Resilience in the face of the COVID-19 Pandemic in Portuguese Adult Athletes

Resiliencia frente a la Pandemia de COVID-19 en los/as Deportistas Adultos/as Portugueses/as

Resiliência face à Pandemia COVID-19 em Atletas Adultos/as Portugueses/as

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ABSTRACT

COVID-19 triggered the most significant global state of emergency since World War II, establishing a long-lasting and challenging transition period in anyone's life. In the case of athletes, some specific challenges arise, particularly those associated with the restrictions in training and competitions imposed by sanitary measures. This exploratory and cross-sectional study aims to understand athletes' resilience in the face of COVID-19. The data was collected between December 2020 and March 2021 from 1016 participants with a mean age of 30 years ($SD = 12.5$), ranging from 18 to 83 years, and an average of 14 years of federated practice ($SD = 9.55$). Resilience was measured through a tripartite assessment of its domains: adversity factors (personal experience with the virus, effects on sports practice, and fear of COVID-19), protection mechanisms (satisfaction with social support and coping strategies), and adjustment (life satisfaction, positive and negative affect, and subjective impact of the pandemic). The results suggest that the drop in training characteristics, time without training and lockdown, fear of COVID-19, and behavioral disengagement are negative predictors of positive adjustment. On the other hand, active coping and satisfaction with social support were positively associated with athletes' adaptation. Furthermore, it was found that being female is an additional adversity factor and that external circumstances, such as the severity of the pandemic, seem to interfere with the participants' adjustment. In conclusion, results suggest that sports institutions should prioritize athletes' mental health and promote their sports practice as much as possible.

Keywords: protection mechanisms, sports, mental health, coping, social support.

RESUMEN

La COVID-19 desencadenó el mayor estado de emergencia mundial desde la Segunda Guerra Mundial, estableciendo un período de transición duradero y desafiante en la vida de cualquiera. En el caso de los/as deportistas, surgen algunos retos específicos, especialmente los asociados a las restricciones en los entrenamientos y las competiciones, impuestas por las medidas sanitarias. El objetivo principal de este estudio exploratorio y

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transversal es comprender la resiliencia de los/as atletas frente a la COVID-19. Los datos se recogieron entre diciembre de 2020 y marzo de 2021 de 1,016 participantes con una edad media de 30 años (± 12.5), con un rango de 18 a 83 años, y con una media de 14 años de práctica federada (± 9.55). La resiliencia se midió a través de una evaluación tripartita de sus dominios: factores de adversidad (experiencia personal con el virus, efectos en la práctica deportiva y miedo al COVID-19), mecanismos de protección (satisfacción con el apoyo social y estrategias de afrontamiento) y ajuste (satisfacción vital, afecto positivo y negativo e impacto subjetivo de la pandemia). Los resultados sugieren que el descenso de las características del entreno, el tiempo sin entrenar y en confinamiento, el miedo al COVID-19 y la desvinculación conductual son predictores negativos del ajuste positivo. Por otro lado, el afrontamiento activo y la satisfacción con el apoyo social se asociaron positivamente con la adaptación de los/as deportistas. Además, se encontró que ser mujer es un factor de adversidad adicional y que las circunstancias externas, como la gravedad de la pandemia, parecen interferir en la adaptación de los/as participantes. En conclusión, los resultados sugieren que las instituciones deportivas deberían priorizar la salud mental de los/as atletas y promover su práctica deportiva en la medida de lo posible.

Palabras clave: mecanismos de protección, deporte, salud mental, afrontamiento, apoyo social.

