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Relación de indicadores de habilidad y experiencia del paracaidismo deportivo militar con el estado psicológico y rendimiento en competición de saltadores de élite

Relationship of indicators of ability and experience of military sports skydiving with the psychological state and performance in competition of elite jumpers

Relação dos indicadores de habilidade e experiência do paraquedismo esportivo militar com o estado psicológico e desempenho em competição de saltadores de elite

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RESUMEN

Se deben considerar múltiples variables cuando se habla de rendimiento deportivo. Entre ellas, la literatura establece la importancia de la psicología y las técnicas indicadoras de la experiencia adquirida en la disciplina. Este estudio pretende establecer la relación entre determinados constructos que definen el perfil psicológico del deportista con indicadores de habilidad en paracaidismo militar. Para ello, se encuestó a 42 saltadores de 40,86 años ($\pm 7,35$) pertenecientes al ejército español y a la guardia civil durante la celebración del Campeonato Nacional Militar de paracaidismo que se celebra anualmente, para conocer su nivel de optimismo, resiliencia, bienestar psicológico y burnout. Se concluye que los años de experiencia en paracaidismo y el número de saltos, como indicadores de habilidad, deben ser tomados en cuenta con un mayor nivel de concreción y especificidad, ya que ciertas variables psicológicas pueden aumentar o disminuir dependiendo de ellas. Conviene estudiar cada caso en particular para comprender qué puede ocurrir en el estado del paracaidista y desarrollar estrategias para optimizar el rendimiento deportivo.

Palabras clave: optimismo, resiliencia, bienestar psicológico, burnout, alto rendimiento.

ABSTRACT

Multiple variables must be considered when talking about sports performance. Among them, the literature establishes the importance of psychology and indicator techniques of experience acquired in the discipline. This study aims to establish the relationship between certain constructs that define the psychological profile of the athlete with skill indicators in military parachuting. For this, 42 jumpers aged 40.86 years old (± 7.35) belonging to the Spanish army and the civil guard during the celebration of the National Military Championship of Skydiving which is held annually surveyed to know their level of optimism, resilience, psychological well-being, and burnout. It is concluded that the years of skydiving experience and the number of jumps, as indicators of skill, must be taken into account with a higher level of concreteness and specificity since certain psychological variables can increase or decrease depending on them. It is convenient to study each case, in particular, to understand what can happen in the state of the parachutist and develop strategies for optimizing sports performance.

Keywords: optimism, resilience, psychological well-being, burnout, high performance.

RESUMO

Múltiplas variáveis devem ser consideradas quando se fala em desempenho desportivo. Entre eles, a literatura estabelece a importância da psicologia e das técnicas indicadoras da experiência adquirida na disciplina. Este estudo visa estabelecer a relação entre determinados constructos que definem o perfil psicológico do atleta com indicadores de habilidade no paraquedismo militar. Para tal, foram inquiridos 42 saltadores com 40,86 anos ($\pm 7,35$) pertencentes ao exército espanhol e à guarda civil durante a celebração do Campeonato Nacional Militar de paraquedismo que se realiza anualmente para conhecer o seu nível de optimismo, resiliência, bem-estar psicológico e esgotamento. Conclui-se que os anos de experiência em paraquedismo e o número de saltos, como indicadores de habilidade, devem ser levados em consideração com maior grau de especificidade, pois certas variáveis psicológicas podem aumentar ou diminuir. É conveniente estudar cada caso em particular para entender o que pode acontecer no estado do paraquedista e desenvolver estratégias para otimizar o desempenho esportivo.

Palavras chave: otimismo, resiliência, bem-estar psicológico, burnout, alta performance.

INTRODUCTION

Sports psychology has been studying variables related to performance and health in the sports context for decades. To this end, work related to the subject can be approached from various perspectives. In competitive situations, some authors establish numerous variables involved in the development and execution of the work of athletes (Quartiroli et al., 2021; Quintero-Ovalle et al., 2023). Potentially stressful situations bring the person closer to psychological tension and anxiety due to the possible repercussion of actions and self-demand. In addition, it is necessary to take into account other particularly relevant variables, which are those related to the so-called Positive Psychology (Mackenzie & Brymer, 2020). For years, psychology has focused its work, in addition to reducing the negative aspects, on the empowerment of those that favor performance, beyond the more classic variables such as

concentration or self-confidence, as fundamental pillars for performance (Kern et al., 2020).

To speak of Positive Psychology is to mention constructs such as optimism, resilience, psychological well-being, and positive emotions (Krifa et al., 2021).

The relationship between these variables and those cited as negative, such as burnout, can provide more exhaustive information on the athlete's profile, what needs to be improved, and their strengths and virtues, especially in sports that are subject to situations of stress and demand, such as extreme sports, among which skydiving deserves special mention (Barthel et al., 2023; Clemente-Suárez et al., 2017; Gustafsson et al., 2014).

