

**Perceived Stress in Italian Coaches and the Effect of Rebooting in sport Activities\***

Giampaolo Santi<sup>1\*\*</sup>, Sergio Costa<sup>2</sup>, Cristina Montesano<sup>3</sup>, Attilio Carraro<sup>1\*\*\*</sup>, Maurizio Bertollo<sup>4\*\*\*\*</sup>,

Selenia di Fronso<sup>4\*\*\*\*\*</sup>

<sup>1</sup>Faculty of Education, Free University of Bozen-Bolzano, Brixen-Bressanone, Italy

<sup>2</sup>Independent Sport Psychology Consultant

<sup>3</sup>Department of Neuroscience, Imaging and Clinical Sciences, University “G. d’Annunzio” of Chieti-Pescara, Chieti, Italy

<sup>4</sup>Behavioral Imaging and Neural Dynamics (BIND) Center, Department of Medicine and Aging Sciences, University “G. d’Annunzio” of Chieti-Pescara, Chieti, Italy

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Corresponding author: [giansanti@unibz.it](mailto:giansanti@unibz.it)

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\*\* <https://orcid.org/0000-0001-8062-9121>

\*\*\* <https://orcid.org/0000-0002-5103-6236>

\*\*\*\* <https://orcid.org/0000-0002-0972-9178>

\*\*\*\*\* <https://orcid.org/0000-0002-6635-4114>

Perceived stress in Italian coaches and sport mental health were investigated during the rebooting of sport activities following the first COVID-19 lockdown period. A sample of 237 coaches from various sports were asked to answer the Italian version of the Perceived Stress Scale and the Sport Mental Health Continuum, together with reporting of demographic information. Coaches' perceived stress levels were compared with data collected during the lockdown period. Women showed a significant decrease in their perceived stress levels compared to the lockdown period, whereas this was not true for men. Hierarchical regression indicated that, during the rebooting phase, increased age of coaches and their psychological well-being experienced in sporting contexts (a sport mental health dimension) were predictive of decreased perceived stress levels. Practical implications for practitioners working in this field are discussed in the conclusions.

**Keywords:** sport psychology, well-being, mental health, lockdown, COVID-19 pandemic

### **Highlights:**

- Perceived stress levels in women were lower in the rebooting phase than during the lockdown.
- Perceived stress levels in men did not vary significantly between lockdown and the rebooting phase.
- The age of coaches and their psychological well-being experienced in sporting contexts were predictive of perceived stress levels.

During the first wave of the COVID-19 pandemic, countries across the entire world underwent restrictions and periods of lockdown. This situation also affected the sporting sector, making it impossible for athletes and coaches to access their usual training environments and to train with continuity according to an established plan (Bowes et al., 2020; Mulcahey et al., 2020;

Taku & Arai, 2020). In Italy, following an initial period of strict lockdown lasting about two months (9<sup>th</sup> March 2020 – 4<sup>th</sup> May 2020), some sport activities (i.e., non-contact sports and outdoor activities) restarted, and several federations organized competitions. This period has frequently been referred to as the ‘rebooting phase’ (e.g., Guicciardi & Pazzona, 2020).

In the rebooting phase of sport activities, several restrictions still had to be observed (e.g., maintenance of social distance, the use of face masks, sanitization of training equipment), and sports activities were conducted under the threat of COVID-19 circulation and with concern for contracting the virus (Li & Lyu, 2021). This situation of uncertainty was common for both coaches and athletes. In addition, coaches may have been asked to be more supportive and encouraging to their athletes (see, e.g., Lautenbach et al., 2021). For these reasons, while most studies and guidelines in the rebooting phase focused on athletes and exercisers (e.g., di Fronso et al., 2022b; Guicciardi & Pazzona, 2020; Hughes et al., 2020), in the present investigation, we chose to explore the experience of coaches.

