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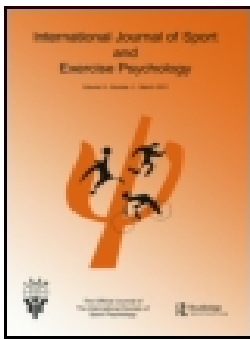


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RESEARCH ARTICLE



## How to measure compassion in coaches? The validation of a new scale to assess the compassion coaches' experience towards their athletes

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### ABSTRACT

The current study aimed to validate The Compassionate Coach Scale-Coaches Version (CCS-CV) that assesses the compassion coaches' experience towards their athletes. Two independent samples of coaches completed self-reported measures. The calibration sample ( $N = 196$ ) was used to test the structure of the CCS-CV through a confirmatory factor analysis, and the validation sample ( $N = 287$ ) was used to confirm its structure, through cross-validation, and examine aspects of its validity. One higher-order factor with two lower-order factors presented an adequate fit to the data. CCS-CV demonstrated high internal consistency, convergent, discriminant, and external validity. CCS-CV is a reliable measure that allows the assessment of the compassion coaches' experience towards their athletes and seems to be a significant contribution for practical and research fields in sports context. The present study contributes to the availability of a new instrument that allows an assessment of qualities that could be beneficial to coaches and their athletes.

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### KEYWORDS

Coaching; compassion;  
confirmatory factor analysis;  
cross-validation; sport

## Introduction

Mental health, well-being and quality of life have received greater attention from the sports community, especially when the focus is athletes (Chang et al., 2020; Nowak et al., 2021; Poucher et al., 2021; Rice et al., 2016). A factor that plays an important impact on well-being and balanced development of athletes is the relationship with their coach (e.g., Davis et al., 2018; Isoard-Gautheur et al., 2016).

Literature has demonstrated that coaches can play different roles in the life of their athletes, including being a mentor, a teacher, and a role model, and all of these have a great impact on athletes' development (Bloom et al., 2014). Therefore, coaches can promote life skills in their athletes, such as teamwork, character-building, and leadership, which are

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crucial to their overall growth and development outside of sport (e.g., Bloom & Salmela, 2000; Vallée & Bloom, 2005). The coach is an important figure to athletes and their attitudes and behaviours have a significant effect on athlete's performance, personal growth, self-esteem and well-being (Côté, 2002; Côté & Fraser-Thomas, 2007; Kassim & Boardley, 2018; Hilliard et al., 2019; Rosado, 2017). Thus, the coach is a significant component in the athletes' life, that impacts their sports performance, physical and psychological development (Jowett & Cockerill, 2002, p. 2003; Sagar & Stoeber, 2009). The relationship between coach and athlete may have impact on athletes' well-being (Simons & Bird, 2022), and several studies have found that a poor-quality relationship between coach and athlete has been associated with negative indicators of well-being (Cresswell & Eklund, 2007; Isoard-Gautheur et al., 2016; Raedeke & Smith, 2001). Simultaneously, compassion appears to be a key factor in many indicators of athletes' well-being (Röthlin et al., 2019).

Compassion is defined as an intentional sensitivity to suffering, with motivation and commitment to try to relieve it (Gilbert, 2014). Therefore, compassion comprises two functional components: compassionate engagement and compassionate action (Gilbert, 2014; Gilbert et al., 2017).

Compassionate engagement encompasses the motivation and competencies to engage with suffering with attentional sensitivity to distress signals, which requires distress sensitivity and tolerance, sympathy, empathy, and non-judgmental attitudes of care. The compassionate action refers to the capacity to act with wisdom and courage to alleviate and prevent suffering, such as directing attention to what is helpful; carrying out helpful actions, and creating the inner feelings of support, kindness, helpfulness, and encouragement to deal with distress (Gilbert, 2014; Gilbert et al., 2017). In other words, compassion comprises two essential components: sensitivity to suffering and taking actions to prevent and alleviate it. The flow of compassion presents three orientations. For instance, one can experience compassion from others, give compassion to others, or provide compassion to oneself (Gilbert et al., 2017).