RESUMO

A COVID-19 desencadeou o maior estado de emergência global desde a Segunda Guerra Mundial, estabelecendo um período de transição duradouro e desafiante na vida de qualquer pessoa. No caso dos atletas federados, surgiram alguns desafios específicos, particularmente associados às restrições nos treinos e competições impostas por medidas sanitárias. O principal objetivo deste estudo exploratório de natureza trasnversal é compreender a resiliência dos/as atletas federados/as face à COVID-19. Os dados foram recolhidos entre dezembro de 2020 e março de 2021 junto de 1016 participantes com uma idade média de 30 anos (*DP* = 12.5), variando de 18 a 83 anos, e com uma média de 14 anos de prática federada (*DP* = 9.55). A resiliência foi medida através de uma avaliação tripartida dos seus domínios: fatores de risco (experiência pessoal com o vírus, efeitos na prática desportiva, e medo da COVID-19), mecanismos de proteção (satisfação com o apoio social e estratégias de coping), e ajustamento (satisfação com a vida, afeto positivo e negativo, e impacto subjetivo da pandemia). Os resultados sugerem que a queda nas características do treino, o tempo sem treino e em confinamento, o medo da COVID-19 e o desinvestimento comportamental são preditores negativos de ajustamento positivo. Por outro lado, o coping ativo e a satisfação com o apoio social foram positivamente associados à adaptação dos/as atletas. Além disso, verificou-se que ser mulher é um fator de risco adicional e que circunstâncias externas, tais como a gravidade da pandemia, parecem interferir com o ajustamento dos/as participantes. Em conclusão, os resultados sugerem que as instituições desportivas devem dar prioridade à saúde mental dos/as atletas e promover a sua prática desportiva tanto quanto possível.

Palavras chave: mecanismos de proteção; desporto; saúde mental; coping; apoio social.

INTRODUCTION

COVID-19, as a worldwide and unprecedented pandemic, had clear consequences on everyone's life, and athletes were not exempt. In Portugal, the first pandemic wave began on March 19, 2020, and lasted approximately three months (Decree of the President of the Republic No. 14-A/2020). During this period, general lockdown and social distancing measures were adopted, as well as suspending all sporting activities. At the beginning of May, high-performance athletes returned to training and, in some sports, to competitions. In June, the possibility of practicing individual sports without physical contact was restored, which was extended to high-risk sports in August, requiring compliance with safety guidelines. A second wave emerged from October to the beginning of December, and the sports practice was suspended in some regions (Coutinho, 2021). The third wave occurred in January, placing the country first in the rate of new cases and deaths per million inhabitants in the second and third weeks of 2021 (European Centre for Disease Prevention and Control [ECDC], 2021). The general lockdown was again decreed from January 15 to March 15, and sporting activities were suspended, except for high-performance athletes (Council of Ministers

Resolution 19/2021). After which the restrictive measures were slowly and gradually lifted.

From social isolation, abrupt interruption of training and competitions, unconventional and limited access to training environments and materials, to suspension of career goals, COVID-19 can be considered an adversity factor with several implications in the life and career of athletes (Pillay et al., 2020). An overall negative impact of the pandemic on athletes' lives and mental health has been found in previous studies (Fiorilli et al., 202; Pons et al., 2020). Mehrsafar and colleagues (2021) reported increased demand for online psychological counseling and diagnosis of psychological disorders among athletes. FIFPro (2020) reported that the number of football players indicating symptoms of depression doubled with COVID-19. Anxiety symptomatology has also intensified, particularly related to concerns about longevity and the implications of the pandemic (Ames, 2020).

In Portugal, a study conducted at the beginning of the pandemic concluded that around 40% of Portuguese adults reported a drop in the quality and quantity of sleep and that about 30% ate more (Antunes et al., 2020). This deterioration in eating and sleeping habits is consistent with those found in a study with athletes (Pillay et al., 2020). These changes can negatively affect their physical condition and competitive performance in the short and long term (Jukic et al., 2020; Pla et al., 2021). Additionally, a study with Portuguese athletes indicated that return to sport was associated with safety concerns related to the fear of COVID-19 (Matos et al., 2021).

To explore the factors that have facilitated/hindered the psychological adjustment of athletes during the COVID-19 pandemic, we decided to adopt the theoretical approach of resilience. It allows us to respond to the gaps in the literature and has been widely used in the face of other obstacles to explore the variables that contribute to the positive adjustment of athletes (Bicalho et al., 2020). A major challenge in studying resilience is the vast discrepancies in how it is defined and conceptualized. Its definition depends mainly on the epistemological model and the context in which it is investigated (Terrisse, 2000). Even so, there is a consensus that this construct is essentially defined as a trait or process (Fletcher & Sarkar, 2013; Richardson, 2002).

In the present study, we opted for this second conceptualization of resilience and privileged the definitions elaborated in the sports context.