Research conducted among Italian sport coaches during the COVID-19 lockdown (i.e., Santi et al., 2021) has already highlighted higher perceived stress levels compared to levels reported in non-pandemic situations – considered as normative data (Cohen & Williamson, 1988). Similar results emerged from Roberts & Lane’s (2021) study, which found British boxing coaches reporting increased unpleasant moods during the first wave of COVID-19, compared to levels they experienced before the pandemic. Differences by gender also emerged in the Italian coaching context (Santi et al., 2021), with women reported as being more stressed than men. Findings on athletes’ stress (see, e.g., Costa et al. 2020; di Fronso et al., 2022a) also highlighted differences based on competitive levels.

Research focusing on the rebooting phase among athletes, highlighted different reactions for women and men, with female athletes showing a decrease in stress levels compared to before the lockdown, whereas male athletes showed similar levels (di Fronso et al., 2022b). However, the

study could not demonstrate gender differences in the psychological processes predicting stress levels. In the same timeframe, a study of Italian exercisers highlighted how women aged over 30 years found outdoor physical activity to be more beneficial, when compared to men of the same age (Guicciardi & Pazzona, 2020). This finding might also suggest to focus on environmental and contextual aspects. Guicciardi and Pazzona's (2020) study on exercisers also demonstrated differences based on the age of participants: younger exercisers reported poorer mental health than their older counterparts, with less optimism, more sleep disturbance, confusion, and anger. This could be explained by the fact that coping strategies may change with ageing (Chen et al., 2017; Meeks et al., 1989), and other studies have highlighted that younger adults may have used less adaptive strategies than middle-aged and older adults during the COVID-19 pandemic (Fukase et al., 2022).

Based on the scenario described above, the present investigation explores how perceived stress levels for men and women differed during the pandemic phases. With specific regard to the rebooting phase, we considered if the well-being brought about by a return to sporting contexts and/or other individual characteristics (e.g., gender, competitive level, age, expertise in coaching) had an effect on stress perceived by coaches. As conceptualized by Cohen and colleagues (Cohen et al., 1983; Cohen & Williamson, 1988), an abundance of perceived stress refers to negative feelings and perceptions of lack of control over a situation, that has been often linked to other mental health outcomes, such as burnout of coaches (e.g., Kelley et al., 1999; Knight et al., 2013; Malinauskas et al., 2010). It can also refer to an unpredictable event such as the COVID-19 pandemic.

To evaluate the well-being triggered by returning to work in sporting contexts, the construct of sport mental health (Foster & Chow, 2018) was taken into consideration. This construct relies on Keyes and colleagues' (2002) categorization of emotional, social, and psychological well-being. Specifically, emotional well-being refers to the subjective experience of positive emotions when participating in sport activities. Social well-being is represented by the quality of relationships with other people in the sporting environment (e.g., athletes, staff members). Lastly, psychological well-

being is experienced when people participate in sports because they find it meaningful, purposeful and in line with their identity (see Foster & Chow, 2018).

According to this framework, with the present investigation we expected to find: (a) coaches' perceived stress during the rebooting phase to be lower than levels registered during the lockdown phase; (b) gender and/or competitive level to predict perceived stress levels; (c.1) coaches' sport mental health to negatively predict perceived stress; and (c.2) coaches' age to negatively predict perceived stress. However, this study should also be considered exploratory in its nature. Given the peculiarity of the unprecedented pandemic situation, findings might reveal new scenarios and may not reflect those which emerged in previous studies. Additionally, sport mental health is quite a novel construct (see Foster & Chow, 2018; Bertollo et al., 2021), and the current study could provide a more nuanced view of its link to perceived stress among sport coaches.

### Method

#### Participants

We recruited 237 Italian sport coaches (women = 52; men = 185) ranging from 19 to 74 years of age ( $M = 43.81$ ;  $SD = 11.52$ ). There is no compulsory age limit for retiring from sport coaching in Italy; and three participants aged over 70 years who were still involved in coaching at regional or national level are included in the sample. Participants were asked to report the competitive level of the athletes they were working with and were classified as either elite coaches ( $n = 123$ ), including those working at international and national levels, or non-elite coaches ( $n = 114$ ), including those working at local, county, or regional levels. This classification is in line with previous studies in the field (Santi et al., 2021; Swann et al., 2015). Coaches were working in a variety of individual (e.g., figure skating, martial arts, swimming, track and field, etc.) and team-based sports (e.g., baseball, basketball, soccer, softball, rugby union, volleyball, etc.), and had an average experience of 16.79 years ( $SD = 11.33$ ).

