, avoidance coping style prevails. However, measurements of coping styles generally show their average levels. It is in line with the findings of the present study. Comparable conclusions drawn by other researchers show similar intensity of various coping styles [21].

Another interesting aspect in further studies would be to examine coaches. It seems that a professional situation of wrestling coaches is peculiar. The fact

that wrestling is an underfinanced niche sport and coaches' professional position is not clear (Polish Wrestling Federation regulates the system of education) may constitute an extra psychological burden in this already demanding and challenging job. The analysis of coaches' psychosocial functioning as well as developing a support system and providing psychological education may ultimately help both coaches and their athletes [20, 28-31].

Research results make it possible to assume that, in addition to somatic, conditioning, technical and coordination factors, coping styles and achievement motivation constitute significant psychological determinants of sports performance [32-35]. The findings of the present study confirm the assumptions included in the research project (N RSA4 03154). The authors' assumptions correspond with observations presented in the literature of the subject [36]. The authors need to carry out further research, yet at this stage it is already noticeable that sports psychology should be popularised among wrestlers and their coaches in Poland.

CONCLUSIONS

The study on elite wrestlers revealed average levels of the variables under investigation, i.e. three styles of coping with stress and achievement motivation. A lot of correlations between the examined characteristics were verified. The highest number of significant and positive correlations was found between task-oriented coping style and various dimensions of achievement motivation. The age of the study participants was correlated with coping styles and particular dimensions of achievement motivation, while the length of competitive experience was correlated only with some components of achievement motivation.

The tools used in the study helped to collect interesting research material. It is worth continuing research so that results can be applied in descriptive evaluation as well as in the process of individual development of wrestlers.

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