In the sport context, there has been an increasing interest in the study of compassion in athletes as an emotional tool to face difficult and challenging times (Baltzell et al., 2019; Killham et al., 2018; Walton et al., 2020). In fact, in the context of competitive sports, athletes can experience several situations (e.g., injuries, pressure to win, fear of failure, being in second string or last place, and feelings of shame) that may origin difficult experiences to athletes (e.g., Correia & Rosado, 2018; Partridge & Elison, 2009). Compassion seems to be a protective skill against the impact of adverse events and represent adaptive strategies to manage the internal and external burden of stressful circumstances (Röthlin et al., 2022; Oliveira et al., 2022a).

There is empirical evidence that highlights the benefits of self-compassion (compassion to oneself) in the context of sport (Röthlin et al., 2019). Self-compassion has been associated with lower levels of stress and athletic injury (Huysmans & Clement, 2017), and with lower levels of state self-criticism, rumination, and concern over mistakes (Mosewich et al., 2013), and a decreased of somatic performance anxiety (Röthlin & Leiggener, 2021). On the other hand, self-compassion has been associated with more positive perceived sport performance (Killham et al., 2018), with higher levels of well-being (Ferguson et al., 2014, p. 2015), and some athletes report that self-compassion was helpful in their development of mental toughness (Wilson et al., 2019).

However, all these studies have focused on self-directed compassion, and few studies focus on other flows of compassion (giving compassion to others and receiving compassion from others) in the context of sport. At the same time, the study of compassion in coaches is limited when compared with athletes. In fact, coaches are a specific population that have received limited attention in literature when comparing to research focused on athletes (Olusoga et al., 2009). Coaches face multiple challenges, such as performance pressures, long working hours, low job security, satisfying board/management expectations (Didymus, 2017; Knights & Ruddock-Hudson, 2016; Thelwell et al., 2008), and personal stressors, including social isolation and relationship issues (Olusoga et al., 2009; Thelwell et al., 2008). This combination of performance, organisational, and personal-related stressors may impact the well-being and mental health of coaches (Norris et al., 2017). Thus, taking into account these multiple stressors, it is crucial to ensure that coaches have adequate coping strategies to protect their mental health and that of their athletes (Olusoga et al., 2010; Thelwell et al., 2010). For example, a study conducted by Ingstrup and colleagues (2017) showed that coaches may help to promote self-compassion in their athletes. Thus, literature has highlighted the importance of coaches establishing a healthy, positive, and supportive relationship with athletes (e.g., Karakoç et al., 2011). A relationship based on compassion could therefore be beneficial not only for athletes but also for coaches given their work circumstances. Coaches are mostly perceived as subjects who shape the performing outcomes of athletes, however their role is much broader and should be considered as performers in their own right (Gould et al., 2002; Thelwell et al., 2008). Thus, considering all their responsibilities that often generate stress, difficulties and suffering, it would be important for coaches to develop compassionate skills to deal adaptively with all the challenges in their environment.

Recently, a scale was developed that measures the athletes' perception of their coach's compassionate qualities: The Compassionate Coach Scale as Perceived by the Athlete (CCS-PA; Oliveira et al., 2022a). This measure evaluates athletes' perception of two crucial components of a compassionate coach: athletes' perception of coach qualities of engagement with athletes' distress/suffering, and athletes' perception of coach capacities to take effective actions to prevent and alleviate their suffering. This scale seems to be a reliable measure of an athlete's perception of a coach's compassionate qualities, and it was associated with athlete-related positive outcomes. The athletes' perception that their coaches are compassionate seems to be associated to feelings of acceptance and connectedness in the relationship with their teammates and their psychological quality of life (Oliveira et al., 2022a). In contrast, athletes' perception that their coaches presents poor compassionate competences seems to be linked to psychopathological indicators, such as higher levels of shame and self-criticism. Overall, self- or other-directed compassion seems to have a positive effect on athletes' quality of life and on their relationships through feelings of affiliation, support, and kindness (Röthlin et al., 2019; Oliveira et al., 2022a).