Optimism has been evaluated from what is called the dispositional perspective (Scheier et al., 1994). This theory proposes that favorable expectations about what is done increase people's efforts to achieve

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objectives, while unfavorable expectations reduce such efforts, sometimes to the point of disengaging from the task altogether. According to this approach, therefore, optimists are people who have positive expectations and perceptions about their lives, while pessimists tend to represent their lives negatively. Studies also indicate that this provision is part of the subject's personality. It is what is called in psychology, a trait (Baumgartner et al., 2018).

Resilience is especially important in the sports context. The person who performs sports bases their activity on achieving objectives (be they results, improvement, fun...) and on overcoming obstacles and difficulties to grow in any direction. A technical team exposes its athletes to situations as similar as possible to what they will find in competition, to grow in the face of adversity and to show how to face them with confidence. Resilience can be defined as the ability of people to overcome adversity (Blanco-García et al., 2021).

On the other hand, knowledge of the dimensions that make up psychological well-being can provide useful information to adequately assess to what extent these dimensions are covered, in order to, from there, be able to intervene in specific areas where well-being is revealed. psychological (Mansell, 2021). One of the most recognized theories in the study of psychological well-being is that of Carol Ryff (Ryff & Keyes, 1995). This researcher proposes six essential dimensions, with the premise that optimal psychological functioning is not the sum of pleasant situations. Positive emotions are important, but not the starting point. For Ryff, each dimension does not predict well-being, but each of them is an index of that well-being. Therefore, they can be tested to see if the person is maintaining the proper balance (Ryff & Keyes, 1995).

On the other hand, as far as negative variables are concerned, numerous investigations indicate that constant stress conditions and psychological overload in athletes can put their mental health at risk if they do not have adequate psychological skills, causing various ailments associated with stress as the so-called Burnout Syndrome (Arce et al., 2012). Burnout has been studied in numerous contexts. Initially, it was analysed in the organizational field, and from there it was extended to many others. Any person exposed to prolonged stress will be susceptible to feeling some of the three dimensions

that make up burnout. In the sporting context, some variables endanger the athlete's psychological health, but there are also at hand many opportunities to prevent them from excessive stress, which damages them deeply, even bringing them closer to possible early withdrawal, and sometimes extreme, withdrawal from the sport in general (García-Parra et al., 2016).

But the literature establishes that framed by the affective-social context, sports performance is also traditionally influenced by another series of variables such as sociodemographic variables, some of them gaining special importance in certain sports such as military parachuting, since it comes being a discipline where male sports practice predominates (Castella et al., 2020). In the same way, framed by the technical context, it is also influenced by certain variables that are specific to each sports modality from the point of view of competence, these playing a significant role, since they will serve as indicators of the degree of expertise and skill of the athlete and as a consequence the options of sporting success. Thus, military parachuting has been especially related to some variables defined as technical indicators of skydiving skill. Among them are the years of service in the unit or corps, years spent as a parachutist or certain jumps, which are also collected in the parachutist's file, serving as an objective measure of their experience (Knapik & Steelman, 2016).

In this sense, knowing the interrelation of the competency and psychological aspects of military parachutists can provide a deeper understanding of their profile to develop work strategies that allow us to get closer to obtaining success in sports performance.

Thus, the present work has the following objectives:

- (1) To know the psychological profile of a group of Spanish military parachutists in a national competition through the variables optimism, resilience, and psychological well-being as positive variables against burnout.
- (2) To know the relationship between certain sociodemographic variables and specific techniques of military parachuting, both related to each other, together with the psychological variables related to sports performance.

MATERIAL AND METHODS

Design

The present work dealt with a horizontal empirical investigation of associative strategy by adopting the comparison of groups as an object of exploration (Ato et al., 2013).

Participants

The study sample was for convenience. It consisted of 42 Spanish military competitors of a total of 60 athletes in the LIV National Military Parachuting Championship in 2022 (61.9% belonging to the air force, 23.8% to the land army and 14.3% to the civil guard). The total number of jumpers in the Championship was 60. Regarding the sociodemographic variables, the average age was 40.86 ± 7.35 , with 5 female skydivers and 37 males. On the other hand, regarding the specific technical indicators of military parachuting, the average number of years of experience as paratroopers was 17.86 ± 8.899 , compared to 20.33 ± 8.307 of years of service in the corps, understanding this indicator as time spent in the unit or place of destination. Likewise, the average number of jumps was 2481.76 ± 2622.851 jumps.

Instruments

In this research, a battery of questionnaires has been used where, in the header, a series of sociodemographic data (age and gender) and objective indicators of skydiving skills were asked, such as years in the body, years as a skydiver and number of jumps made. The body of the battery was made up of several scientifically validated questionnaires referring to the following variables or constructs related to the psychological profile of the skydiver:

(1) For the evaluation of optimism, the Life Orientation Scale-Revised (LOT-R) was used, a reduced and revised version of the Life Orientation Test (LOT) (Scheier et al., 1994), in its Spanish version (Ortiz et al., 2016). This scale is made up of 6 items that measure the degree of optimism OPT (3 items) ("I am always optimistic about my future") or pessimism PES (3 items) ("I never expect things to go my way") of the subjects. The response format is Likert type, with 5 points (1 = strongly disagree to 5 = strongly agree). It is estimated that the higher the score, the more optimistic the subject is.

