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Original article

Manifestations of psychological resilience in high performance athletes

Manifestaciones de la resiliencia psicológica en atletas de alto rendimiento

Manifestações de resiliência psicológica em atletas de alto desempenho

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ABSTRACT

The present research was based on the theories that explore resilience in the field of Sport Psychology. The objective was to analyze the manifestation of psychological resilience in Cuban high-performance athletes, specifically in the former 800-meter runner Ana Fidelia Quiroz Moret and in athletes of the Cuban national Table Tennis team in the Juvenile and Senior categories. Research methods were used with a predominance of analytical qualitative methodology such as individual and group case studies, analysis-synthesis, interview, analysis of documents and videos, observation, the Stress Coping questionnaire of Sandin and Chorot and the Resilience scale of Wagnild and Young. The percentage was used as a mathematical method. The main results showed the presence of a high level of resilience in the ex-sportswoman studied and medium-high and high levels in the tennis players studied. The main conclusions highlighted the need to assess in the high performance athletes studied, the manifestations of psychological resilience in particular: the protective factors of the personality, the influence of social support networks as well as the strategies and styles of coping with stress that emerge in adverse situations that arise in sports life, difficulties of training and competition that they face regularly, which may constitute models to be taken into account for other athletes who are starting out.

Keywords: Athletics; Coping styles; Social support networks; Psychological resilience; Table tennis.

RESUMEN

La presente investigación se fundamentó en las teorías que exploran la resiliencia en el ámbito de la Psicología del Deporte, se planteó como objetivo analizar la manifestación de la resiliencia psicológica en atletas cubanos de alto rendimiento, específicamente en la exdeportista corredora de 800 metros Ana Fidelia Quiroz Moret y en deportistas de la categoría Juvenil y Mayores del equipo nacional de tenis de Mesa de Cuba. Se utilizaron métodos de investigación con predominio de la metodología cualitativa analítica como estudios de caso individual y de grupo, análisis-síntesis, entrevista, análisis de documentos y videos, observación, el cuestionario de Afrontamiento de estrés de Sandín y Chorot y la escala de Resiliencia de Wagnild y Young. Se utilizó el porcentaje como método matemático. Los resultados principales permitieron constatar la presencia de nivel alto de resiliencia en la exdeportista estudiada y niveles medio-alto y alto en los tenimesistas estudiados, se identificaron los factores protectores que influyen en el afrontamiento de eventos vitales y situaciones estresantes. Las conclusiones principales destacaron la necesidad de valorar en los deportistas de alto rendimiento estudiados, las manifestaciones de la resiliencia psicológica de manera particular: los factores protectores de la personalidad, la influencia de las redes de apoyo social así como las estrategias y estilos de afrontamiento al estrés que afloran ante situaciones adversas que se presentan en la vida deportiva, dificultades propias del entrenamiento y la competencia a las que se enfrentan con regularidad, que pueden constituir modelos a tener en cuenta para otros deportistas que se inician.

Palabras clave: Atletismo; Estilos de afrontamiento; Redes de apoyo social; Resiliencia psicológica; Tenis de mesa.



RESUMO

O objetivo desta pesquisa foi analisar a manifestação da resiliência psicológica em atletas cubanos de alto rendimento, especificamente na ex-corredora Ana Fidelia Quiroz Moret, de 800m, e em atletas da seleção nacional cubana de tênis de mesa, nas categorias jovem e sênior. Foram utilizados métodos de pesquisa com predominância de metodologia analítica qualitativa, como estudos de casos individuais e de grupo, análise-síntese, entrevista, análise de documentos e vídeos, observação, o questionário de Cópia de Estresse de Sandin e Chorot e a escala de Resiliência de Wagnild e Young. A porcentagem foi utilizada como um método matemático. Os principais resultados mostraram a presença de um alto nível de resiliência na ex-esportista estudada e níveis médios-altos e altos nos tenistas estudados. Os fatores de proteção que influenciam o enfrentamento de eventos da vida e situações estressantes foram identificados. As principais conclusões destacaram a necessidade de avaliar nos atletas de alto rendimento estudados, as manifestações de resiliência psicológica em particular: os fatores protetores da personalidade, a influência das redes de apoio social, assim como as estratégias e estilos de lidar com o estresse que surgem em situações adversas que surgem na vida esportiva, as dificuldades de treinamento e competição que enfrentam regularmente, que podem constituir modelos a serem levados em conta para outros atletas que estão começando.

Palavras-chave: Atletismo; Estilos de copa; Redes de apoio social; Resiliência psicológica; Tênis de mesa.

INTRODUCTION

Research on human behavior, dedicated to the study of the stress response, suggests that certain people are able to cope with adversity, overcome it and transform positively in the midst of it (resilience), while others become increasingly vulnerable.

When studying cases on resilience, it is reported that in difficult circumstances or high impact traumas, resources that were latent and unknown to them emerge in these people. This response capacity inherent to human beings is derived from the existence of a reserve of internal resources for adjustment and coping, whether innate or acquired *Morgan et al., (2015)*.

The research is based on the concept that resilience is the capacity of human beings to face life's adversities, overcome them and emerge strengthened or even transformed by them. This definition includes the notion of adversity because it takes into account the inclusion of the subject's positive adaptation, despite the difficulties, as well as the dynamic process that typifies resilience *Cañizares et al., (2021), Huie et al., (2021)*.

In the sports context, the introduction of the concept of resilience is closely related to the conception of psychological resistance to training loads, resilient personality, *Ravelo et al., (2021), burnout Lu et al., (2016)*, coping with injuries *Cañizares, et al., (2021) (2020), traits of will Cadalso et al., (2020)*, among others, all based on current and specific models of sports performance.

Research has also been conducted on resilience in sport by *Morgan et al., (2015), Cañizares M. et al., (2017), Pires et al., (2019), Alonso (2017)*, among others, who evaluated and characterized subjects with high sports performance, consciously exposed to difficult situations to overcome, with the aim of raising their performance level, as



well as the relationship of resilience with sports performance, psychological well-being and the negative relationship with psychological disorders.

On the other hand, *Ríos et al., (2019)*; *Catalá and Peñacoba, (2020)*; *Gómez-Espejo (2017)*; *Agresta, et al., (2019)*; *Berenguí and Puga (2015)*; *González-Reyes et al., (2017)* and *Gómez Piqueras et al., (2020)* have observed the responses of athletes as a consequence of having suffered a serious sports injury, frequently described as the worst sports experience that athletes have had to go through. Therefore, also in sport, the relationship of resilience with coping in the field of high-performance sport is assessed, in terms of overcoming adverse situations such as sport failure, the transition from one category to another, an injury or setbacks related to the sport performance itself *Morgan et al., (2015)*, *Lu et al., (2016)*.

Although in Cuba there is a greater number of researches dedicated to stress and emotional control in athletes, there have been few studies on this subject in Sport Psychology; some of them have covered some sports disciplines such as baseball, 800meter track and field races, *Cañizares et al., (2021)* and table tennis, *Huie et al., (2021)*. The results highlight the importance of taking into account this important construct in the performance of elite athletes to deepen and conduct research in other sports and unveil the characteristics of its manifestations.

In athletics, in the 800-meter flat race, the athlete Ana Fidelia Quiroz Moret, Cuban world and Olympic champion athlete who specialized in middle-distance events, stood out; she is an example of courage, selflessness and unconditional dedication to sport, as she had to face injuries and many adversities in her sporting life which she had to overcome, demonstrating, among other qualities, the development of her capacity for resilience.

On the other hand, as a result of research conducted in the national table tennis team *Huie et al., (2021)*, it was necessary to develop psychological strategies to handle situations of high anxiety, stressful or adverse states, typical of sports practice, given the tendency of this sport to play quickly in the shortest possible time and high demands to overcome defeats.

In both cases, these subjects are selected in the research to analyze the behavior of the psychological resilience variable in sport, because Ana Fidelia Quiroz Moret is an athlete who evidenced in her sports career this psychological variable with exemplary characteristics, and the table tennis team, because their coaches and specialists demanded the study of this construct in their athletes, due to the need to strengthen in them regulatory mechanisms and coping with adversity.

That is why the objective of the research is to analyze the manifestation of psychological resilience in Cuban high performance athletes, specifically in the former 800-meter runner Ana Fidelia Quiroz Moret and in athletes of the youth and senior categories of the Cuban national table tennis team.

The results contribute to make visible the importance of the subject, as it favors the deepening and complementation of studies in relevant figures of Cuban sport, as well as the research of the resilience construct in other sports disciplines, which will allow revealing the characteristics of these manifestations in the face of adversities and obstacles in training and competitions in order to, subsequently, apply psycho-pedagogical actions aimed at strengthening and stimulating the existence of protective mechanisms in the personality of athletes.



MATERIALS AND METHODS

Type of study: although qualitative (analytical) research predominates, it is considered a mixed type of study in which data analysis techniques of the quantitative paradigm are also used.

A case study was conducted with the athlete Ana Fidelia Quiroz (AFQM) as an individual subject and in the Table Tennis team in the variant of case study as a group, typical of ethnological research. In both cases, the objective was to identify the main adverse situations experienced by athletes in sports practice and to study the risk factors, as well as the personal and protective factors that enable emotional self-regulation. For the study of (AFQM), informed consent was obtained from the athlete in accordance with the ethical standards for conducting this type of research.

For the case of the AFQM athlete, qualitative (analytical) research methods are used: life history, interviews, analysis of official and personal documents, books and triangulation of sources and methods as an essential support to contrast the information obtained and reconstruct events through official sources of information.

Sample criteria: The selection of the sample obeyed an intentional criterion. For the research, it was necessary to interview the selected ex-athlete and people who knew Ana Fidelia Quiroz Moret and who had a personal relationship with the athlete during the stage of her sporting life. For this reason, nine of the 17 people available were chosen: family members, friends, athletes who trained and competed with her.

For this study, the life history of the athlete is taken into account. Interviews were conducted with the members of the sample and an analysis of official and personal documents: records, evaluation minutes, formal letters, diplomas, orders, recognitions, videos and personal documents, photographs, personal notes and autobiographies.

In order to know the manifestations of resilience of the national table tennis team of the Cerro Pelado High Performance Center, the entire population of twelve athletes was studied, six male and six female athletes of the juvenile and senior categories. Informed consent was obtained from the athletes and coaches; the procedures followed were in accordance with the ethical norms for this type of research.

For this team, methods and techniques are used such as directed observation based on a structured guide, which was carried out in two moments: in training together with internal controls and prior to the competition, with the objective of making evaluations about the behavior of the athletes. Video was used as a means to support the observation.

In addition, a semi-structured interview was applied to the entire team with the purpose of identifying the main adverse situations experienced by athletes in sports practice and examining risk factors, as well as personal and protective factors of resilience.

In this team, the Wagnild and Young Scale was also used as a technique, aimed at sports teams, composed of 25 *items*, which are scored on a seven-point Likert-type scale, where one is disagreement and a maximum of agreement is seven. Participants indicate the degree of agreement with the *item*, since all *items* are rated positively.



In both case studies, analytical qualitative research methods and triangulation of sources and methods were used.

The units of analysis for these case studies, which constitute indicators for the study, were:

- Personal and protective factors of resilience.
- Social support networks.
- Stress coping mechanisms.

RESULTS AND DISCUSSION

Presentation of the case

Athlete Ana Fidelia Quiroz Moret. Sport: athletics (800 meters flat).

For the case study, the stages of Ana Fidelia Quiroz Moret's sports career are evaluated, based on the life history method, in addition to interviews with coaches, family, friends, teammates and focused interview with the athlete, analysis of official and personal documents, videos and books about her personal life. It is stated that the athlete studied within Cuban athletics is a world-class figure who shines for her mythical story, known as *La Tormenta del Caribe Segarte* (The *Caribbean Storm Segarte*). It is stated that "she is one of the most interesting and well-known personalities in the whole world". She stands out for an outstanding sports career where she achieved laurels and boasted an ascending and triumphant career (Table 1).

Table 1. - Ana Fidelia Quiroz Moret's most significant sports results (1978-1992)

Year	Location	Championship
1978	Gold Medal	XIII Central American and Caribbean Games, Medellin, Colombia
1979	Gold Medal	VIII Pan American Games, in San Juan, Puerto Rico
1981	Gold Medal	Central American Track and Field Championship in Santo Domingo, Dominican Republic
1982	Gold Medal	XIV Central American and Caribbean Games, in Havana, Cuba
1983	Gold Medal	International Track and Field Championships, in Barcelona, Spain.
	Gold Medal	Central American Track and Field Championships, in Havana.
	Silver Medal	Pan American Games, in Caracas, Venezuela



	Bronze Medal	Pan American Games, in Caracas, Venezuela
1985	Gold Medal	Central American and Caribbean Championship, in San Juan, Puerto Rico.
1986	Gold Medal Gold Medal Gold Medal	Central American and Caribbean Championship, in Mexico International Athletics Championship, in Mexico International Athletics Championship, in Havana, Cuba. She became "The Queen of the II Iberoamerican Athletics Championships",
1987	Gold Medal	X Pan American Games, in Indianapolis, U.S.A.
1988	Ibero-American Community Trophy	Awarded by the King and Queen of Spain as the Best Sportswoman of the Area, Spain.
1989	Gold Medal Gold Medal Triple champion	International Athletics Championships, Barcelona, Spain University of Duisburg, Germany World Cup, Barcelona, Spain
1990	Silver Medal	Central American Track and Field Championships, Santo Domingo, Dominican Republic
1991	Gold Medal Silver Medal Silver Medal	XI Pan American Games, in Havana, Cuba XI Pan American Games, in Havana, CubaTokyo World Championship, Japan
1992	Bronze Medal	Barcelona Olympic Games, Spain

Source: www. ECURED May 2015 and personal documents of Ana Fidelia Quiroz

On January 22, 1993, at the height of her sporting career, this athlete suffered a domestic accident, a stressful situation that put her in mortal danger. As a result, she suffered second and third degree burns over a large percentage of her body, leaving her with burns of more than 38 %. The opinion of many people, family and friends, was that the athlete would not be able to return to the sport and that this would be the end of her career. The athlete managed to overcome and began rehabilitation sessions, underwent multiple cosmetic surgeries and then returned to train and compete in Central American, world and Olympic events where she surpassed the results obtained



previously in her sporting career *Cañizares, et al., (2021)*. In her sporting career, she received many awards and decorations, being a five-time Grand Prix champion from 1987 to 1991. After her accident, she participated in Pan-American competitions and won medals until 1997, for example: World Championship in Gothenburg, Sweden, 1995; silver medal in the Olympic Games in Atlanta, 1996; and gold medal in the World Championship in Athens, Greece in 1997.

Results of the diagnosis of the units of analysis

Personality and protective factors

The personality qualities of this athlete, manifested in the face of adversity and stressful situations were being positive, mature, persistent and competitive, strong determination and sporting commitment, which were resources, personal and protective factors used by this athlete.

Social support networks

In a focused interview and the review of documents and video analysis of the athlete, she highlights the contribution of social support networks, manifested in her family, coaches, government, colleagues, friends and the Cuban people who served as emotional support, transmitting to her the value of effort and tenacity in the face of life's challenges.

Stress coping mechanisms

In this case, the studied athlete used adequate coping strategies and styles to deal with the wide range of unpleasant emotions and mental struggles. These strategies were: resignification, overcoming, capacity to resist, transformation of weaknesses into strengths, capacity to overcome, strengthening, construction of positive vital behaviors, preservation of integrity and in the styles the focus on solving the problem, positive reevaluation, search for social support, which were determining factors for her recovery, predominated. With the application of the Resilience Scale, the athlete obtained a high level of resilience.