The majority of studies about compassion focus on the athletes or on the perspective of athletes regarding compassionate qualities of their coach, and it would be interesting to focus on the perspective of the coaches themselves. In fact, the direct coach perspective on their own compassion towards an athlete could be different from the perspective of their athletes. In this sense, the present study aimed to develop and validate The Compassionate Coach Scale – Coaches Version (CCS-CV). Based on the CCS-PA, this new

measure looks to assess two fundamental components of a compassionate coach: (1) coach qualities of engagement with athletes' distress/suffering and (2) coach capacities to take effective actions to prevent or alleviate athletes' distress/suffering. In particular, this study sought to examine the factorial structure, internal consistency, convergent and discriminant, external, and cross-validity of The Compassionate Coach Scale – Coaches Version. Several statistical procedures were used to assess CCS-CV's factorial structure (such as confirmatory factorial analysis – CFA) and psychometric characteristics (internal consistency, composite reliability, and average variance extracted). Moreover, external validity was tested through correlations between this new scale and self-compassion and quality of life. The choice of these measures (self-compassion and quality of life) to test the external validation of the CCS-CV is due to the fact that in the sports context there are numerous challenges associated with stress (e.g., Correia & Rosado, 2018; Partridge & Elison, 2009), and compassion is an adaptive way of dealing with the suffering of oneself and others (Gilbert, 2014; Gilbert et al., 2017).

Also, the capacity to adaptively deal with failures and life difficulties is more determining for their effects than these events in themselves (Leary et al., 2007; Pinto-Gouveia et al., 2014), and previous studies have underlined that the way the individual copes with these experiences is a central determinant of one's well-being (e.g., Allen & Leary, 2010; Wheaton, 1990). Lastly, the development of a valid measurement instrument to assess coaches' compassion towards their athletes could be important help for psychologists to identify features of the coaches that could be improved and/or changed for the benefit of coaches and athletes.

## Material and methods

### Participants

In this study, two different samples were collected, which resulted in a total of 483 coaches who work in Portugal. The first sample (calibration sample;  $n = 196$ ) was used to examine the structure of the scale. The second sample (validation sample;  $n = 287$ ) was used to confirm the structure of the scale and explored various aspects of its validity. Taking into account the number of observed and latent variables and desired statistical power level of 0.8, this study needed 123 participants in each sample to conduct our analysis (Soper, 2022).

The calibration sample included 196 coaches of both genders (118 men and 78 women) from 18 sports, with 8 individual (107 persons) and 7 team sports (89 persons). Regarding the competitive level of their athletes, coaches ranged among international ( $n = 37$ ), national ( $n = 86$ ), and regional ( $n = 73$ ) levels of competition. The coaches ranged in age from 20 to 73 ( $M = 39.49$ ;  $SD = 11.19$ ), and presented a mean of 14.69 ( $SD = 2.32$ ) years of education.

The validation sample comprised 287 coaches of both genders (212 men and 75 women), from 17 sports, with 8 individual (92 persons) and 9 team sports (195 persons). Regarding the competitive level of their athletes, coaches ranged among international ( $n = 32$ ), national ( $n = 128$ ), and regional ( $n = 127$ ) levels of competition. The coaches ranged in age from 18 to 72 ( $M = 38.19$ ;  $SD = 11.15$ ), and revealed a mean of 14.67 ( $SD = 2.35$ ) years of education.

## Procedures

### Recruitment

The current study's procedures respected ethical and deontological requirements inherent to scientific research, and this study was approved by the Ethical Board of the Faculty where the study was carried out.

This study was advertised on social network sites. In this sense, an invitation to participate in this study was electronically sent through popular social networks (Facebook) to potential participants. Also, e-mails were sent to several sports federations and clubs in Portugal in order to disseminate the study, asking to forward the email to coaches. The online advertisement comprised an informative text that clarified the aims and procedures of the investigation, the voluntary and confidential character of their participation, and the inclusion criteria of participants' selection. The online advertisement also included an Internet link to the online platform (GoogleForms) with the informed consent and protocol. The first study ( $n = 196$ ) comprised informed consent and a protocol with sociodemographic data and CCS-CV. The other study ( $n = 287$ ) comprised the same protocol but with more self-reported measures. Thus, the total of participants who accepted to take a part in these studies ( $N = 502$ ) gave their informed consent and completed the online survey. However, considering the aims of the present study, the database was cleaned to exclude: (i) participants who completed the survey but were not coaches; (ii) coaches who are not currently practicing this activity; (iii) good use of the Portuguese language. During this procedure 19 participants (5 of the first study and 14 of the second study) were excluded, and the final samples were composed of 196 and 287 participants in samples 1 and 2, respectively. There were no missing data because the platform only allows the submission of the questionnaires when all questions have been answered. Sample 1 was used to study the structure of the scale through confirmatory factor analysis, and sample 2 was used to confirm this structure (through cross-validation procedures) and to study psychometric properties of the scale, namely reliability, convergent, discriminant, and external validity.