#### Measures

### ***Demographic information***

Participants were first asked to provide their informed consent, after which each participant answered a few demographic questions related to their gender, age, sport, competitive level, and years of experience in coaching.

### ***Perceived stress***

Stress perceived by coaches was measured using the Italian version of the Perceived Stress Scale (IPSS-10 – Mondo et al., 2019). This scale consists of 10 items with answers on a 5-point Likert scale ranging from 0 (never) to 4 (very often). Items were introduced with the stem: “In this last month, how often have you been/felt...” and possible items are, e.g., “...upset because of something that happened unexpectedly?” or reversed items “...effectively coping with important changes that were occurring in your life?”. Four items account for a positive stress sub-dimension, six items for a negative stress sub-dimension, and a total score of perceived stress was computed by reversing the positive stress items. Cronbach’s alpha reported in the Italian validation of the scale (Mondo et al., 2019) was .74 for the total score, thus demonstrating satisfactory internal consistency.

### ***Sport Mental Health***

An Italian version of the Sport Mental Health Continuum – Short Form (SMHC-SF - Bertollo et al., 2021) was adopted to measure the emotional, social, and psychological well-being experienced by Italian coaches in sporting contexts. The scale consists of 14 items divided into three sub-dimensions. All items were scored on a 6-point Likert scale ranging from 0 (never) to 5 (every day) and introduced with the stem: “During the past month, how often did your sport participation make you feel...”. Emotional well-being was measured by three items in which the stem is completed with the words “...happy?”, “...interested in your sport?”, and “...satisfied?”. Social well-being in sport was measured by five items, such as “...that you had something to contribute to your team or

sport community?” or “...that you belonged to your team or sport community?”. The psychological well-being subscale consists of six items, for instance, “...good at managing the daily responsibilities of your sport?” or “...that you have a sense of direction or meaning within your sport?”. High reliability of the instrument was indicated in Bertollo et al.’s (2021) Italian validation, with Cronbach’s alpha values of .85 for the emotional well-being subscale, .90 for the social well-being subscale, and .93 for the psychological well-being subscale. Similar results were reported for McDonald’s omega values (emotional well-being = .86; social well-being = .90; psychological well-being = .94).

### **Procedure**

Data collection was performed through an online survey between the end of September and the end of October 2020. The latter date coincided with a new stop for many sports due to the second wave of the Covid-19 pandemic. However, in this period, most sport coaches had already restarted their training activities and competitions. Coaches were involved in the survey via email or phone messages, using the informal and professional networks of the study authors. When accessing the online survey, coaches were provided with a description of the research, asked to confirm they were aged 18 or above and to confirm their agreement to participate in the study. Participants were free to interrupt and quit the survey at any point without explaining their reasons for doing so. The study was conducted in accordance with the declaration of Helsinki and received approval by the institutional review board of our research centre.

### **Data Analysis**

As indicated in the informed consent, participants could exit the survey at any point. However, interested participants, were requested to complete the study in full. For this reason, no missing values were detected within the dataset. Fourteen cases were removed due to response patterns or duplicate cases. No other cases were removed from the sample due to a of lack of information. Data was analysed using IBM SPSS 27.0, observing for distribution and reliability.

Mean scores and standard deviations of coaches' perceived stress values in the present sample (during the rebooting phase) were compared with those reported from an earlier sample in a study conducted during the lockdown (Santi et al., 2021). This approach is consistent with di Fronso and colleagues' (2022b) study on athletes' stress perceptions during the pandemic. To provide a detailed overview of the extent to which the rebooting phase influenced the perception of stress, we compared the data of women and men separately through the calculation of Cohen's  $d$  (Cohen, 1988) for which .20, .50, and .80 are respectively considered as small, medium, and large effects. Furthermore, hierarchical regression analyses allowed evaluation of the predictive role of age, expertise, gender and competitive level (in a first step), and well-being experienced by coaches in the sport environment (in a second step), on their perceived stress in everyday life.