Therefore, the definition of resilience emerges as a dynamic process that encompasses positive adjustment despite risk or adversity, thanks to the influence of internal and external protective mechanisms (e.g., Bryan et al., 2019; Masten, 2018). Based on the propositions of Luthar and Zelazo (2003), that resilience itself is never directly measured, and of Sarkar and Fletcher (2013), who advocate that research in the sports context should measure each of its components separately, when studying this construct, we need to look at three dimensions - adversity, adjustment, and protection mechanisms. In sports, adjustment can be defined as competently reacting to significant stressors and restoring an internal sense of psychological balance (Schinke et al., 2012). Adversity refers to physical or psychological stressors with the potential to interfere with normal functioning (Wang et al., 1994). It is essential to clarify that adaptation does not presuppose the non-existence of imbalance since this is inevitable in the face of marked adversity (Luthar, 1991).

The internal or external resources that modify or reduce the adverse effects of a stressor are considered protective mechanisms (Rutter, 1990). Social support and coping strategies have been previously identified as facilitators of the resilience process in the sports context, considering COVID-19 and past epidemics (e.g., Aguinaga et al., 2021; Bonanno et al., 2011; Bryan et al., 2019; Serafini et al., 2020). Several studies conducted during the pandemic identified the lack of social support, or social isolation, as a significant risk factor for developing anxious and depressive symptomatology (e.g., Hagiwara et al., 2021; Li et al., 2021). Athletes who reported higher scores of social support and connection with teammates manifested better indicators of mental health and well-being (Graupensperger et al., 2020). Regarding coping strategies, research in the COVID-19 context reveals that problem-solving and cognitive restructuring are commonly seen as effective, while avoidance seems ineffective in response to pandemic-related stress (Rahman et al., 2020; Zacher & Rudolph, 2021). However, there has yet to be a

consensus, depending on the indicator of positive adjustment.

Present study

As a non-normative psychosocial circumstance, COVID-19 provides the rationale for an examination of the resilience process of athletes. Since previous studies have reported a compromise in athletes' psychological adjustment during the COVID-19 pandemic, exploring the factors that have facilitated/hindered it is essential. Conducting research with athletes is especially relevant in Portugal since sports have taken on a significant role in society, with nearly 9% of Portuguese being federated athletes and the government public spending in this sector being lower and less efficient than in most European countries, and unbalanced in the structure of provision (Eurostat, 2020). So far, this is the first study to employ this approach to understand the resilience process of athletes during COVID-19, which allows for covering the adversity factors and protective mechanisms that previous research found relevant and investigating their relationship with athletes' adjustment. Therefore, to better understand the resilience process in Portuguese athletes in the face of COVID-19, the following specific objectives were formulated: to explore the predictive value of sociodemographic variables (gender, moment of response, and sport category), adversity factors (changes in training characteristics, time without training and lockdown and fear of COVID-19) and protective mechanisms (coping strategies and satisfaction with social support) in adjustment (life satisfaction, positive affect, negative affect and subjective impact of the pandemic on the sport).

MATERIAL AND METHODS

Research Design

To classify the research design, we used the system proposed by Ato and colleagues (2013) for research in the field of psychology. By following a cross-sectional and descriptive study with a quantitative approach, we aim to inform our exploration of how sociodemographic variables, adversity factors, and protective mechanisms predict adjustment outcomes in Portuguese athletes in the context of the COVID-19 pandemic.

Participants

An *a priori* power analysis was conducted using G*Power3 (Faul et al., 2007), with a medium effect size ($f^2 = .15$) and an alpha of .05. Results showed that a total sample of 139 participants was required to achieve a power of .80. A non-probabilistic convenience sample was used to obtain the data.

The sample consisted of 1016 Portuguese athletes over 18 years old and federated for at least two years. The participants were divided into two groups according to the response moment - before the second lockdown (G1) and during the second lockdown (G2). The first group corresponded to the 602 participants who responded before January 15, 2021 (the beginning of the second lockdown in Portugal), and the second to the 414 athletes who participated after this date. The groups differed statistically only in some sociodemographic variables, marital status [$\chi^2(2, 1016) = 35.4$, $p < .001$, $V = .19$], occupation [$\chi^2(5, 1016) = 23.8$, $p < .001$, $V = .15$], sport [$\chi^2(12, 1016) = 138$, $p < .001$, $V = .37$], and age [$t(725) = -8.35$, $p < .001$, $d = -.54$, IC (-.69, -.43)]. Those differences did not prove relevant in preliminary statistical analyses. Accordingly, it was decided to analyze the entire sample and include the response moment as a variable in the first block of the hierarchical linear regression models.