### Scale development

The Compassionate Coach Scale (Coaches Version) was developed to measure coaches' compassion qualities directed towards athletes. The items of CCS-CV were adapted from CCS-PA to the perspective of coaches by an expert panel that comprised Psychologists' specialists in Biopsychosocial Model and Compassion-Focused Therapy and Sport Psychology.

This expert panel followed the guidelines for items wording in order to maximise their specificity and clarity (Clark & Watson, 1995). The items were adapted from CCS-PA according to the assumption of basic principles of writing (understandable and appropriate language, avoiding terms relating to a specific sport to broaden the applicability of the scale across sports), and there were interactive processes during which the items were rewritten several times before reaching the final version. Based on CCS-PA, the item pool was comprised of 16 items, divided into two components: eight items assess compassionate engagement (e.g., "I have an accepting, non-critical or non-judgmental attitude towards my athletes' feelings, anxieties and suffering") and eight items measure compassionate actions (e.g., "I act or do things that are useful and positive for my athletes

in moments of tension”). These 16 items were administered to 10 coaches (7 men and 3 women) to review the wording and comprehension of the items. All items were considered comprehensible and feasible to coaches. Each item was scored on a 5-point scale ranging from 0 (“Never”) to 4 (“Always”). CCS-CV included 16 items with higher scores indicating higher levels of a coach’s compassionate qualities.

## Measures

### Demographic data of participants

Participants reported the age, gender, years of education, and type of sport, competitive level of their athletes. In addition to the CCS-CV previously described, the following self-reported variables were used (in the second sample) in order to contribute to the study of the validity of CCS-CV:

### Self-compassion

Compassionate Engagement and Action Scales (CEAS; Gilbert et al., 2017). CEAS comprises three measures of compassion competences that assess (a) compassion experienced towards others, (b) the compassion experienced from others, and (c) self-compassion. Each one of the three scales encompasses two sub-scales (engagement and actions): a set of 8 items that evaluate motivation and competencies to engage with suffering and attentional sensitivity to signals of suffering (i.e., “engagement”), and 5 items which assess motivation to act wisely, that is to acquire the necessary wisdom and skills to alleviate or prevent suffering (i.e., “action”). Respondents are requested to think about distressing situations and rate how each sentence applies to them, using a scale which ranges from 1 (*Never*) to 10 (*Always*). In the present study, only the self-compassion scale was used. Higher scores indicate higher levels of self-compassion. The original study of the CEAS (Gilbert et al., 2017) revealed that all three scales have good validity and, specifically, the self-compassion scale revealed to be robust in different samples (Cronbach’s alpha values ranged between .74 and .89). In this study, the total of SCS presented a Cronbach’s alpha of .79.

### Quality of life

This outcome was evaluated by the EUROHIS-QOL 8-item index (Schmidt et al., 2006; Pereira et al., 2013), a quality of life scale composed of eight items that were extracted from the WHOQOL-Bref. Each item has an individualised 5-point Likert scale. Higher scores indicate higher levels of quality of life. In the original study, this measure revealed a Cronbach’s alpha of .83 (Pereira et al., 2013). Similarly, the Portuguese validation study also revealed a good internal consistency ( $\alpha = .83$ ; Pereira et al., 2013). In this study, a Cronbach’s alpha of .79 was found.

### Analytic strategy

All analyses were performed using the IBM SPSS Statistics 22.0 software (SPSS IBM; Chicago, IL) and AMOS software (Arbuckle, 2014).