(2) To measure resilience, the Resilience Scale (RS-25) was administered (Wagnild & Young, 1993), and adapted to Spanish (Heilemann et al., 2003). This scale is made up of 25 items divided into two dimensions: personal competence PCT (16 items) and acceptance of oneself and life ACP (9 items). The scale is rated on a 7-point Likert Scale, being 1 "Totally disagree", 2 "I disagree a lot", 3 "Disagree", 4 "I do not agree nor disagree", 5 "I agree", 6 "I agree a lot" and 7 "Totally agree". The total score ranges between 25 and 175 points. Scores exceeding 161 indicate a very high degree of resilience, among 146-160 a high resilience degree, between 131-145 a moderate degree of resilience, between 116-130 a low degree of resilience and scores below 100 indicate a very low degree of resilience capacity.

(3) For psychological well-being, the psychological well-being scale (SPWB) of 39 items was used (van Dierendonck, 2004), translated and validated into Spanish (Díaz et al., 2006). It aims to assess the state of well-being through six dimensions: self-acceptance SA (6 items), positive relationships PRT (6 items), autonomy AUT (8 items), mastery of the environment MET (6 items), the purpose of life PLF (6 items) and personal growth PGW (7 items). Valuated with Likert scale between 1 and 5 points (being 1 the lowest value and 5 the highest for each question). The instrument has a total of 39 items distributed in 6 constructs to which the participants responded using a response format with scores between 1 (totally disagree) and 6 (totally agree). The total score ranges between 39 and 234 points.

(4) Regarding burnout, the Revised Burnout Inventory of 19 items in Athletes was administered (Arce et al., 2012), for which three dimensions are established: emotional exhaustion EME (7 items), depersonalization DT (7 items), and low personal accomplishment LPA (5 items). It is rated on a five-point Likert scale ranging from never (1) to always (5). The total score ranges between 19 and 95 points.

Procedure

For the development of this research, in the first place, the proposal was made by the main researcher to Chief of the PAPEA (Acrobatic Parachuting Patrol of the Air Force), to be able to carry out the data collection in the National Military Parachuting Championship that is usually held annually at the Alcantarilla Air Base (Spain). This proposal was

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reviewed for approval, including the battery of questionnaires that were used, both by the Colonel in Chief of the Air Base, as well as by the different heads of the units and teams that were going to participate in the championship, as well as by the Chief of the Central Board of Physical Education of the Air Force.

On the other hand, the main researcher was present at the meeting before the start of the competitive tests, where he was able to explain the work to all attendees, acquiring the commitment of voluntariness and data confidentiality on the part of the competitors, confidentiality, and data anonymity. Regarding the completion of the questionnaires, the researcher was present every day of the championship. Most of the completions were carried out from the third day, since the first two were of high intensity for the competitors taking advantage of the good weather conditions, hence, they were irrelevant for the present study. Thus, these days served to familiarize the competitors with the presence of the researchers, who were given a space in the judges' tent.

Data collection was approved by the Research Ethics Commission of the University of Murcia (Spain) (ID: 4152/2022). It was carried out following the Declaration of Helsinki and the Rules of Ethics in Research in Sports and Exercise Sciences (Harris et al., 2019). All participants gave their informed consent in writing. This proposal, in addition, was reviewed for approval, including the battery of questionnaires that were used, both by the Colonel in Chief of the Alcantarilla Air Base and by the different Heads of the units and teams that were going to participate in the Championship, as by the Head of the Central Board of Physical Education of the Air Force.

Data analysis

Given that the sample size was equal to or less than 50, the goodness-of-fit contrast test to a normal distribution chosen to determine whether to perform a posterior parametric test or not was the Shapiro-Wilks test, which for all psychological variables except the PCT, EME, AUT and MET constructs, statistical significance was found to be less than 0.05, thus rejecting the null hypothesis (H_0) for all variables because they did not follow a normal distribution, except for the four described above.

Likewise, it happened with the sociodemographic variables and technical indicators of skydiving skill and experience, within which age, years as a skydiver, and years in the corps followed a normal distribution, accepting the H_0 , but not so with the variable number of jumps. Once the normal distribution had been analysed, the means analysis was performed for k independent samples, using the ANOVA test (two way) for the variables that had a normal distribution and the Kruskal Wallis test (two way) for those that did not.

For the analysis of the skill indicator and years of experience as a skydiver, the sample was divided according to the number of years as a skydiver, establishing three groups, depending on whether they had been skydivers for up to 10 years (group 1), between 10 and 20 (group 2), or more than 20 years (group 3), a distribution that meant dividing the total of the skydivers' professional career in equal parts, at the same time that it meant distributing the study participants in a balanced way into groups.