### Results

Values of skewness and kurtosis were acceptable (Byrne, 2010; George & Mallery, 2010), and visual examination of histograms allowed further parametric tests to be undertaken. Cronbach's alpha values for the present study were .82 for the Perceived Stress Scale and ranged from .84 to .91 for the SMHC-SF dimensions (.84 for emotional well-being, .85 for social well-being, and .91 for psychological well-being). All these alpha values can be considered good to excellent (Taber, 2018). To provide further evidence for reliability of these measures, and according with most recent standards (Watkins, 2017), omega coefficients were also calculated and demonstrated consistent results: PSS total score = .83; emotional well-being in sport = .85; social well-being in sport = .86; psychological well-being in sport = .91.

Comparison between perceived stress scores reported in the present study and data reported during the first wave of COVID-19 (Santi et al., 2021) evidenced significantly lower perceived stress levels for women ( $t = -2.44$ ;  $p = .02$ ; Cohen's  $d = -.34$ ) but not for men ( $t = .62$ ;  $p = .54$ ; Cohen's  $d = .05$ ) nor for the total sample ( $t = -1.40$ ;  $p = .16$ ; Cohen's  $d = -.09$ ). Full results are reported in Table 1.



&lt;&lt;&lt;INSERT TABLE 1 APPROXIMATELY HERE&gt;&gt;&gt;

A two-step hierarchical regression analysis was conducted to observe the predictors of perceived stress during the rebooting phase. In a first block (Step 1), age, expertise, gender and competitive level were introduced to evaluate their effect on perceived stress. Dimensions of well-being in sport were introduced in a second block (Step 2) to evaluate their influence on the tested model. The inclusion of psychological variables in Step 2 led to a significant improvement in the model ( $\Delta R^2 = .12; p = .00$ ). The final model showed the age of coaches ( $\beta = -.26; p = .00$ ) and psychological well-being in sport ( $\beta = -.32; p = .01$ ) to predict a reduction in perceived stress levels. On the other hand, neither expertise, gender or competitive level, neither emotional or social well-being significantly accounted for any change in perceived stress (see Table 2).

&lt;&lt;&lt;INSERT TABLE 2 APPROXIMATELY HERE&gt;&gt;&gt;

## Discussion

Within the present study, perceived stress levels among Italian coaches during the phase of rebooting in sport activities were examined and compared with findings from previous studies. Additionally, the role of individual characteristics and well-being experienced in sporting contexts on perceived stress levels was evaluated to better understand potential protective factors for stress.

With regards to perceived stress levels, it is interesting to note how perceived stress levels in the rebooting phase were similar to the lockdown phase for men, whereas they significantly decreased for women. This trend can be explained by a cultural phenomenon, i.e., the fact that women in Italy

are traditionally more responsible than men for housework and care of children (Menniti et al., 2015; Dotti Sani, 2016). Consequently, the lockdown period likely caused much more distress in women than in men (see, e.g., Caroppo et al., 2020; Rania et al., 2020; Santi et al., 2021). With the rebooting of sport activities, women found stress relief in their coaching jobs. On the other hand, men could have been equally distressed due to the uncertainty characterizing both the pandemic scenarios. Although we could imagine the return to sport activities as a relief of stress for coaches, it is evident that they were still experiencing some forms of distress due to the restrictions imposed on training environments (i.e., social distancing, use of face masks, sanitization of training equipment) or caused by ill-defined training schedules and competitive calendars. This finding related to gender differences is consistent with di Fronso and colleagues' (2022b) study on Italian athletes.