Athletes had an average age of 30 years ($M = 29.7$; $SD = 12.5$), ranging between 18 and 83 years, and were primarily male (55.4%). The participants averaged 14 years of federated practice ($M = 14.2$; $SD = 9.55$). The sample comprised athletes from more than 40 different sports, with a more significant representation in athletics (16.8%), volleyball (7.8%), handball (7.4%), swimming (7.3%), soccer (7.3%), and basketball (6.6%). About 18% are elite athletes, according to the criteria for participating in the national team of their sports (Swann et al., 2015).

Instruments

Fear of COVID-19 was assessed using the Fear of COVID-19 Scale – 7 items (e.g., "*I am most afraid of Corona*") (FCV-19S, Ahorsu et al., 2020; adapted by Magano et al., 2021). Responses were given on a five-point Likert-type scale (1 = *Strongly disagree*; 5 = *Strongly agree*). In the present study, it exhibited an excellent internal consistency of .85.

The *Brief-COPE* (Carver, 1997; adapted by Pais-Ribeiro & Rodrigues, 2004) was used to assess the coping mechanisms in the face of COVID-19. Responses were given on a four-point Likert-type scale (0 = *I have not been doing this at all*; 3 = I have *been doing this a lot*). The nine-component factor structure proposed by Carver (1997) was used. However, the dimensions of *Denial* and *Self-blame* were eliminated due to low internal consistency. Overall, for the other seven components, good and satisfactory internal consistency indices were observed (ranging from .63 to .84).

The affective experience was assessed using the *Positive and Negative Affect Scale* (Watson et al., 1988; adapted by Costa Galinha et al., 2014). The scale comprises two dimensions, positive (e.g., *excited*) and negative (e.g., *afraid*), each assessed by 5-items. Responses were given on a four-point Likert-type scale (1 = *Very slightly or not at all*; 5 = *Extremely*), and participants were asked to evaluate the extent to which they have experienced each emotion in the past year. In the current study, both dimensions presented good internal consistency indices: positive affect α = .81 and negative affect α = .83.

The *Satisfaction with Life Scale* – 5 items (e.g., "*I am satisfied with my life*") (Diener et al., 1985; adapted by Neto et al., 1990) was used to assess one's life experience. Responses are given on a five-point Likert-type scale (1 = *Strongly disagree*; 5 = *Strongly agree*). In the present study, the scale displayed a good internal consistency of .81.

Some instruments were specifically developed for this study. To assess the adversity associated with the pandemic, we included some questions already used by other authors (e.g., Mon-López et al., 2020) regarding personal experiences with COVID-19 (e.g., *time in lockdown*). Questions about the type, intensity, frequency, and duration of physical activity in distinctive moments (*before the pandemic and during the lockdown*) were also included to understand the consequences of COVID-19 in sports practice. Furthermore, questions about the subjective impact of the pandemic on different aspects of athletes' lives (e.g., *sports performance, mental health*) were also evaluated. Responses were given on a five-point Likert-type scale (1 = *Very negative*; 5 = *Very positive*). An exploratory factor analysis (EFA) was run. Two factors were extracted: (a) not

sport-related (α = .89) and (b) sport-related (α = .88). Finally, to assess the satisfaction of social support during the pandemic, eight sources of support (e.g., *family, coach*) were included. Responses were given on a five-point Likert-type scale (1 = *Very unsatisfied*; 5 = *Very satisfied*). This instrument also showed a good internal consistency (α =.84).

Procedure

First, a pre-test was conducted with 10 participants from the study population. Data were collected through an online questionnaire between December 2020 and March 2021 with the collaboration of numerous national sports institutions (federations, district associations, and clubs). All the participants voluntarily agreed to participate in the study under the guarantee of anonymity of their responses. They were instructed on the purpose and procedures of the study before giving their consent. This study was conducted following the ethical guidelines of the Declaration of Helsinki (World Medical Association, 2013), the Norms of Ethics in Research in the Sciences of Sports and Exercise (Harriss et al., 2019), and the approval from the Ethics Council for Research at the host institution (FPCEUP; reference number: 2020/04-4a).