Presentation of the case. National table tennis team

In the diagnosis made, it was observed that, during the special preparatory period training and the modeling of the competitive period, the athletes presented changes in their mood, two athletes were injured, all of them were tired in the evening training hours and presented slowness at the beginning of their technical-tactical executions. In addition, there was evidence of poor emotional management in the face of errors and loss of points and game, showing dissatisfaction with their performance during the controls and indecision to win at a decisive moment of the game.

There are two athletes (one in the Juvenile category and the other in the senior category) who present difficulties in controlling reactive anxiety and at certain moments during the matches do not adapt to the opponent's game.

The interview showed that the main adverse and stressful situations in the practice of table tennis are:



- Losing a point, a set or a match due to difficulties in recovering from the rally, inadequate perception of the opponent and the level of the competition or not adapting to the change of a strategy (identified by 100 % of the athletes).
- Committing errors such as direct failure of the service, of the high ball without effect, of the first block, lack of initiative in the points (identified by 100 % of the athletes).
- The 85 % of the sample identifies the injury (in training, before competing, in competition, after competing).

The usual responses to these situations are 78 % expressions of anger, frustration, lack of concentration and tension. In general terms, in the team it can be seen that there are situations identified as adverse, which hinder the preparation and competitive performance of the athletes.

Among the actions they are instructed to manage these situations are calming down, taking deep breaths, walking, relaxing, concentrating and changing the focus of attention.

Table 2. - Personal and protective factors of resilience of the table tennis team

Personal and protective factors
Positive emotions and desire to win (83 %)
Optimistic view of life (92 %)
Ability to relate to others (100 %)
Family support (100 %)

As can be seen in Table 2, the personal and protective factors that predominated were: ability to relate to others, family support, followed by positive emotions and desire to win and an optimistic outlook on life (Table 2).

Social support networks

All athletes (100 %) state that they have great support from their family, which they include as a protective factor; in the case of the link with their coaches and psychologist, 92 % say that they tell her about their concerns and feel support from the coaches on how to improve their performance.

Stress coping mechanisms

In the analysis of the Coping Mechanisms, dimension with respect to the task-focused coping style indicator, the figure 1 shows that 25 % of the sample frequently uses problem-solving focus (PS) and positive reappraisal (PR). Some 16.7 % almost always use FS, as well as support seeking (BA), while 50 % of the sample sometimes resort to FS (Figure 1).





Fig. 1 - Coping Mechanisms Dimension - Task-focused coping style indicator
Legend: FS: Solution Focused; RP: Positive Reevaluation; BA: Seeking Support.

In addition, 50 % of the athletes sometimes resort to RP as well as BA, which means that the task-focused stress coping style is not the style most frequently employed by them (Figure 2).

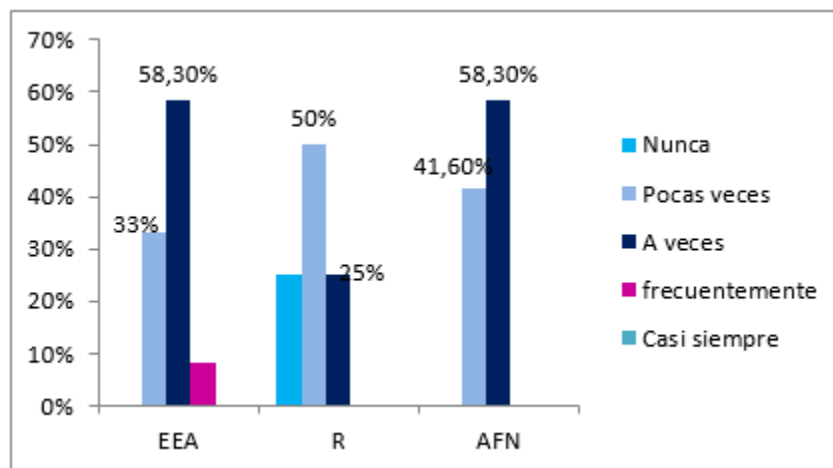


Fig. 2. - Emotion-focused Coping Mechanism Dimension
Legend: EEA: Open Emotional Experience; R: Religion; AFN: Negative self-focus.

As can be seen in Figure 2, it is the emotion-focused coping style that is most frequently employed, specifically open emotional expression (EEA) and negative self-focusing (AFN), which is sometimes used by 58.3 %. This means that in situations involving high levels of stress for athletes, emotional discharge is part of the release of the tension that arises. Next, Figure 3 shows the coping mechanism dimension focused on avoidance, since 50 % of the athletes sometimes use avoidance (E) as a coping style, while 25 % of the total use it frequently. From this, it can be interpreted that avoidance for athletes constitutes a defense mechanism that, although it does not adequately solve the difficulty, allows them to avoid the unpleasant effect of stress; however, this style in the literature consulted is not associated with the resilient process (Figure 3).



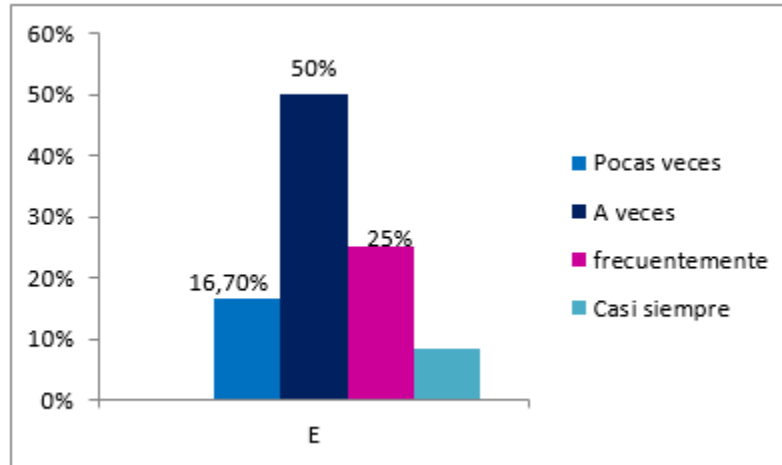


Fig. 3. - Dimension Coping mechanism focused on avoidance

Legend: E: Avoidance From the application of the Resilience Scale, medium and high levels of resilience were obtained in the team.

Of the total sample, 42 % of male athletes and 33 % of female athletes had a medium level of resilience, while 16.7 % of female athletes and 8.3 % of male athletes had a high level of resilience. In this sense, there are slight differences between genders, with a higher percentage of female athletes having higher levels of resilience (Figure 4).

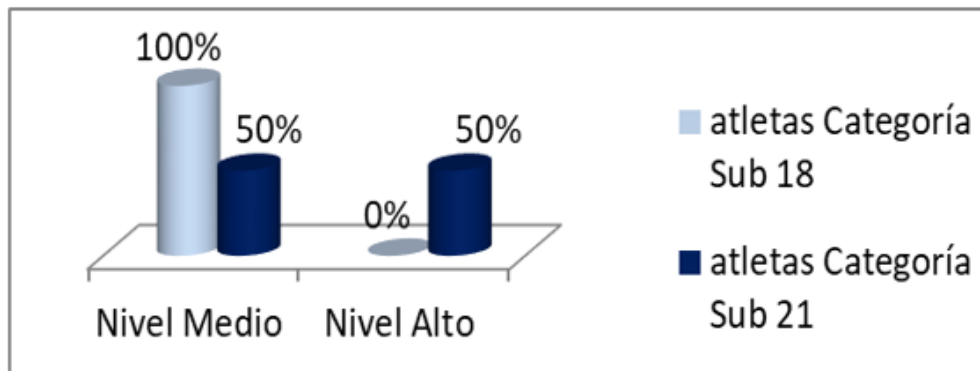


Fig. 4. - Resilience level of athletes by category

As can be seen in the figure 4, the medium level is predominant in the U-18 category, which means that athletes in this category face adverse situations, focused on reducing the emotional discomfort they generate and eventually manifest resilient behaviors.

These results differ from those athletes with a high level, mainly in the U-21 category, who are characterized by greater use of resilience strategies such as resignification, overcoming, ability to overcome, strengthening and construction of positive life behaviors.

The results of the studies highlight the importance of taking into account this important construct in the performance of elite athletes and conclude that a good resilient profile is an important variable for the development of high levels of performance. High-



performing athletes perceive that they have quality social support available to them whenever they need it.

This support can be constituted by family, coaches, teammates and support personnel, government, organizations, among others.

This is evidenced in the results of the case of the athlete Ana Fidelia Quiroz and in the Table Tennis team studied, so it coincides with the results of the research of *Gómez-Espejo et al., (2017)*; *Cadalso et al., (2020)* and *Cañizares et al., (2021, 2017)*.

Both the personality and protective factors, as well as the resilient coping strategies and style used in both case studies, are adequate and tempered to the adverse situations and obstacles presented by these athletes in which individual differences and particular and specific forms of resilient coping strategies and styles are highlighted, taking into account personality and individual differences, as well as the adversities and typical characteristics of the context and type of sport as demonstrated and confirmed in the research of *Huie et al., (2021)*, *Ravelo et al., (2021)*, *Lu, (2016)* and *Morgan et al., (2015)* with the results in elite athletes.

In the case of Ana Fidelia Quiroz, the high level of resilience demonstrated after the traumatic life-threatening accident she suffered, together with the preparation and rehabilitation she underwent, explains why she was able to win medals in world and Olympic championships up to 1997.

In the case study of the table tennis team, the emotion-focused coping style was the most used by the athletes, which evidences the need for training in task-focused coping, since emotions can be allies or enemies in the management of stressful situations. Therefore, self-regulation of negative emotional states is fundamental to develop resilience in the game of table tennis and to raise the levels of resilience in the athletes concerned. The differences in the levels of resilience achieved by athletes in the U-18 and U-21 categories may be related to the experience of older athletes who have experienced adverse situations and obstacles more frequently, have already incorporated, and systematized adequate coping mechanisms.

From a theoretical point of view, it is found that the effective and particular combination of protective and personal factors of athletes, the effective influence of social support networks as well as the coping strategies and styles used, having as a basis a solid sports preparation, typify and characterize the manifestation of resilience capacity in high performance athletes, aspects also appreciated in the studies of *Lu, (2016)* and *Morgan et al., (2015)*.

Based on the results and the assessment of the limitations found, it is proposed to continue the research through the development of a Psychological Training Program to stimulate resilience capacity that includes cognitive-affective-volitional strategies *Huie et al., (2021)*, as well as the realization of talks and joint activities with Cuban resilient athletes such as Ana Fidelia Quiroz and others, in order to encourage reflection on these behavioral profiles and coping styles in the face of adversities used by elite athletes, as referred by *Cañizares et al., (2017)* and *Caro et al., (2019)*.

This program should include cognitive-affective-volitional strategies focused on the mental and motor solution of the problem *Huie et al., (2021)*.



CONCLUSIONS

In the high performance athletes studied, psychological resilience is manifested in a particular way as the ability to adapt and adjust through the combination and/or interaction between the attributes of the individual (internal) and his or her family, social and cultural environment (external). In the case of the athlete Ana Fidelia Quiroz Moret, a high level of resilience was evidenced, manifested in her sports career and, especially, after having suffered a traumatic life-threatening event that temporarily takes her away from her sports career. The combination of personality characteristics, protective factors and the support of social support networks (government, family, coaches, training partners and friends) that allowed the emergence of resilient coping strategies to strengthen and improve her personal resources to face adversity is highlighted.

In the national table tennis team, medium and high levels of resilience are evident. Athletes with a high level most frequently use a task-focused coping style, followed by an emotion-focused style and, to a lesser extent, the avoidance-focused style. It is therefore necessary to apply a psychological training program that contributes to stimulate and optimize the manifestations of resilience.

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Conflict of interests:

The authors declare not to have any interest conflicts.

Authors' contribution:

The authors have participated in the writing of the work and analysis of the documents.



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