At the time of the present investigation, perceived stress levels were not significantly predicted by competitive level (i.e. elite vs non-elite coaches). Although elite coaches were under higher social pressure during the period of rebooting (Lundqvist et al., 2021), this was probably compensated for by a greater degree of support received from high level sport organizations (Fletcher & Arnold, 2017). Conversely, an individual characteristic that appeared to have a role in protection against the perception of stress was the age of coaches. In fact, increasing age was predictive of reduced perceived stress levels, and this finding is in line with other studies conducted in the COVID-19 pandemic era (Fukase et al., 2022; Guicciardi & Pazzona, 2020). Older coaches might have faced previous stressful life events, thus developing better coping strategies than younger participants. For instance, people facing stressful events can become better able to mobilise social resources to help them (i.e., support from relevant others; Roy-Davis et al. 2017). However, this explanation is not well-supported by research specific in sporting contexts (Arnold et al., 2016; Malinauskas et al., 2010; Simpson et al, 2021), and provides a motive for exploring the in-depth aspects relating to age and experience in future studies of sport coaches.

Together with age, psychological well-being experienced in the sporting environment emerged as a protective factor in the perception of stress. Previous literature in sporting contexts suggests coaches' well-being and emotional experience have an influence on stress and burnout symptoms (Fletcher & Scott, 2010; McNeill et al., 2017). In addition, our study sheds light on what type of well-being that is more indicative of improved mental health. In particular, psychological well-being experienced in sport which refers to the meaning and purpose attributed to one's own sport. This seems to have a stronger effect on perceived stress than the simpler experience of positive emotions or the relationship to a team or group and is also in line with past literature on well-being (Ryff, 1989; Ryan & Deci, 2001).

A few limitations of the present study should be acknowledged. Firstly, the sample of study participants is a convenient one, limiting the generalizability of the findings outside sporting contexts. Secondly, we preferred not to compare perceived stress means with normative data (Cohen & Williamson, 1988), as Cohen and Williamson's normative data are from 1988 and might not be up to date. For this reason, we also advocate future meta-analyses to compare different studies conducted using PSS and propose new normative values for this scale. Thirdly, when comparing the present study sample with data reported during the lockdown (Santi et al., 2021), we should also consider the sample size, which was smaller in the present investigation than in the earlier study. Lastly, this study is based on a cross-sectional design and inferences about changes in perceived stress are limited to comparison with previous datasets.

Some practical implications can be derived from the findings of the present study. In particular, the protective role that psychological well-being experienced in sport plays in perceived stress of everyday life is indicative that this factor should be strengthened when aiming to maintain coaches' mental health. With this in mind, the SMHC also represents a strong and validated instrument for the assessment of well-being in sport (Foster & Chow, 2018; Bertollo et al., 2021). On a wider perspective, the present study confirms the need for Italian sport coaches to be supported in order to mitigate their perception of stress. As highlighted by Santi and colleagues (2021), such support can

be both sought by coaches themselves, through engaging in relaxation or other helpful activities (e.g., Yoga protocols – see also di Fronso & Bertollo, 2021), and offered by sport organizations, which could provide specific training or offer access to sport psychological consultancy (see, e.g., Leisterer et al., 2021).

### Conclusions

In sum, this study enriches the literature on the rebooting phase and on stress among sporting staff by providing an overview of how perceived stress among sport coaches varied throughout the pandemic. Specifically, women showed a significant decrease in their perceived stress levels compared to the lockdown period, whereas no significant differences emerged for men. This finding indicates a gender gap which should be further explored, perhaps outside the professional category of sport coaches, to identify and propose possible solutions. With specific reference to the sporting sector, the present study also explored the relationship between well-being in sport and general perceived stress during the rebooting phase. Findings indicated that an increase in the age of coaches and in the psychological well-being they experienced in sporting contexts were predictive of decreased perceived stress levels, thus providing helpful insights on how these personal and context-specific factors may influence general mental health.