Data Analysis

Descriptive statistics of the sociodemographic variables were analyzed to characterize the participants. Pearson's Chi-square test and t-tests for independent samples were used to explore differences between G1 and G2. Hierarchical linear regression models were performed for each adjustment variable (life satisfaction, positive affect, negative affect, and subjective impact of the pandemic on sport) to answer the research aim. The literature review and Pearson correlations analysis, t-tests for independent samples, and Mann-Whitney tests drove the choice of variables to be analyzed. The first block of models includes sociodemographic and variables related to the data collection moment, gender (0 = female; 1 = male), moment of response (0 = before lockdown; 1 = during the second lockdown), and athletes' category (0 = non-elite; 1 = elite); the second block includes variables corresponding to adversity factors, time in lockdown, time without training, change in training characteristics (during lockdown compared to before the pandemic) and fear of COVID-19; and the third

block includes variables related to protection mechanisms (coping strategies and satisfaction with social support). Before performing all statistical tests, the assumptions were checked, and the significance level adopted for all analyses was 5% ($p \leq .05$). The Statistical Package for the Social Sciences (SPSS), version 27, was used.

RESULTS

Preliminary Analysis

Comparative and correlational analyses were conducted to confirm and explore which variables to include in the hierarchical regression analysis. T-tests for independent samples and Mann-Whitney tests were performed for sociodemographic characteristics. Gender, moment of response, and sport category were the only variables that showed significant group differences in at least one adjustment variable (see Tables 1 to 3). Pearson correlation analyses were

conducted to confirm the suitability of the variables as adversity factors (second block), and protective mechanisms (third block), and all variables were significantly correlated with at least one adjustment variable.

Hierarchical Linear Regression Model: Satisfaction with Life

Significant predictors of life satisfaction were moment of response, athletes who responded before lockdown had higher levels of life satisfaction; satisfaction with social support and active coping were positive predictors; and finally, distraction and behavioral disengagement were negative predictors. Amongst these variables, the strongest predictors of life satisfaction were behavioral disengagement and satisfaction with social support, respectively [F $(15,857) = 13.6$, $p <.001$, $r^2 = .19$].

Table 1

T-test for independent samples with the grouping variable gender and the dependent variables satisfaction with life, positive affect, negative affect, and impact on the sport.

	Female		Male		t	p	Cohen's d
	M	*DP*	*M*	*DP*			
SWLS	16.9	3.78	16.7	3.52	.54	.59	.034
PANAS_AP	14.3	3.69	14.4	3.70	-.22	.83	-.014
PANAS_AN	10.7	3.91	8.68	3.12	9.15	<.001	.59
Sport Impact	12.4	4.43	12.1	4.21	1.06	.23	.069

Table 2

T-test for independent samples with the grouping variable moment of response and the dependent variables satisfaction with life, positive affect, negative affect, and impact on the sport

	G1		G2		t	p	Cohen's d
	M	*DP*	*M*	*DP*			
SWLS	17.2	3.57	16.3	3.67	3.90	<.001	.25
PANAS_AP	14.4	3.70	14.2	3.68	.88	.38	.056
PANAS_AN	9.48	3.47	9.77	3.87	-1.22	.22	-.080
Sport Impact	12.5	4.43	11.7	4.09	2.9	.004	.19

Table 3

Mann-Whitney test with the grouping variable category and the dependent variables satisfaction with life, positive affect, negative affect, and impact on the sport

	Non-elite	Elite	t	p	Cohen's d
	Mdn	*Mdn*			
SWLS	17	18	68671	.078	-.055
PANAS_AP	14	15	65218	.006	-.086
PANAS_AN	9	9	72159	.44	-.024
Sport Impact	11	12	59191	.011	-.082

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Table 4

Model 3 of a hierarchical linear regression model with life satisfaction, positive affect, negative affect, and subjective impact of the pandemic on sports as outcomes and sociodemographic, adversity factors, and protective mechanisms variables as predictors

	Life satisfaction				Positive affect				Negative affect				SIPS			
	β	TO	VIF	CI 95%	β	TO	VIF	CI 95%	β	TO	VIF	95%	β	TO	VIF	95%
Category (elite)	.033	.96	1.05	[-.27; .89]	.052	.96	1.05	[-.062; 1.05]	.020	.96	1.05	[-.30; .66]	.062	.95	1.05	[-.017; 1.36]
Gender (men)	-.044	.86	1.17	[-.81; .16]	.019	.86	1.17	[-.32; .60]	-.13***	.86	1.17	[-1.34; -.54]	-.035	.87	1.16	[-.87; .27]
Moment (2nd lock.)	-.086**	.95	1.06	[-1.11; -.18]	-.007	.95	1.06	[-.50; .39]	-.034	.95	1.06	[-.64; .14]	-.12***	.94	1.06	[-1.57; -.45]
Training charact.	-.017	.89	1.13	[-.12; .07]	-.13***	.89	1.13	[-29; .10]	.050	.89	1.13	[-.005; .15]	-.27***	.89	1.13	[-.58; -.10]
Time in lockdown	.027	.92	1.08	[-.13; .32]	.007	.92	1.08	[-.19; .24]	.080**	.92	1.08	[.095; .46]	.028	.91	1.10	[-.15; .38]
Time without training	-.040	.88	1.14	[-.44; .10]	-.11***	.88	1.14	[-.71; -.19]	.057*	.88	1.14	[.011; .46]	-.11***	.88	1.14	[-.88; -.23]
FCV-19S	-.055	.84	1.20	[-.087; .008]	-.048	.84	1.20	[-.080; .011]	.38***	.84	1.20	[.23; .31]	-.036	.84	1.19	[-.087; .027]
Support satisfaction	.20***	.92	1.09	[.16; .31]	.21***	.92	1.09	[.18; .32]	-.018	.92	1.09	[-.081; .040]	.097**	.92	1.09	[.043; .22]
Active coping	.091*	.52	1.91	[.046; 1.03]	.15***	.52	1.91	[.39; 1.34]	-.021	.52	1.91	[-.53; .29]	.004	.52	1.91	[-.56; .62]
Support seeking	.010	.59	1.70	[-.37; .47]	.077	.59	1.70	[.059; .82]	.15***	.59	1.70	[.47; 1.15]	.001	.58	1.73	[-.50; .51]
Self-distraction	-.13**	.55	1.82	[-1.23; -.302]	-.075	.55	1.82	[-.878; .014]	.16***	.55	1.82	[.50; 1.27]	-.058	.55	1.82	[-.94; .17]
B. disengagement	-.22***	.85	1.18	[-1.97; -1.08]	-.19***	.85	1.18	[-1.72; -.87]	.15***	.85	1.18	[.63; 1.37]	-.14***	.85	1.18	[-1.63; -.58]
Humor	.064	.79	1.27	[-.018; .55]	.088**	.79	1.27	[.096; .64]	-.066*	.79	1.27	[-.51; -.036]	.011	.79	1.27	[-.29; .39]
Religion	.049	.88	1.13	[-.079; .60]	.089**	.88	1.13	[.14; .79]	.083**	.88	1.13	[.15; .71]	.057	.90	1.12	[-.050; .75]
Acceptance	-.001	.74	1.36	[-.30; .28]	.005	.74	1.36	[-.26; .30]	-.024	.74	1.36	[-.34; .14]	-.037	.73	1.37	[-.52; .17]
F		$(15,857) = 13.6^{***}$				$(15,857) = 19.9^{***}$				$(15,857) = 43.1^{***}$				$(15,857) = 12.8^{***}$		
R_a^2		.18				.25				.42				.18		
$R^2 / \Delta R_a^2$		.19/.16***				.26/.18***				.43/.11***				.19/.045***		

Note: * p < .05, ** p < .01, *** p < .001, β = standardized regression coefficients, TO = Tolerance, VIF = Variance Inflation Factor, CI = confidence intervals, R_a^2 = Adjusted R square, R^2 = R square, ΔR_a^2 = Change in the adjusted R square, SIPS = SIPS = Subjective impact of the pandemic on sports.

Hierarchical Linear Regression Model: Positive Affect

Regarding positive affect, the following variables are probed to be significant predictors: satisfaction with social support, active coping, humor, and religion are positive predictors; and finally, change in training characteristics, time without training, and behavioral disengagement are negative predictors. Satisfaction with social support and behavioral disengagement proved to be the strongest predictors of positive affect [$F(15,857) = 19.9$, $p < .001$, $r^2 = .26$].