Firstly, preliminary analyses were executed in both samples to verify the possible presence of univariate and multivariate outliers. The normality of the distribution was confirmed through the distribution skewness and kurtosis and for each item ( $|Sk| < 3$



and  $|Ku| < 10$ ; Kline, 2016). The multivariate normality of the items was evaluated by the Mahalanobis distance ( $D^2$ ) and statistically by Mardia's normalized estimate of multivariate kurtosis in the form of the critical ratio of kurtosis in AMOS. The critical ratio of kurtosis below 5.0 indicates multivariate normality (Byrne, 2010). Also, potential multicollinearity was verified through the calculation of the Variance Inflation Factor (VIF). Multicollinearity may be considered an issue if VIF values are below 1 and above 10 (Hair et al., 2010).

Then, the adequacy of the CCS-CV was tested, in both samples, through a Confirmatory Factor Analysis (CFA) using AMOS 22.0. Three models were tested: Model 1 was a unifactorial model; Model 2 was a two-factor model where the two dimensions of compassionate engagement and compassionate actions were correlated; finally, Model 3 with a second-order structure was hypothesised: a higher-order factor (global coach's compassionate qualities) and two lower-order factors (coach's compassionate engagement and coach's compassionate actions). The Maximum Likelihood estimation was applied, since it is robust against departures from multivariate normality. A bootstrapping procedure of Bollen and Stine was used to obtain an accurate estimation of standard errors as reflected in  $p$  values and confidence intervals. Bootstrap samples were set at 5000 and the bias-corrected confidence interval was set at the 95% confidence level (Nevitt & Hancock, 2001). Model fit was assessed through specific goodness-of-fit indicators: normed chi-square (CMIN/DF), which indicate an adequate fit when it presents values below above 5; the chi-square goodness-of-fit (which indicates that the model has a good fit to empirical data when non-significant, but is sensible to high sample sizes); the Comparative Fit Index (CFI) and the Tucker and Lewis Index (TLI), which indicate an adequate fit when above .90 (Marsh et al., 2004). The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) were also analysed considering that values below .08 demonstrate an acceptable fit (Marsh et al., 2004). The local adjustment of the tested model was examined by the values of the standardised regression weights ( $SRW \geq .50$ ) and squared multiple correlations ( $SMC \geq .25$ ; Marôco, 2010).

Cross-validity was tested to study the adequacy of model replication. Particularly, in order to examine the replication of the model, a cross-validation technique using a multi-group analysis with two independent samples (Sample 1;  $n = 186$ ; Sample 2;  $n = 287$ ) was used. Invariance was evaluated by testing two models: an unconstrained model, testing if the structure of the scale was invariant, with no measurement parameters constrained to be equal; and a measurement weights model (factor loadings constrained to be equal). The structure of the model is considered invariant if no statistical differences between models were assessed. These differences could be examined through the difference between Comparative Fit Indices ( $\Delta CFI$ ), where a value equal to or lower than .01 indicates strong invariance (Cheung & Rensvold, 2002).

The next steps were applied only for Sample 2 in order to explore various aspects of its validity (reliability, convergent, discriminant, external validity). Internal reliability was evaluated through Cronbach's alpha, with values above .70 indicating good reliability (Kline, 2016) and composite reliability (which should also be above .70; Fornell & Larcker, 1981). In order to examine the convergent validity of this new scale, the average variance extraction (AVE) was calculated. AVE should be above .50 (Fornell & Larcker, 1981). Discriminant validity was assumed when AVE was greater than the squared correlation between that

construct and the other (Fornell & Larcker, 1981). Finally, in order to explore external validity, Pearson correlation coefficients (Cohen et al., 2003) were estimated to analyse the relationships among the total score of the CCS-CV and other relevant variables, namely self-compassion and, quality of life.

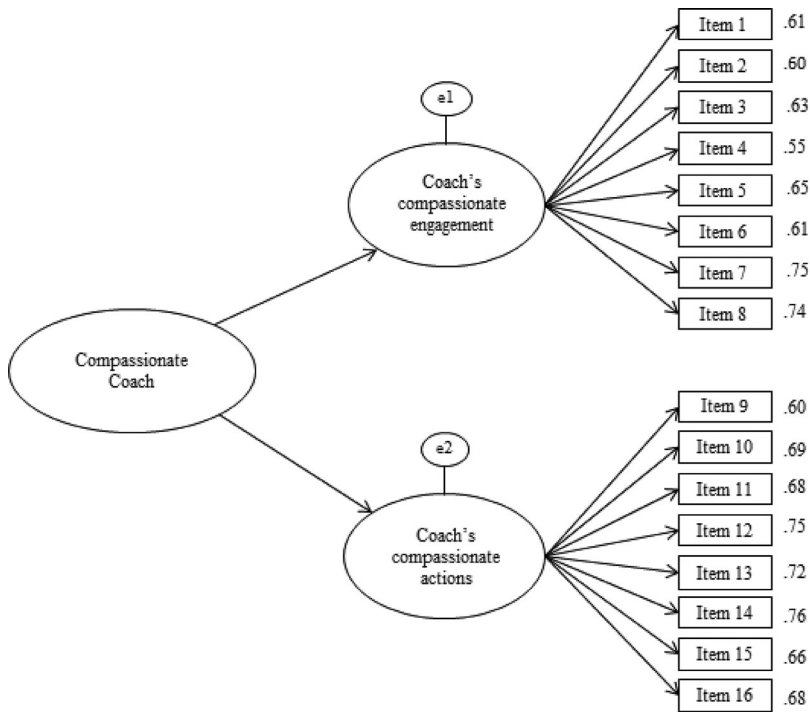
## Results

### *Preliminary analysis*

A preliminary analysis of CCS-CV's items showed that data revealed a normal distribution in both samples. In sample 1, absolute values of skewness varied from  $-1.41$  (item 2) to  $-.31$  (item 6), and absolute values of kurtosis ranged from  $-.31$  (item 16) to  $3.63$  (item 2), which indicate that data presented a normal distribution (Kline, 2016). In sample 2, the normal distribution of items was confirmed through coefficients of skewness, with values ranging from  $-1.32$  (item 11) to  $-.31$  (item 6), and kurtosis values ranging from  $-.73$  (item 6) to  $2.52$  (item 11). However, the Mardia's coefficients of multivariate kurtosis were  $15.13$  and  $28.35$  in sample 1 and in sample 2, respectively, demonstrating a problem of multivariate normality. In accordance with Byrne's (2010) recommendation, if Mardia's coefficient has a value greater than 5, then bootstrapping should be conducted. We have detected some outliers (occurring in less than 1% of both samples), but after confirming that there were no significant differences in results with and without outliers, we have decided to keep them (Hair et al., 2010). A test of multicollinearity was performed by calculating the Variance Inflation Factor (VIF). VIF values showed the absence of multicollinearity issues  $2.45$  and  $2.54$  in samples 1 and 2, respectively (Hair et al., 2010).

### *Confirmatory factor analysis*

A CFA of CCS-CV was executed in sample 1 with 16 items to examine the scale's structure and adequacy ( $N = 196$ ). A method with bootstrapping was used to obtain an accurate estimation of standard errors as reflected in  $p$ -values and confidence intervals. Bootstrap samples were set at 5000 and the bias-corrected confidence interval was set at the 95% confidence level (Nevitt & Hancock, 2001). Three models were tested. First, a unifactorial model (Model 1) was performed and a poor fit to the data was obtained: ( $\chi^2(104) = 255.00$ ,  $p < .001$ , B-S  $p = .000$ , CMIN/df =  $2.45$ , CFI =  $.89$ , TLI =  $.87$ , SRMR =  $.06$ , RMSEA =  $.09$ ). Second, a two-factor model (Model 2) was tested and revealed an acceptable fit to the data, with  $\chi^2_{(103)} = 226.17$ ,  $p < .001$ , B-S  $p = .001$ , CMIN/df =  $2.20$ , CFI =  $.90$ , TLI =  $.90$ , SRMR =  $.06$ , and RMSEA =  $.07$ . Finally, a model with a second-order structure (Model 3) was tested: a higher-order factor (global coach's compassionate qualities) and two lower-order factors (coach's compassionate engagement and coach's compassionate actions). Results showed that this model adjusted to data adequately ( $\chi^2_{(103)} = 226.17$ ,  $p < .001$ , B-S  $p = .001$ , CMIN/df =  $2.20$ , CFI =  $.91$ ; TLI =  $.90$ ; SRMR =  $.06$ ; RMSEA =  $.07$ ). Model 3 was chosen by the authors as the most adequate to represent the theoretical model and was in accordance with the aim of developing a scale that would allow, not only the assessment of a coach's compassionate engagement and coach's compassionate actions, but also the assessment of a global sense of coach compassionate qualities (Figure 1). CCS-CV seems to present adequate global adjustments (see Table 1). This



