

## Psychological distress related to psychological skills associated with sports performance in young athletes

### Malestar psicológico relacionado a características psicológicas asociadas al rendimiento deportivo en jóvenes deportistas

### Estresse relacionado a características psicológicas associadas ao desempenho esportivo em jovens atletas

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#### Abstract

Different psychological skills are associated with sports performance, but it is not clear how these interact with the psychological distress that athletes may suffer. This study analyzed the relationship between the psychological skills associated with sports performance (Características Psicológicas relacionadas con el Rendimiento Deportivo, CPRD questionnaire) and the Kessler scale of psychological distress (K-10). The sample consisted of a total of 103 young athletes from Buenos Aires (48.5% men;  $M = 20.05$ ;  $SD = 1.41$ ). 22.3 % of the participants suffer from psychological distress. Men presented higher scores in terms of stress control and influence of the evaluation on performance. The subjects who practiced group sports presented higher scores in terms of stress control and team cohesion. A negative relationship was found between psychological distress and stress control and the influence of evaluation on performance. The results show how the athletes' psychological profiles are related to the experience of distress and contribute to the idea that the development of psychological skills in sport is not only associated with better performance, but also with greater well-being, a key aspect at the time of designing interventions.

**Keywords:** distress; athletes; psychological profile

#### Resumen

Diferentes características psicológicas están asociadas al rendimiento deportivo, pero no es claro cómo estas interactúan con el malestar psicológico que pueden padecer los deportistas. Este estudio analizó la relación entre las Características Psicológicas relacionadas con el Rendimiento Deportivo (cuestionario CPRD) y la escala de malestar psicológico de Kessler (K-10). La muestra consistió en un total de 103 deportistas jóvenes de la Ciudad Autónoma de Buenos Aires (48.5 % hombres; edad  $M = 20.05$ ;  $DE = 1.41$ ). Un 22.3 % de los participantes padece de malestar psicológico. Los hombres presentaron puntajes más altos en cuanto al control del estrés e influencia de la evaluación en el rendimiento. Los sujetos que practicaban deporte grupal presentaron mayores puntajes en cuanto al control de estrés y en la cohesión de equipo. Se encontró una relación negativa entre el malestar psicológico y las



dimensiones control de estrés e influencia de la evaluación en el rendimiento. Los resultados muestran cómo los perfiles psicológicos de los deportistas se relacionan con la experiencia de malestar y contribuyen a la idea de que el desarrollo de habilidades psicológicas en el deporte no solo se asocia a un mejor rendimiento, sino también a un mayor bienestar, aspecto clave en el momento de diseñar intervenciones.

**Palabras clave:** malestar psicológico; deportistas; perfil psicológico

### Resumo

Diferentes características psicológicas estão associadas ao desempenho esportivo, mas não está claro como elas interagem com o estresse que os atletas podem sofrer. Este estudo analisou a relação entre as características psicológicas associadas ao desempenho esportivo (Características Psicológicas relacionadas con el Rendimiento Deportivo, cuestionário CPRD) e a escala Kessler de estresse (K-10). A amostra foi composta por um total de 103 jovens atletas de Buenos Aires (48,5 % homens;  $M = 20,05$ ;  $DP = 1,41$ ). 22,3 % dos participantes sofrem de estresse. Os homens apresentaram escores mais elevados em termos de controle de stress e influência da avaliação no desempenho. Os sujeitos que praticavam esportes em grupo apresentaram maiores escores em termos de controle de estresse e coesão da equipe. Foi encontrada uma relação negativa entre estresse e as dimensões controle do estresse e influência da avaliação no desempenho. Os resultados mostram como os perfis psicológicos dos atletas estão relacionados à vivência de estresse e contribuem para a ideia de que o desenvolvimento das habilidades psicológicas no esporte não está apenas associado a um melhor desempenho, mas também a um maior bem-estar, aspecto fundamental no momento de desenhar intervenções.

**Palavras-chave:** estresse; atletas; perfil psicológico

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Over time, epidemiological surveys aimed at assessing the mental health of different populations have focused on specific diagnostic measures based on different diagnostic manuals. With the intention of making surveys based on the severity of cases rather than on their diagnosis, scales have been developed to measure different dimensions of non-specific psychological distress (Kessler et al., 2002). This non-specific psychological distress refers to symptoms of anxiety and depression that do not compose a mental disorder in themselves (Brenlla & Aranguren, 2010), although it is known that a large majority of subjects with various mental disorders score high on this core dimension of non-specific distress (Kessler et al., 2002).

In the Argentine context, in 2019, about 22.8 % of those surveyed by the Observatorio de la Deuda Social Argentina (ODSA, 2020) presented nonspecific psychological distress related to restlessness, agitation, hopelessness, sadness, tiredness and nervousness. Another study with the same data has identified that those subjects who perform more physical activity are those who report less psychological distress. Moreover, this relationship intensifies as age increases (González Insua et al., 2020). In multiple studies, the vast majority of research on physical exercise or sport focuses on analyzing the benefits it brings (Ströhle, 2009), or how its frequency is related to psychological distress (González Insua,

2019; González Insua et al., 2020). On the other hand, other studies on mental health problems in athletes have focused on sport-specific phenomena such as injuries, retirement or performance, or on the prevalence of these in different contexts (Walton et al., 2020).

A systematic review on the prevalence of psychological distress in retired athletes argues that they experience similar levels of distress as the general population, although those who do experience distress do not typically seek treatment (Mannes et al., 2019). Prevalence studies have found that, in the United States, 20 % of college athletes experience psychological distress in terms of anxiety and depressive symptoms (Sullivan et al., 2019). On the other hand, in Australia, at least 46 % of elite athletes were found to experience some symptom related to depression, eating disorders, general psychological distress, social anxiety, generalized anxiety or panic attacks (Gulliver et al., 2015). Another systematic review and meta-analysis have found that the experience of negative affect following injury, and how the situation of being injured is perceived, may affect the chances in which the athlete returns to competition (Ivarsson et al., 2017). Findings in young basketball players from Alicante, Spain, also support the relationship between anxiety, psychological factors (such as self-esteem and motivation) and physical activity performance, affirming a negative relationship between anxiety and self-esteem (Mora et al., 2014).

Although many authors have studied psychological distress in relation to different variables in the sport context, such as psychological capital (Kim et al., 2020), emotional intelligence (Trigueros et al., 2019), sport practice (Hernández-Pérez, 2021), emotional climate (Castillo et al., 2011; García-Naveira et al., 2017) or performance (Campos et al., 2017), the relationship of this with the different cognitive aspects that, it is known, are related to sport performance, has not been analyzed yet.

There are instruments that have been designed to measure some of these cognitive aspects that are related to sports performance such as the Psychological Skills Inventory for Sports (PSIS; Mahoney et al., 1987) and its later amplified version adapted to Spanish, the questionnaire Características Psicológicas relacionadas con el Rendimiento Deportivo (CPRD; Gimeno et al., 2001). The PSIS was developed to measure concentration, confidence, motivation, anxiety control and mental preparation. These skills were thought by the authors as cognitive coping strategies that can be used by both professional and non-professional athletes (Chartrand et al., 1992). The later Spanish version developed by Gimeno et al. (2001), evaluates five factors: Stress management, Evaluation's Influence on Performance, Motivation, Mental ability and Team cohesion. Stress management refers to how the athlete responds to the demands of training and competition and to specific situations that are potentially stressful and can generate stress that needs to be controlled. The influence of evaluation on performance involves responses to situations in which the athletes evaluate their own performance or consider that they are being evaluated by a significant other. Motivation includes interest in training and improvement, goal setting, the importance of sport in relation to other aspects of life and the cost-benefit ratio of the subject's sporting activity. Mental ability includes psychological skills that can favor performance, such as goal setting, analysis of one's own performance, behavioral rehearsal in the imagination and cognitive self-regulation. Finally, Team cohesion includes the way in which the athlete integrates into a team or sports group, exploring how he or she relates to the work group, his or her satisfaction with them and the importance given to "team spirit".

A study with Mexican athletes found that men had slightly higher scores in the dimensions of Stress control, Motivation and Mental ability than women, while in the Evaluation's Influence on Performance and Team cohesion, the scores were similar. This same study identified that those athletes who played an individual sport scored lower in the Stress control and Team cohesion dimensions (Andrade-Sánchez et al., 2015). On the other hand, an investigation in Spanish basketball players found that men presented higher levels of Stress control, Mental ability and Team cohesion than women. The scores of the dimensions of Motivation and Evaluation's Influence on Performance did not present significant differences between both sexes (Poirier, 2019). Another research conducted in young Spanish soccer players, found that men present higher levels of Stress control and Evaluation's Influence on Performance, while women score higher on Team cohesion (Olmedilla et al., 2021a). Differences are also found depending on the level of competence of the athletes, for example, another study in Spain identified that professional female soccer players scored higher in Motivation, but amateur punctuated higher in Stress control and Influence of evaluation on performance (Ruiz-Esteban et al., 2020). It has also been found that young soccer players present different values in these dimensions and in self-perception of performance in relation to the coach's appraisal than older soccer players. This could be due to the fact that the lack of competitive experience or the psychological elements characteristic of adolescence lead younger players to form an unrealistic self-evaluation compared to that of a more experienced player (Olmedilla et al., 2019a). On the contrary, these differences are not found if triathletes or para-triathletes are compared, evidencing that the psychological characteristics associated with performance do not vary in relation to the presence or not of disability (Gómez-Marcos & Sánchez-Sánchez, 2019).

The analysis and measurement of these psychological characteristics associated with sports performance allows evaluating the effectiveness of interventions designed to provide more tools to competitors, as has been done in Spain, where an intervention was carried out to improve Stress control and the I Evaluation's Influence on Performance through different relaxation techniques in young boxers. These interventions had positive effects on both dimensions, increasing the score of the vast majority of boxers (Olmedilla et al., 2021b). This has also been carried out in a sample of soccer players in Spain by performing an intervention based on cognitive behavioral therapy to improve Stress control, achieving a significant increase in the scores of the Mental ability and Evaluation's Influence on Performance dimensions. The Stress control dimension showed an increase, but it was not significant with respect to pre-intervention scores (Olmedilla et al., 2019b).

Depending on the scores obtained by the subjects in the CPRD, 7 different risk profiles can be established that identify subjects who may be close to abandoning sports practice and who, therefore, would need psychological intervention to avoid it (Gimeno et al., 2001). The authors indicate that the highest risk profile is number one, and the lowest risk profile is number seven. Table 1 shows the criteria established for each of the profiles.

**Table 1**  
*Criteria for establishing risk profiles according to Gimeno et al. (2001)*

Profile	Scale
P1	Scores below the 25th percentile in the dimensions of stress control, Evaluation's Influence on Performance and motivation.
P2	Scores below the 25th percentile on the dimensions of stress control and Evaluation's Influence on Performance on performance.
P3	Scores below the 25th percentile in the dimensions of stress control and motivation.
P4	Scores below the 25th percentile on the dimensions of influence of assessment on performance and motivation.
P5	Scores below the 25th percentile in the dimensions of stress control and mental ability.
P6	Scores below the 25th percentile on the motivation dimension.
P7	Scores below the 25th percentile on the team cohesion dimension.

In summary, it is known that distress is present in athletes, but no research has been identified that analyzes its relationship with different psychological aspects that are associated with sports performance. Therefore, the following question that will guide this research arises: is there a relationship between psychological distress and athletes' performance? Thus, the general objective of the present study was to study the relationship between psychological distress, understood as symptoms of anxiety and depression, and the five psychological characteristics associated with sports performance proposed by the CPRD (Stress control, Evaluation's Influence on Performance, Motivation, Mental ability and Team cohesion) in a sample of young athletes from Buenos Aires. As specific objectives, we sought to describe the levels of psychological distress and psychological characteristics associated with sports performance in this context, to explore differences according to gender and the sport they practice, and also to establish risk profiles for quitting sports based on the results of the CPRD measurements.

## Materials and Method

### Participants

This study included 103 athletes from Buenos Aires (Argentina), who practiced their respective sport at least 3 times per week and were involved in non-federative competitions. A total of 48.5 % were men and the remaining 51.5 % were women. The mean age of the sample was 20.05 ( $SD = 1.41$ ; Minimum = 18; Maximum = 22). Likewise, 42.6 % of the participants practiced an individual sport (tennis and swimming), while the remaining 57.4 % practiced a group sport (soccer and field hockey).

### Instruments

The Kessler Psychological Distress Scale, K-10 adapted in Argentina (Brenlla & Aranguren, 2010) was used to assess the level of psychological distress. Participants were asked to respond how they felt in the last four weeks regarding anxiety and depression symptoms. The response options are: *never*, *seldom*, *sometimes*, *many times* and *always*, with the response value ranging from 1 to 5 respectively. The scores on this scale provide a total

psychological distress score ranging from 10 to 50 points, and a cut-off score of 24 points indicating which subjects suffer from psychological distress ( $\alpha = .81$ ).

To evaluate the psychological characteristics associated with sports performance, the questionnaire of Características Psicológicas relacionadas con el Rendimiento Deportivo (CPRD; Gimeno et al., 2001) was used. It has a response continuum from 1 to 5: *never, seldom, sometimes, many times, always*. This questionnaire has a factorial structure from which five factors are derived and contains 55 items. These five factors are: Stress management (20 items,  $\alpha = .86$ ), Evaluation's Influence on Performance (12 items,  $\alpha = .75$ ), Motivation (8 items,  $\alpha = .71$ ) and Team cohesion (6 items,  $\alpha = .62$ ). Due to low internal reliability, it was decided not to use the Mental ability dimension (9 items,  $\alpha = .22$ ).

### Procedure

The research design was cross-sectional, retrospective, ex post facto with a single group and multiple measures (Montero & León, 2007). The data collection procedure was carried out through an online questionnaire in Google Forms, during the second semester of 2019, being the participation of the subjects voluntary, and able to omit, not inform or to culminate the survey if they thought it necessary at any time. Before starting the survey, participants had to sign an informed consent form that complied with the ethical behavior guidelines for Social and Human Sciences in Argentina (Consejo Nacional de Investigaciones Científicas y Técnicas, Res. D N° 2857/06).

### Data analysis

Descriptive analyses were performed for the levels of psychological distress and motivation of the participants, reporting percentages and means as appropriate. To compare these variables according to sex, Student's t-statistic was used. In order to analyze the relationship between psychological distress and psychological characteristics associated with sports performance, Pearson's r test was used. We worked with the SPSS v. 25 statistical package and to calculate the effect size, the G\*Power v. 3.1.9.2 statistical package was used (Cárdenas-Castro & Arancibia Martini, 2014; Faul et al., 2009).

## Results

First, of the total sample, 22.3 % of the participants reported presence of significant psychological distress (cut-off score = 24). Likewise, the total score of psychological distress presented a total mean of 19.33 ( $SD = 6$ ). The means and deviations of the total score of the psychological characteristics related to sports performance can be seen in table 2.

**Table 2**

*Means and deviations of the total score of the Características Psicológicas relacionadas con el Rendimiento Deportivo*

	<i>X</i>	<i>SD</i>	<i>Possible values</i>
Stress management	67.58	13.23	20 a 100
Evaluation's Influence on Performance	37.09	8.42	12 a 60
Motivation	29.91	5.45	8 a 40
Team cohesion	24.51	3.86	6 a 30

Males had higher scores than females for Stress Control ( $t(100,956) = 5.154$ ;  $p < .001$ ;  $d = 1.01$ ) and for Evaluation's Influence on Performance ( $t(100,980) = 3.63$ ;  $p < .001$ ;  $d = .71$ ). The effect size of the differences found in Stress Control as a function of gender was large and, regarding Evaluation's Influence on Performance dimension, medium-large. On the other hand, subjects who played group sport had higher scores for Stress Control ( $t(81.42) = -2.98$ ;  $p = .004$ ;  $d = .62$ ) and Team Cohesion ( $t(75.91) = -2.59$ ;  $p = .011$ ;  $d = .53$ ). The effect size found in both cases was medium-large. The total scores for each dimension as a function of gender and type of sport played can be seen in table 3.

**Table 3**

*Means and deviations of the total score of psychological characteristics related to sports performance as a function of sex and type of sport*

	Men	Women	Individual sport	Group sport
Stress management	73.76 (11.34)	61.75 (12.28)	62.25 (12.84)	70.05 (12.13)
Evaluation's Influence on Performance	39.94 (7.77)	34.24 (8.13)	37.27 (8.32)	36.62 (8.84)
Motivation	30.5 (5.75)	29.35 (5.15)	28.92 (5.47)	30.11 (5.56)
Team cohesion	24.32 (4.07)	24.69 (3.68)	23.25 (4.21)	25.38 (3.57)

Moreover, the direct total scores of the CPRD questionnaire for each dimension were considered and the subjects were classified into different risk profiles according to the parameters of Gimeno et al. (2001). The risk profiles formed are presented in table 4. Those subjects who met the conditions for two different risk profiles were only counted in the profile with the highest risk of abandoning sports practice and it was found that 4 subjects (3.88 %) were located in P1; 7 (6.79 %) in P2; 4 (3.88 %) in P3; 2 (1.94 %) in P4; 14 (13.59 %) in P6; and 23 (22.33 %) in P7.

**Table 4**

*Cut-off points obtained for risk profiles based on Gimeno et al. (2001)*

Risk profile	Stress management	Evaluation's Influence on Performance	Motivation	Team cohesion
P1	<58	<32	<26	
P2	<58	<32		
P3	<58		<26	
P4		<32	<26	
P6			<26	
P7				<23

*Note.* The P5 risk profile was not taken into account since the Mental ability dimension was discarded.

Finally, responding to the general objective of this study, the relationship between the total score of psychological distress and the score of psychological characteristics associated with performance was explored, finding a negative relationship with Stress Control ( $r = -.388$ ;  $p < .001$ ;  $n = 103$ ) and with I Evaluation's Influence on Performance ( $r = -.248$ ;  $p = .012$ ;  $n = 103$ ). Psychological distress did not present a significant relationship with Motivation ( $r = -.177$ ;  $p = .073$ ;  $n = 103$ ) nor did with Team Cohesion ( $r = -.027$ ;  $p = .790$ ;  $n = 103$ ).

On the other hand, when classifying the subjects into those who suffer psychological distress and those who do not, according to the cut-off score of the scale, significant differences were found in Stress Control ( $t(37.10) = 3.63$ ;  $p = .001$ ;  $d = .84$ ), in Evaluation's Influence on Performance ( $t(35.73) = 2.36$ ;  $p = .024$ ;  $d = .55$ ) and, in Motivation ( $t(31.47) = 2.38$ ;  $p = .01$ ;  $d = .59$ ). In all three cases the effect size of the differences found was medium-large. The means and deviations of each psychological characteristic associated with sports performance as a function of the presence or absence of psychological distress can be seen in table 5.

**Table 5**

*Means and deviations of psychological characteristics associated with sports performance in groups with and without psychological distress*

	Without psychological distress	With psychological distress
Stress management	69.92 (12.67)	59.43 (12.07)
Evaluation's Influence on Performance	38.03 (8.24)	33.43 (8.22)
Motivation	30.65 (5.08)	27.34 (6.04)
Team cohesion	24.61 (3.83)	24.17 (4.06)

## Discussion

The general objective of this study was to explore the relationship between psychological characteristics related to sport performance, as measured by the CPRD questionnaire, with general psychological distress in young athletes from Buenos Aires. The percentage of Argentine athletes who presented psychological distress was similar to that found in college athletes in the United States (Sullivan et al., 2019), but lower than that found in Australia (Gulliver et al., 2015). In any case, both studies and the present one implemented different measures of psychological distress.

The results found in relation to the total score of the psychological characteristics denote that this sample of Argentine athletes presented higher Stress Control, Evaluation's Influence on Performance, Motivation and Team Cohesion than the total Mexican university athletes evaluated in the study of Andrade-Sánchez et al. (2015). The study in Mexico found that men obtained significantly higher scores in the Stress Control, Motivation and Mental Ability dimensions. The results obtained here with the Argentine sample also showed a higher score in men in terms of Stress Control, but no differences were found regarding Motivation. Even so, differences are observed in the Evaluation's Influence on Performance dimension, with men having higher scores. This replicates the results of Olmedilla et al.



(2021a), where it was also found that men scored high on Stress Control and Evaluation's influence on performance.

It should be noted that, in the present work, the effect sizes of these differences were large and medium-large, respectively. In comparison with another study in Spanish basketball players (Poirier, 2019), a similarity was found in the differences in Stress Control in favor of men. In this sense, it would seem that this Argentine sample of male athletes have greater mastery over the evaluation's influence on their performance, compared to athletes evaluated in Mexico and Spain. These findings lead to the conclusion that, when designing psychological interventions in female athletes to improve their sports performance, aspects related to stress management and how evaluations influence their performance should be addressed.

The study with Mexican athletes (Andrade-Sánchez et al., 2015) found that subjects who practiced team sports presented higher levels of Stress Control and Team Cohesion. The results found in Argentine athletes agree with these findings, as significant differences in favor were also found in the same sense. In addition, the effect size found in both cases is medium-large, which indicates that it is a relevant variable when exploring differences in psychological characteristics associated with performance. In any case, the means for each of these characteristics found in the Argentine athletes, depending on the type of sport practiced, were higher than that of the Mexican athletes in all dimensions.

On the other hand, 22.3 % of the athletes in this study presented indicators of psychological distress, a number similar to the percentages reported in the general Argentine population (22.8 %; ODSA, 2020). Moreover, these values in athletes are very similar to those found in college athletes in the United States (Sullivan et al., 2019). The results demonstrate that levels of psychological distress are negatively associated with Stress Control and Evaluation's Influence on Performance. That is, those subjects who presented greater ability to control stress and the influence that evaluation has on sport performance, were those who reported lower levels of psychological distress.

Sport is an area of competition by definition, therefore, factors related to how athletes perceive themselves in comparison to others are likely to play a key role in their mental health and well-being (Walton et al., 2020). In this sense, it is understandable that those athletes who do not perceive that self- or environmental evaluations affect their performance have lower levels of psychological distress, as demonstrated in this study. Likewise, the ability to manage stress will allow the athlete to experience less anxiety and achieve better sports performance, contributing to their well-being and overall health (Campos et al., 2017). The relationship found between the Stress Control dimension and low scores of psychological distress, supports this assertion.

In conclusion, the study provides data that contribute to the analysis of the relationship between psychological distress and the different psychological characteristics that favor sport performance. Stress Control and Evaluation's Influence on Performance were found to be negatively related to levels of psychological distress. Likewise, men presented higher levels of Stress Control and Evaluation's Influence on Performance than women. Those practicing a group sport presented higher levels of Stress Management and Team Cohesion than individual athletes.

Although the specific performance of the athletes was not measured, the results serve to a better understanding of the indirect relationship that psychological distress could have with sports performance. In this sense, it also highlights the importance of taking into account the mental health and psychological tools of the athletes at the time of their evaluation, since,

if they report a low level of psychological characteristics associated with performance, it could be related to affective issues and not to an athlete's own trait.

Based on the results found, different questions arise that could generate future lines of research such as: why do men have greater control of stress than women?, what other variables are associated with psychological distress in athletes?, to what extent does psychological distress influence sports performance?, is it possible that interventions that develop the psychological characteristics associated with performance can reduce the levels of distress?

The results of this research are limited, in part, because the sample is small and not representative of the athletes of Buenos Aires, so the interpretations of the results should be taken with caution. It could also be pointed out as a limitation the lack of differentiation between levels of competition that athletes may have (local, regional, state, national or international level) as it may behave as a moderating variable between the performance of physical exercise and the well-being of the subjects (González Insua & Delfino, 2017).

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