Hierarchical Linear Regression Model: Negative Affect

Regarding negative affect, the significant predictors identified were: gender, women showing higher levels of negative affect, time in lockdown, fear of COVID-19, support seeking, distraction, behavioral disengagement, and religion are positive predictors; and finally, humor is a negative predictor of negative affect. Amongst these variables, the strongest predictor of negative affect is fear of COVID-19 [$F(15,857) = 43.1$, $p < .001$, $r^2 = .43$].

Hierarchical Linear Regression Model: Subjective Impact of COVID-19 on Sport Performance

Finally, for the dependent variable of the subjective impact of COVID-19 on sports, the following were the significant predictors identified: moment of response, respondents during the second lockdown perceived the impact of the pandemic on sports more negatively; satisfaction with social support is a positive predictor; and change in training characteristics, time without training, and behavioral disengagement are negative predictors of this DV. The change in training characteristics is the strongest predictor of the subjective impact of COVID-19 on sports [$F(15,857) = 12.8$, $p < .001$, $r^2 = .18$].

DISCUSSION

Following a resilience theoretical approach, the main aim of this study was to explore the predictive value of sociodemographic variables (gender, moment of response, and sport category), adversity factors (changes in training characteristics, time without training and lockdown, and fear of COVID-19) and protective mechanisms (coping strategies and

satisfaction with social support) in adjustment (life satisfaction, positive affect, negative affect and subjective impact of the pandemic on the sport). The results showed that some variables seem to hinder the favorable adjustment of athletes to COVID-19, such as the reduction in training characteristics, time without training and lockdown, fear of COVID-19, and the use of behavioral disengagement strategies. Likewise, in the long run, self-distraction seems to enhance maladjustment. External circumstances, such as the severity of the pandemic moment, seem to interfere with the participants' adjustment. Furthermore, being a woman is an additional risk factor. However, some variables seem to improve the psychological adjustment of athletes during COVID-19, such as active coping and satisfaction with social support. The following subsections will explore in more detail those variables that emerged as obstacles and strengths.

Understanding the Hurdles: Negative Predictors of Psychological Adjustment

Regarding training characteristics, our results suggest that, during the lockdown, regular and structured physical activity can help improve the quality of life of athletes. Similarly, Pons and colleagues (2021) found that young athletes who did not train during lockdown reported a more negative impact of COVID-19 on their lives than those who continued to train with no or slight changes. In Olympic athletes, it was found that those who reported more changes in training routines rated more negatively the subjective impact of COVID-19 on future sports performance (Clemente-Suárez et al., 2020). Duclos-Bastías and colleagues (2021) also concluded that maintaining a frequency, intensity, and duration of training-type physical activity protected emotional well-being.

We know that changes in training characteristics are associated with time without training and lockdown, so it would be expected that this would also be an obstacle to the athletes' adjustment. Previous studies during the pandemic have also revealed that more extended periods of lockdown are associated with increased anger, frustration, boredom, and stress (e.g., Brooks et al., 2020). We also found that the participants who responded before the second lockdown reported more life satisfaction and rated the impact of COVID-19 less negatively than those who took part in the survey under lockdown

conditions. In a longitudinal study with university students, Lathabhavan (2021) found a decrease in indicators of positive adjustment as the number of deaths and infections worsened. Since the second lockdown occurred due to the emergence of a third wave, aggravating circumstances may have decreased the athletes' psychological well-being.

Concerning the fear of COVID-19, we found an association with a higher experience of negative affects. Likewise, in past research, participants who worried more about contracting the virus or having a loved one become infected showed higher stress levels (Wang et al., 2020). On the other hand, fear of COVID-19 has also been negatively associated with well-being (Rahman et al., 2020), although, in the present study, this association was not found. This suggests that fear is a normative experience during an uncertain challenge such as a pandemic that does not hinder the resilience process.

Regarding coping mechanisms, we found that using behavioral disengagement strategies hinders the favorable adjustment of athletes to COVID-19. Likewise, in the long run, self-distraction seems to enhance maladjustment. Behavioral disengagement has been previously associated with increased anxiety and depressive symptoms and decreased well-being indicators (e.g., Pété et al., 2021). Thus, it seems consensual and cross-sectional to all contexts that this is an ineffective coping strategy in the face of COVID-19. Concerning distraction, a study with athletes during the pandemic indicated contradictory results, as moderate levels of self-distraction were associated with lower perceived stress and anxiety (Pété et al., 2021). The inconsistency between the results may be due to the timing of data collection since, in the study by Pété and colleagues (2021), participants completed the questionnaire at the beginning of the pandemic. Despite the need for a cautious interpretation of these results, since the internal consistency of this domain was low, it can be hypothesized that, in the long term, distraction seems to enhance psychological distress.

This study found that being a woman is an additional risk factor. Similarly, several studies during the pandemic have indicated a prevalence of emotional tension, stress, anxiety, and fear of COVID-19 in women (Di Fronso, 2020; Gurvich et al., 2020). Several reasons can be conjectured for these results:

(i) women mostly take on caregiving roles in both formal and informal sectors (Langer et al., 2015); (ii) women's invisible and unpaid work has increased (Power, 2020), and (iii) mothers reduced their work hours four to five times more than fathers during the pandemic (Collins et al., 2020). Regarding the sports context, the impact of COVID-19 was likely harsh for women due to gender inequalities, with "even more precarious contracts and training conditions" and the possibility of "the extinction of women's clubs and competitions" (UN Women, 2020, p. 3). In conclusion, it is possible to speculate that these results are due to the exacerbated exposure of the female gender to various stressors, both inside and outside the sporting context.

Rising Above the Challenges: Positive Predictors of Psychological Adjustment

The results showed that active coping (which includes positive reinterpretation and planning) and satisfaction with social support improve psychological adjustment. The literature in the pandemic context suggests that positive thinking and active coping are positive predictors of psychological well-being and negative predictors of perceived stress, depression, and anxiety (Szczypińska et al., 2021; Zacher & Rudolph, 2021). The absence of a significant association with negative affectivity may be due to the nature of the sample, as no other study with athletes suggests contradictory results to those found. Thus, it is possible to conjecture that, in the sports context, these coping strategies contribute less expressively to the positive adjustment to COVID-19 than in the general population. Regarding satisfaction with social support, the results align with existing literature, indicating that support from others has a protective effect on psychological well-being (Graupensperger et al., 2020; Li et al., 2021). In this sense, social interactions seem crucial to ensure the adjustment inherent to the resilience process, both in the general population and the sports context.

Limitations and recommendations

Regarding the limitations of this study, the inclusion criteria led to significant heterogeneity in sports and sociodemographic characteristics, whose impact on future studies could be clarified. Although we conducted preliminary analyses to explore the differences between individual and collective sports

and found no associations, our sample was not evenly distributed in this domain, so we suggest that future research could explore this issue further. One of the biggest problems in resilience research is the circularity between antecedent factors and outcomes (Luthar & Zelazo, 2003). In this sense, although supported by a literature review, including variables in the categories (adversity factor, protective mechanism, and adjustment) is always debatable.

Regarding future research recommendations, exploring the resilience process with younger populations is relevant since studies during the pandemic were mainly conducted with adult athletes. Furthermore, it was pointed out that women were more negatively affected by this pandemic, a finding that could be explored in future research. This study also highlighted the importance of studying the reality of federated sports athletes in countries with low economic investment, such as Portugal.

CONCLUSION

This study aimed to understand athletes' resilience in the face of COVID-19. We concluded that some variables seem to hinder (drop in training characteristics, time without training and lockdown, fear of COVID-19, behavioral disengagement, and being female) or promote (active coping and satisfaction with social support) athletes' positive adjustment to the COVID-19 pandemic.

PRACTICAL APPLICATIONS

This study emphasized the importance of the role of psychologists in the sports context as promoters of developing skills. Moreover, understanding beneficial coping strategies is crucial for managing challenging situations optimally and developing mental health response plans for future pandemics or other challenges that arise on a more local or worldwide level. According to the results of this study, athletes should positively reformulate challenges. As Viktor Frankl (1992) wrote, "If there is meaning in life, then there must be meaning in suffering". The search for meaning and positive aspects in troubled times, such as the COVID-19 pandemic, fosters the well-being of individuals. This study also highlights the importance of individuals remaining socially connected during adverse times. Therefore, athletes and sports institutions should promote interpersonal contact (e.g., online training with teammates). Finally, institutions should work to minimize daily stressors to reduce the negative impact of social isolation on the athletes, for example, providing online training programs when in-person practice is not possible. In a country where investment in sports tends to be low, for many clubs, these measures can only be taken if the government provides the financial support required.

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