For the analysis of the indicator of skill and experience number of jumps, the sample was divided into four groups based on the number of jumps, establishing the bands to delimit the groups as follows: up to 500 jumps (group 1), between 501 and 1500 jumps (group 2), between 1501 and 4500 jumps (group 3) and more than 4500 jumps (group 4). These amounts were previously consulted by a panel of experts who agreed that they were symbolic amounts in the skydiver's career, fulfilling the criteria of being triple each of them for the previous one.

The data analysis has been carried out with the statistical package SPSS 28.0 from IBM.

RESULTS

Descriptive statistics

Table 1 shows the age with an average of 40.86 ± 7.350 years. It shows too the years as a parachutist with an average of 17.86 ± 8.899 years. In relation to LOT-R, the construct OPT was 9.24 ± 3.075 of 15 maximum possible points and PES was 3.069 ± 1.992 of 15 maximum possible points. About Resilience Scale, the construct PCT was 93.79 ± 8.441 of 112 maximum possible points while ACP was 50.17 ± 4.889 of 63 maximum possible points. Regarding well-being scale, the first construct (SA) was $20.90 \pm$

5.716 of 36 maximum possible points, the second (PRT) was 19.88 ± 4.865 of 36 maximum possible points, the third (AUT) was 26.50 ± 5.602 of 48 maximum possible points, the fourth (MET) was 21.33 ± 4.343 of 36 maximum possible points, the fifth (PLF) was 22.48 ± 7.629 of 36 maximum possible points and the sixth (PGW) was 24.64 ± 5.069 of 42 maximum possible points. Concerning to Burnout, the average of the construct EME was 19.09 ± 3.481 of 35 maximum possible points, the average of the construct DT was 14.36 ± 2.783 of 35 maximum possible points and the average of the construct LPA was 10.66 ± 2.498 of 25 maximum possible points.

Table 1. Descriptive statistics.

	N	Average	Standard dev
Age	42	40.86	7.350
Years as a parachutist	42	17.86	8.899
Number of jumps	42	2481.76	2622.851
OPT	42	9.24	3.075
PES	42	3.069	1.992
PCT	42	93.79	8.441
ACP	42	50.17	4.889
SA	42	20.90	5.716
PRT	42	19.88	4.865
AUT	42	26.50	5.602
MET	42	21.33	4.343
PLF	42	22.48	7.629
PGW	42	24.64	5.069
EME	42	19.09	3.481
DT	42	14.36	2.783
LPA	42	10.66	2.498

Table 2 shows the frequency and percentages of groups of gender where masculine skydivers predominate with 88.1% compared to the feminine athletes with 11.9%. On the other hand, in relation to the years as a parachutist, there is a balance between the groups, with the percentage of those who have more than 20 years of career equal to that of those who are between 10 and 20 years of career with

35.7%. The smallest of the three groups was the one with less than 10 years as jumper of racing with 28.6%. Finally, in terms of the number of jumps, the largest group was the one with less than 500 jumps, which with 40.5% doubled the one with between 501 and 1500 jumps (with 19.0%), which had between 1501 and 4500 jumps (with 21.4%) and more than 4500 jumps (with 19.0%).

Table 2. Table of frequencies and percentages.

		Frecuency	Valid %	Accumulated %
Gender				
Group	1	37	88.1	88.1
	2	5	11.9	100
	Total	42	100	
Group	1	26	61.9	61.9
	2	10	23.8	85.7
	3	6	14.3	100
	Total	42	100	
Years as a parachutist				
Group	1	12	28.6	28.6
	2	15	35.7	64.3
	3	15	35.7	100
	Total	42	100	
Number of jumps				
Group	1	17	40.5	40.5
	2	8	19.0	59.5
	3	9	21.4	81.0
	4	8	19.0	100
	Total	42	100	

Analysis of the skill indicator and years of experience as a skydiver

Regarding the psychological variables.

To this end, to determine whether a parametric test was appropriate or not for the psychological variables for which the null hypothesis was accepted in the distribution of normality, Levene's statistical test was carried out for the psychological variables, obtaining a $p > .05$ for PCT ($p = .812$), EME ($p = .085$) and AUT

($p=.526$), assuming that the error variance remained uniform, so that homoscedasticity was maintained for these three, but not so for the MET ($p=.012$).

Table 3 shows the relationship of significance according to the performance of the parametric test or not, depending on the case.

In addition, the ANOVA post hoc test yielded a value of

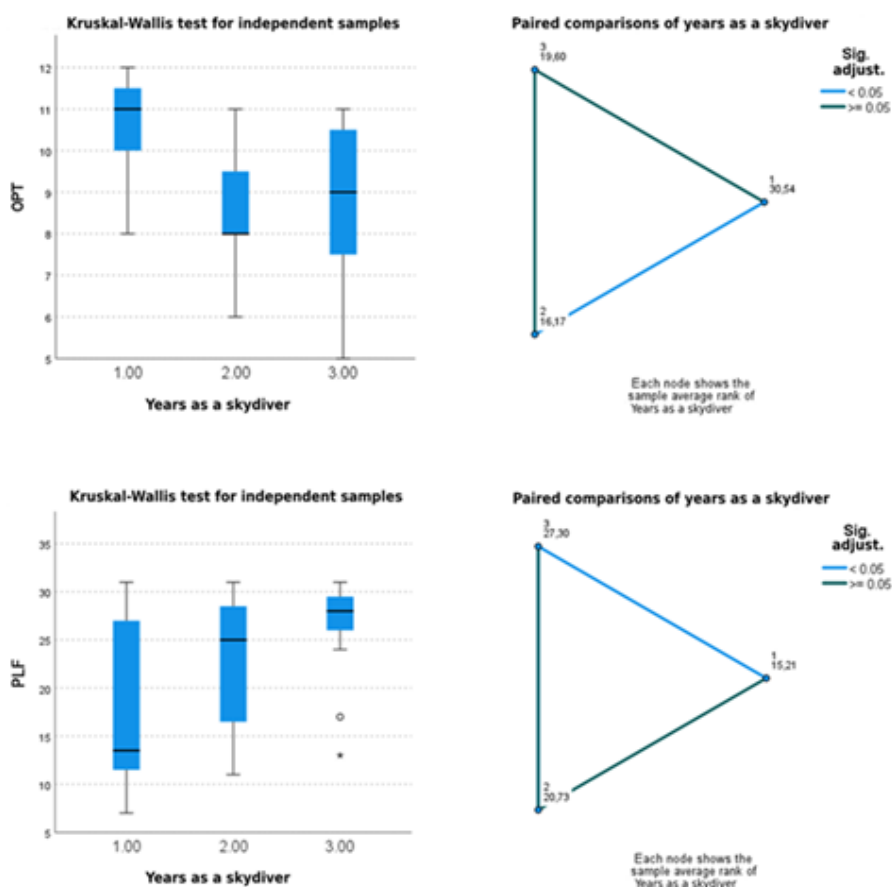
multiple comparisons between groups with a $p<.05$ between groups 1 and 3 for the EME variable in the parametric tests.

Likewise, in the non-parametric variables, as can be seen in figure 1, being significant between groups 1 and 2 with $p<.05$ ($p=.006$) for the OPT variable and between groups 1 and 3 with a $p<.05$ ($p=.32$) for the PLF variable.

Table 3
 Summary of hypothesis tests.

Null hypothesis	Parametric test	Sig.	Decision
1 Same EME distribution between categories	ANOVA	.041*	Reject Ho
2 Same AUT distribution between categories	ANOVA	.042*	Reject Ho
Null hypothesis	Nonparametric test	Sig.	Decision
3 Same OPT distribution between categories	Kruskal–Wallis	.007*	Reject Ho
4 Same PLF distribution between categories	Kruskal–Wallis	.037*	Reject Ho

Figure 1
 Comparison of OPT and PLF with years as a skydiver.



Regarding age and the rest of the technical indicators related to the level of skill.

In the same way as for the psychological variables, to determine whether the sociodemographic variables and the rest of the technical indicators related to skydiving skills responded to a normal distribution, a parametric test was appropriate or not, and the Levene statistical test was carried out. obtaining significance $p > .05$ for the variables age and years in

the body, with values of $p = .912$ and $p = .239$ respectively, assuming equality between variances that allowed the ANOVA test to be performed. Table 4 shows the relationship of the significance of the parametric tests carried out, obtained in the non-parametric Kruskal-Wallis for independent samples relative to the variable number of jumps, which had no levels of significance as $p > .05$ ($p = .137$), keeping it that way, null hypothesis for the latter case.

Table 4
 ANOVA test of sociodemographic variables and technical indicators.

		Sum of squares	gl	Root mean square	F	Sig.
Age	between groups	1383.943	2	691.971	32.467	<.001
	within groups	831.200	39	21.313		
Years in body	between groups	2101.400	2	1050.700	56.293	<.001
	within groups	727.933	39	18.665		
Total		2829.333	41			

In addition, the ANOVA Scheffe post hoc test yielded a value of multiple comparisons between groups with a $p < .01$ between groups based on experience years and years in the body.

Analysis of the indicator of skill and experience number of jumps

Regarding the psychological variables.

Levene's test of homogeneity of variances was carried out again for the psychological variables that showed normal distribution, the statistic yielding a

significance $p > .05$, suggesting that the parametric test was possible, although when performing the one-way ANOVA, only the AUT showed significant differences with $p < .05$ ($p = .31$) between groups, not being the case in the Scheffe post hoc test.

On the other hand, about the non-parametric tests carried out on those variables that did not follow a normal distribution, the analysis yielded three statistical significances with the variables SA, PRT, and PLF as established in table 5.

Table 5
 Summary of hypothesis tests.

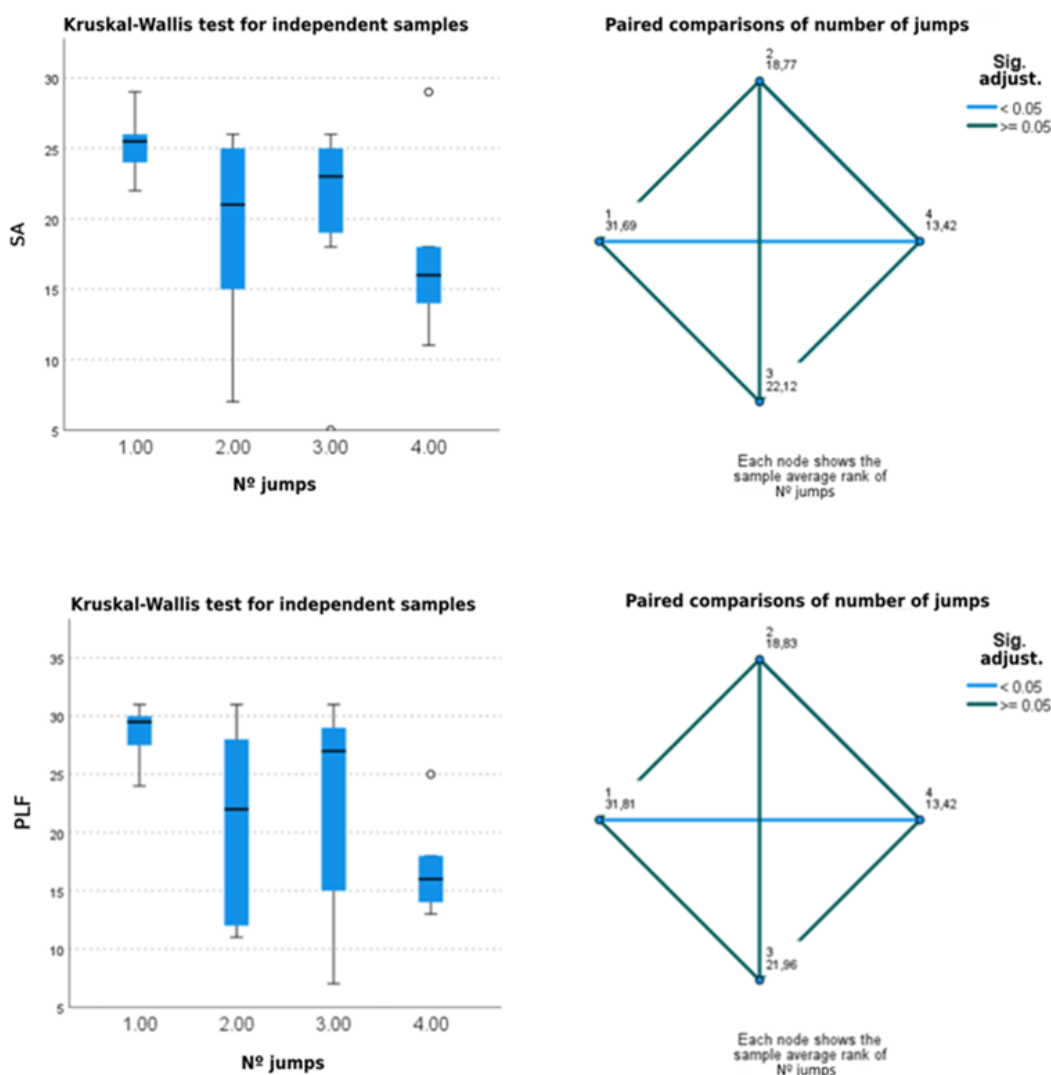
	Null hypothesis	Parametric test	Sig.	Decision
1	Same AUT distribution between categories	ANOVA	.031*	Reject Ho
	Null hypothesis	Nonparametric test	Sig.	Decision
2	Same SA distribution between categories	Kruskal–Wallis	.029*	Reject Ho
3	Same PRT distribution between categories	Kruskal–Wallis	.017*	Reject Ho
4	Same PLF distribution between categories	Kruskal–Wallis	.029*	Reject Ho

In addition, the paired comparison test for the non-parametric variables that rejected the null hypothesis showed a significant association between groups 1

and 4 for the SA variable with $p < .05$ ($p = .33$) and for the PLF variable with $p < .05$ ($p = .032$) as can be seen in figure 2.

Figure 2

Comparison of SA with years as a skydiver.



Regarding age and the rest of the technical indicators related to the level of skill.

The ANOVA statistical test was performed after verifying that the homogeneity of variances was met, the variables age, years as a parachutist, and years in

the body did not show values statistically significant because in all three cases $p > .05$.

Influence of the gender variable

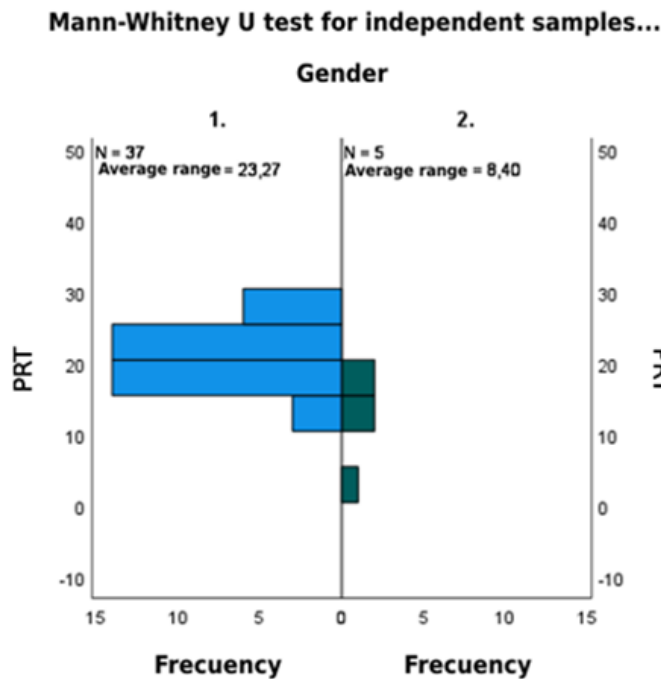
On the other hand, referring to the gender of the skydivers, about the variables that presented normal

distribution, it was found that there were no significant differences in the variables age, years in the corps, and years as a skydiver, thus accepting the null hypothesis. In the same way, it was obtained with the psychological variables PCT, EME, and MET after carrying out their corresponding parametric test, not being the case with the AUT variable with which a $p < .05$ ($p = .022$) was obtained, previously assuming the same variances after the realization of the corresponding Levene's test with a significance of $p = .798$.

Likewise, it happened with the results obtained by the psychological variables that, since they did not present a normal distribution, it required a non-parametric test, where there were no significant differences in all of them, except for the PRT variable in which the Mann-Whitney U test of independent samples gave a $p < .05$ ($p = .08$). As can be seen in figure 3, the average range for women is significantly lower than for men.

Figure 3

Mann-Whitney U test for independent samples for the RPT variable according to gender.



Psychological profile of the skydiver

In addition, from the bivariate correlation made between the psychological variables to know the profile of the skydivers, a significant Pearson correlation was obtained between EME and PCT with $p < .05$ ($p = .32$). In the same way, a significant Spearman's Rho correlation of OPT with ACP ($p = .09$) and with PES ($p = .04$) was obtained, being in the opposite direction for the latter; of LPA with DT ($p < .01$) and with PES ($p = .019$), also in the opposite

direction for the latter; of SA with PLF ($p < .01$), with PCT ($p < .01$) and with PRT ($p = .036$), being again inverse for the latter and of PLF with PCT ($p < .01$) and with PRT ($p = .014$), in the opposite direction for the latter.

DISCUSSION

From the analysis carried out regarding the psychological profile of the jumpers, it can be

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deduced that those with more emotional exhaustion tended to have less personal competence, those who were more optimistic tended to accept themselves and life more, and those with low personal fulfilment tend to depersonalization and pessimism; those with high self-perception had a high life purpose and personal competence but low positive relationships, coinciding with those who had a markedly low life purpose, who in turn also had low personal competence and low positive relationships, coinciding with what was established in previous works (Angosto et al., 2021; DeFreese & Smith, 2014).

But the present study aims not only to know the psychological profile of military parachutists in competition, but also the interrelation of certain sociodemographic variables and specific techniques, both with each other and with the psychological variables related to sports performance, to better understand how they can affect each other and how to work strategies could be established to improve the results obtained by the skydivers.

To this effect, it was found that those more veteran skydivers presented a greater degree of autonomy, although, on the other hand, within their state of burnout, they were more emotionally exhausted, the difference being especially significant between the degree of exhaustion presented by the skydivers who had less than 10 years of service as a parachutist compared to those who had more than 20, in the same way, that occurred in other investigations (Rodrigues et al., 2021).

In addition, it was found that experience as a skydiver generated a lower degree of optimism in the athlete, with this change being especially significant in the 10-year window as a skydiver, remaining stable after the age of 20, probably influenced, among other factors, by the emotional exhaustion they experience over the years (Reche et al., 2018). On the other hand, their purpose and meaning of life, within psychological well-being, increases with seniority, the difference being especially significant between the group that has less than 10 years as a parachutist for the one that has more than 20, perhaps as a consequence of the Degree of clarity acquired in the objectives and goals to be achieved throughout your career as a skydiver, as found in previous jobs (Silva Batista et al., 2017).

In the same way, the number of jumps skill indicators also influenced the degree of autonomy acquired by the jumper, as well as it did within psychological well-being in the constructs referring to positive relationships with others, degree of self-acceptance, and purpose. of life, being especially significant the difference between the groups of more than 4500 jumps for those of less than 500 jumps for these last two variables. Likewise, it occurred with the purpose of life, a dimension that was much lower in the skydivers of more than 4500 jumps compared to those of less than 500 jumps.

In this sense, it is advisable to reflect carefully on these results, insofar as, when the indicators of skydiving skill and experience increase, certain psychological variables can increase or decrease, and it is convenient to study each specific case to understand what can happen in particular in the emotional state of the parachutist. Likewise, it is appropriate to know the previous trajectory with a greater degree of precision since it is important to analyze how the findings described above could be influenced based on the sporting results acquired or objectives achieved by the parachutists throughout their professional career, a prism that has not been taken into account in this work. This is seen more clearly with the purpose of life variable, which increases with the experience acquired as years of skydiving but decreases with the skill acquired with the number of jumps, both indicators, which a priori, are synonymous with skill and skydiving experience. Hence, it is necessary to qualify, since it could be the case of a veteran parachutist in years as a jumper but who did not have many jumps on his record, or, on the contrary. This observation becomes even more meaningful when analysing the results of the statistics when relating the number of jumps to age, years as a parachutist and years in the corps, since, as it is not significant, it suggests that those who had more jumps did not necessarily have to be the ones who were older or had more years as a parachutist or in the corps, even if they had more experience and skill in terms of jumps. The statistics showed that those with the highest number of jumps did not necessarily have to be those with the highest age or years as a parachutist or in the corps, and that parachutists with great experience and skill acquired in terms of jumps could participate in the championship, even if they were at the beginning of their career as parachutists, as opposed to others who

were not, with the level of professional and sporting qualification playing an important role (Nagovitsyn et al., 2018).

However, it is also important to take into account the emotional burden that concentrating the number of jumps in a reduced number of years of his or her career entails for the parachutist, since, as has been shown, a long career with few jumps seems to indicate a healthier psychological state than the stress experienced when the number of jumps is greater and concentrated in a few years, coinciding with the results of other studies (Costello et al., 2022).

On the other hand, as far as the socio-economic gender factor is concerned, it is necessary to reflect on the extent to which the fact that parachuting is a mainly male sporting discipline may have an influence, especially in the military sphere, where men outnumber women, in view of the significance shown in the results by the variables autonomy and positive relationships. Both of these variables, which are indicators of the psychological well-being of the jumper, may be strongly influenced by the social burden of the evident differences between male and female presence (Gaucher, 2011).

At this point, understood as a limitation that may bias the results obtained and that could be interesting to take into account in future work, it is necessary to consider the importance of clearly differentiating two aspects in the indicators of skydiving skill and experience, since when talking about both years as a skydiver and the number of jumps, it is not differentiated whether these have been in sport, teaching or tactical skydiving, in view of the fact that it is not the same whether the competitor has developed his career as a parachutist in the Sappers unit, in the Military Parachuting School or in the Acrobatic Parachuting Patrol, in the same way as occurs between armies or in comparison with the Guardia Civil, whose aims and objectives for parachutist activity, among many other issues, are different, as are their periods of parachutist retraining. Therefore, future lines of research are proposed that address these differentiating aspects and take into account more specific issues of the parachutist's career that may affect their psychological profile, in the same way that strategies can be developed to address intervention programmes to improve the sporting performance of parachutists.

CONCLUSIONS

Within military parachuting, it is important to take into account both descriptive and correlational data for a reflection on how each jumper faces the demands of everyday life, and how the psychological state in a particular aspect can influence (positively or negatively) other aspects to which less attention is paid, without thinking about what may have been the meaning of the influence, in order to make decisions about changes in perspective when facing goals.

How they are approached (whether personal or imposed by the work itself) will make these goals feel like challenges or threats. This is a major difference for health and therefore, one would think, also for performance.

The descriptive data found in this study show a profile of people prepared to face the competitive situations on which they carried out the data collection. Although there are differences in competition experience, these profiles may indicate a population that is mentally prepared for these challenges. However, it should be noted that this is a specific sample in a very concrete situation, with professional trajectories, as well as defined objectives and results obtained throughout their careers, which differ greatly from one competitor to another, and this must be taken into account in order to understand how performance in competition may be affected. Beyond this limitation, the data provide interesting aspects for the individual or collective analysis of variables and strategies to work with military parachutists to improve performance in competition.

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Author's contributions

FOM served as the principal investigator of the investigation. FBB, VM, and PVM contributed to the design. FOM recruited participants and collected data for the study. VM and PVM analyzed the data. FBB wrote the first draft and all authors contributed to manuscript revision, read, and approved the submitted version.

Ethics approval statement and consent to participate

Ethics approval was obtained from the Research Ethics Committee of the University of Murcia (ID: 4152/2022). All procedures performed in studies with human participants were performed by the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki.

This proposal, in addition, was reviewed for approval, including the battery of questionnaires that were used, both by the Colonel in Chief of the Alcantarilla Air Base and by the different Heads of the units and teams that were going to participate in the Championship, as by the Head of the Central Board of Physical Education of the Air Force.

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Data availability

Dataset can be made available upon request.

Disclosure statement

The authors declare that there is no conflict of interest.

Research development

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