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**Opaženi stres italijanskih trenera i efekat ponovnog pokretanja sportskih aktivnosti**

Giampaolo Santi<sup>1</sup>, Sergio Costa<sup>2</sup>, Cristina Montesano<sup>3</sup>, Attilio Carraro<sup>1</sup>, Maurizio Bertollo<sup>4</sup>, Selenia di Fronso<sup>4</sup>

<sup>1</sup>Faculty of Education, Free University of Bozen-Bolzano, Brixen-Bressanone, Italy

<sup>2</sup>Independent Sport Psychology Consultant

<sup>3</sup>Department of Neuroscience, Imaging and Clinical Sciences, University “G. d’Annunzio” of Chieti-Pescara, Chieti, Italy

<sup>4</sup>Behavioral Imaging and Neural Dynamics (BIND) Center, Department of Medicine and Aging Sciences, University “G. d’Annunzio” of Chieti-Pescara, Chieti, Italy

Opaženi stres italijanskih trenera i njihovo sportsko mentalno zdravlje su ispitivani tokom ponovnog pokretanja sportskih aktivnosti posle prve faze COVID-19 izolacije. Uzorak od 237 trenera različitih sportova je popunio italijansku verziju skale opaženog stresa (eng. the Perceived Stress Scale) sportskog kontinuuma mentalnog zdravnja (eng. Sport Mental Health Continuum), i dao demografske podatke o sebi. Opaženi nivoi stresa trenera su poređeni sa podacima skupljenim tokom perioda izolacije. Kod žena se pojavljuje značajno sniženje nivoa opaženog stresa u poređenju sa periodom tokom izolacije, ali ovo nije slučaj sa muškarcima. Hijerarhijska regresija ukazuje na to da, tokom faze ponovog pokretanja, veća starost trenera kao i psihološko blagostanje doživljeno u sportskom kontekstu (sportska dimenzija mentalnog zdravlja) predstavljaju prediktore

smanjenog opaženog stresa. Praktične implikacije za stručnjake koji rade praktično u ovom polju se diskutuju u zaključcima.

*Ključne reči:* sportska psihologija, subjektivno blagostanje, mentalno zdravlje, izolacija, COVID-19 pandemija

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## Tables and Figures

**Table 1***Perceived stress levels differences between the first wave of COVID-19 and the rebooting phase*

	<b>First wave of COVID- 19</b>	<b>Rebooting phase</b>					
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Difference</b>	<b>SE</b>	<b>T- statistic</b>	<b>p</b>	<b>Cohen's d</b>
<b>Women</b>	18.01	16.02 (5.87)	-1.99	.81	-2.44	.02*	-.34
<b>Men</b>	14.94	15.22 (6.05)	.28	.44	.62	.54	.05
<b>Total</b>	15.94	15.39 (6.01)	-.55	.39	-1.40	.16	-.09

*Note.* \*Significant below the .05 level (two-sided). First wave of COVID-19, women = 740; men = 1532; total = 2272; Rebooting, women = 52; men = 185; total = 237. Perceived stress total score could range from 0 to 40.

**Table 2***Hierarchical regression results for perceived stress.*

Variable	B	95% CI for B		SE B	$\beta$	R <sup>2</sup>	$\Delta R^2$
		LL	UL				
Step 1						.07	.07**
(Constant)	23.04***	17.91	28.17	2.60			
Coaches' age	-.19***	-.28	-.09	.05	-.36		
Years of experience in coaching	.12*	.02	.21	.05	.22		
Gender	-.07	-1.98	1.83	.97	-.01		
Competitive level	-.85	-2.42	.73	.80	-.07		
Step 2						.19	.12***
(Constant)	29.99***	24.59	35.39	2.74			
Coaches' age	-.14**	-.23	-.04	.05	-.26		
Years of experience in coaching	.06	-.03	.16	.05	.12		
Gender	.37	-1.44	2.22	.92	.03		
Competitive level	-.47	-1.96	1.02	.76	-.04		
Emotional well-being in sport	-.94	-2.32	.43	.70	-.12		
Social well-being in sport	.46	-1.33	2.24	.90	.06		
Psychological well-being in sport	-2.55**	-4.42	-.68	.95	-.32		

Note. CI = confidence interval; LL = lower limit; UL = upper limit. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .