Resiliency and stress experience among judo and taekwondo athletes

Kamila Litwic-Kaminska
Institute of Psychology, Kazimierz Wielki University, Bydgoszcz, Poland

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Summary

Introduction. Resiliency is a resource of a unit that most often appears as a consequence of experiencing serious difficulties and threats, in which the unit displays signs of positive adaptation. The aim of this paper is to describe the results of the research concerning the relationship between resiliency and stress situation appraisal, anxiety responses and the undertaken coping styles among athletes doing combat sports. What was additionally studied was the influence of the past injuries on resiliency.

Material and methods. The research was conducted on 40 active contestants doing judo and taekwondo – equally 20 men and women from the age categories of juniors, youth, seniors. The applied methods were the Resiliency Assessment Scale (SPP-25); the Stress Appraisal Questionnaire A/B; the Reactions to Competition Questionnaire (a Polish adaptation of the SAS); the Coping Inventory for Stressful Situations (CISS); the Sport Stress Coping Strategies Questionnaire (SR3S, self-created).

Results. Significant relationships between resiliency and the cognitive appraisal of a situation, the way of reacting and coping with stress have been obtained. The resilient athletes less frequently appraise a situation in negative terms, experience a less intense sport anxiety and more frequently apply task-oriented coping styles. The contestants who had suffered from an injury that hampered or temporarily excluded them from taking active participation in sport displayed a higher level of resiliency.

Conclusions. Athletes characterised by a high resiliency under difficult circumstances (e.g. physical injuries) are able to look at the world from a different perspective and apply different ways of solving their problems. The resilient people have a more positive appraisal of stressful situations and choose more effective, more situation suited coping styles which makes them more resistant to stress.
under which the athletes perform. Judo and the Olympic taekwondo, being examples of combat sports, are frequently connected with direct and purposeful contacts between the rivals. Due to the quality and frequency of the contacts with the opponent, combat sports are regarded as sports of the highest rate of traumatism [12]. Significant for the results are both the physical features, such as strength, speed, coordination of movements, technical and tactic preparation and the psychological traits. The fight carries on with changeable dynamics in a specific time, yet it may be finished earlier providing that certain conditions included in the regulations are fulfilled. It requires a constant maintenance of concentration regardless of the passage of time and tiredness. A lot of factors which are decisive of a success in this sport make the contestants have a lower sense of control who, at times, attribute the success to luck e.g. in drawing the opponents [13,14].

According to the abovementioned deliberations the chosen aim of this article is to describe the results of research concerning the relationship between resiliency and the stress appraisal as well as the undertaken coping styles among combat sports competitors both during competition and regardless of context together with the relationship between resiliency and anxiety responses experienced during competitions. Moreover, due to the character of the combat sports disciplines, the influence of previous physical injuries on the level of resiliency has been examined.

Material and methods

The research was carried out between February and June, 2012, during training camps and sessions in various clubs around Poland. It is a part of the PhD dissertation. The research was participated by 40 active athletes doing judo (N=23) and taekwondo (N=17) – equally 20 women and men. The majority of them were contestants taking part in events at the level of Polish Championships (62.5%). The remaining group were participants of a higher rank events such like European and World Championships level. The average age of the athletes was 19.45 (SD=2.55). They spread over the range between 17 and 28 years old. According to the sport experience, the contestants declared doing combat sports for a period of 1 to 18 years. The average period of training was around 10 years (SD=3.8).

The research used questionnaire methods. Due to the lack of tools for measuring the stress coping strategies with regards to the specific situation of the competitors that are available on Poland, a new questionnaire was constructed. The psychometric parameters of the SR3S Questionnaire allow for the use of this tool in scientific research concerning the psychology of sport. The reliability of the final version of this questionnaire is high and equals 0.83 (between 0.74 and 0.83 for the particular scales). The data concerning the method of measurement of the variables included in the research and their indicators is presented in Table 1.

Moreover, a degree of the physical injuries undergone within the last year was examined with the use of the division criteria with regards to the range of the injuries and their consequences for further undertaking of sport activity [19]. What has been established on this basis was a minor injury (that required treatment without interrupting training sessions), a medium injury (limiting or hampering the participation in training sessions), a serious injury (often connected with surgery or hospitalization coercing a long absence from sport activity), an injury disturbing functioning in sport (preventing a contestant from returning to the previous sport level due to the gravity or the time of occurrence) and a catastrophe (an injury resulting in a constant disability).

Results

The characteristics of the examined athletes

In view of a different number of statements in particular subscales of the questionnaires, within each variable the weight-
ed arithmetic means were calculated through a division of every sum by the number of statements included in a given factor which enabled to characterise the examined contestants.

The athletes perceived sport competitions rather in terms of a challenge that effected in an increased activity ($M=1.89$; $SD=0.54$) or as a challenge that did not motivate them to take actions ($M=1.6$; $SD=0.88$). Less frequently did they treat rivalry in a negative way – as a threat or harm (Fig. 1).

The examined athletes reported that during competitions they most often react through worrying about the result of the rivalry ($M=2.59$; $SD=0.63$). They have the lowest tendency to experience the attention distractions ($M=2.05$; $SD=0.49$). Comparing the two main aspects of sport anxiety, it is observed that more frequent among sportmen is the cognitive anxiety rather than the somatic anxiety (Fig. 2).

Within the stress coping strategies (i.e. the methods of coping applied in a specific situation), the most significantly frequent was the orientation of sportsmen towards achieving the goal or victory ($M=4.25$; $SD=0.72$). The rarest strategy which was applied with similar frequency in the face of stressful competition was seeking support ($M=2.82$, $SD=0.83$) and using mental techniques ($M=2.59$, $SD=1.12$) (Fig. 3).

With respect to the tendencies of applying a certain coping style, the sportsmen most often declared actions consistent with the task-oriented coping style ($M=56.16$; $SD=10.53$). The existence of the norms for the CISS questionnaire allowed for the acknowledgement that the mean of stens for the examined group of sportsmen falls at the average level (between 5th and 6th sten) with regards to the task-oriented (TOC) and the emotional (EOC) styles and at the low level for the avoidant style (AOC) and its subscales (D and SD) (Fig. 4).

The level of resiliency of the examined athletes

The mean for the general resiliency result was 73.22 ($SD=12.81$). Due to the existence of temporary norms [3], a calculation was possible of the standardized results. In the group of the respondents the average result was 5.94 sten ($SD=2.32$) which means it is at the average level.

Physical injuries and the level of resiliency

A comparison was also conducted between the contestants who had suffered from physical injuries of all kinds and those who had not had such experiences. The people, who have undergone a medium or serious injury revealed a significantly higher level of resiliency ($F=2.85$; $df=4$; $p<0.05$) than the competitors who had not experienced any injuries during the last year, had minor injuries or such injuries disturbing functioning in sport (Fig. 5).
Relationships between the aspects of the process of stress and resiliency

The analyses that were carried out allow to acknowledge that the lower is the level of resiliency among sportsmen, the stronger tendency they reveal to experience somatic anxiety during competition and the more often do they appraise the situation of a stressful competition in negative terms – as a threat or harm. A positive correlation has been obtained between resiliency and a tendency towards the task-oriented coping – both with regards to specific competition (strategies aimed at the goal) and a tendency to undertake preventive measures concentrated on a problem (reflecting in the task-oriented coping style). Significant negative correlations also appeared between resiliency and the coping styles directed at emotions or avoiding (Tab. 3).

![Figure 3. The coping strategies applied by sportsmen during competitions](image1)

![Figure 4. The stress coping styles in the examined sportsmen (standardized results)](image2)

![Figure 5. The level of resiliency in contestants with various degree of the undergone injuries](image3)
Discussion

The obtained results indicate that athletes more frequently appraised stressful competitions in a positive way, as a challenge, which is consistent with the results of previous research [20]. Other authors point out that there is a relationship between the appraisal in terms of a challenge and a greater trust in the possibility of action, motivation for hard work and an increased feeling of control [21] as well as better sport results [22]. Therefore, the achieved results reflect a good approach to competitions that sportspeople have.

The collected outcome reveals a more frequent application of various stress coping styles by the majority of athletes, yet the most popular being the concentration on the task and the personal emotional condition. In this respect it ought to be stated that the examined group of athletes reveals a tendency for applying effective coping styles in stressful situations taking into consideration the significant importance of the emotional condition controlling skills for sport rivalry and the importance of the effective coping for the health of a unit [17].

Some researchers claim that sportsmen, who face intense physical and psychical strains on a regular, daily basis, reveal a rather increased level of resiliency in comparison to people who are not engaged in sport [23,24]. The obtained average results do not confirm those findings. However, the analysis of the values of resiliency among people who underwent physical injuries shows that they are characterised by a high level of this variable. It acknowledges that resiliency concerns a positive adaptation despite experiencing difficulties [25].

On the basis of the collected outcome it may be assumed that the level of resiliency of an athlete may be significant for their functioning both in sport circumstance and the everyday life. The gathered results demonstrate the existence of a relationship between the competitor’s level of resiliency and his appraisal of the competition situation and the undertaken preventive measures. The higher resiliency, the more positive appraisal of stressful sport competitions and the more frequent use of task-oriented strategies which is consistent with earlier findings [7]. The research also helped to confirm the earlier suggestions that resiliency is connected to experiencing positive emotions [5]. More resilient athletes revealed a weaker tendency towards reacting with anxiety during sport rivalry.

Therefore, it may be acknowledged that the sportsmen who are characterised by a high level of resiliency are able to take a more positive look at the frequently experienced, difficult situations (e.g. stress during competition, physical injury), experience fewer corporal reactions to stress and undertake more effective methods of overcoming difficulties.

Conclusions

1. On the basis of the conducted analyses it may be stated that the examined athletes, who displayed a higher level of resiliency:

<table>
<thead>
<tr>
<th>The aspects of the process of stress</th>
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<tbody>
<tr>
<td>Stress appraisal</td>
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<tr>
<td>Threat</td>
<td>-0.36</td>
<td>-2.07</td>
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<td>0.029</td>
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<td>-1.23</td>
<td>0.229</td>
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<td>Coping strategies during competition</td>
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<tr>
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<td>0.39</td>
<td>2.31</td>
<td>0.028</td>
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<tr>
<td>Seeking support</td>
<td>-0.28</td>
<td>-1.55</td>
<td>0.133</td>
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<tr>
<td>Using techniques</td>
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<td>0.23</td>
<td>0.821</td>
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<tr>
<td>Planning/action</td>
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<tr>
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<tr>
<td>Distraction</td>
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<td>-4.30</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Social Diversion</td>
<td>-0.17</td>
<td>-0.92</td>
<td>0.366</td>
</tr>
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</table>
• less frequently treat a situation as a harm/loss,  
• experience less intense sport anxiety,  
• more often undertake coping strategies aimed at the goal and action (regarded as more effective).

Moreover, the contestants who underwent injuries that hampered or temporarily excluded from sport activity revealed a higher level of resilience.

References
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Address for correspondence:
Kamila Litwic-Kaminska
Institute of Psychology, Kazimierz Wielki University, ul. Staffa 1, 85-867 Bydgoszcz, Poland
Office phone no. 0048 52 370 84 32, Mobile phone no. 48 696 281 449, e-mail: k.litwic@ukw.edu.pl

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