**Figure 1.** Final model of The Compassionate Coach Scale-Coaches Version (CCS-CV).

factor structure was confirmed in sample 2 ( $N = 287$ ) and the model also revealed to be adjusted to data adequately ( $\chi^2_{(103)} = 254.854$ ,  $p < .001$ ; B-S  $p = .000$ , CMIN/df = 2.474, CFI = .93; TLI = .92; SRMR = .05; RMSEA = .07).

### Cross-validity

Cross-validation procedures were used in order to study model replication. Table 2 shows a summary of goodness-of-fit indices to measure cross-validity, using samples 1 and 2. The baseline unconstrained model tested the structure of the CCS-CV across samples. Results demonstrated an acceptable model fit, indicating that the model with a second-order structure fitted the data well in both samples. Then, a measurement weights model was tested with factor loadings constrained to be equal across samples. This model revealed an acceptable model fit. When compared to the baseline unconstrained model, no significant changes occurred ( $\Delta\text{CFI} = .002$ ), indicating that the factor loadings were invariant across samples (see Table 2). These results demonstrated the model's invariance, indicating that the factorial structure of the scale was stable in two independent samples.

### Psychometric properties

All Cronbach alphas are indicative of high reliability of the scale, with values of .84, .90, and .92 for factor 1 (coach's qualities of engagement with athletes' distress/ suffering),

**Table 1.** CCS-CV' items' means (M), standard deviations (SD), standardised regression weights (SRW) and squared multiple correlations (SMC) (Sample 1; N = 196).

$\alpha$ total = .92				
Items	M (SD)	SRW	SMC	
<b>Compassionate Engagement</b>				
1. Estou motivado/a para enfrentar e tentar lidar com os momentos de sofrimento ou de angústia dos meus atletas. [I am motivated to confront or try to deal with suffering moments of my athletes.]	3.42 (.64)	.61	.38	
2. Sou capaz de identificar, e não tento evitar ou ignorar, as preocupações e angústias dos meus atletas. [I am able to identify and don't try to avoid or ignore my athletes' worries and anxieties.]	3.34 (.73)	.60	.36	
3. Noto e sou sensível aos sentimentos negativos (tais como desmotivação, medo, vergonha) dos meus atletas. [I notice and I am sensitive to my athletes' negative feelings (such as demotivation, fear, shame).]	3.41 (.65)	.63	.40	
4. Sinto-me comovido/a quando os meus atletas demonstram sentimentos negativos ou quando estão a passar por momentos difíceis. [I feel emotionally moved when my athletes show negative feelings or when they are going through difficult times.]	3.11 (.89)	.55	.30	
5. Sou capaz de refletir e compreender o sofrimento e as frustrações dos meus atletas. [I am able to reflect on and understand my athletes' suffering and frustrations.]	3.29 (.63)	.65	.43	
6. Aceito, sem criticar, o ponto de vista dos meus atletas. [I accept, without criticising, the opinion of my athletes.]	2.93 (.75)	.61	.37	
7. Sou tolerante e sensível em relação aos vários sentimentos que fazem parte da vivência dos meus atletas. [I am tolerant and sensitive towards the various emotions that are part of life of my athletes.]	3.26 (.72)	.75	.57	
8. Tenho uma atitude de aceitação, não julgadora (ou crítica), em relação aos sentimentos, angústias e sofrimento dos meus atletas. [I have an accepting, non-critical or non-judgmental attitude towards my athletes' feelings, anxieties and suffering.]	3.18 (.77)	.74	.54	
<b>Compassionate Actions</b>				
9. Faço coisas que são úteis e positivas para os meus atletas em momentos de tensão. [I act or do things that are useful and positive for my athletes in moments of tension.]	3.09 (.61)	.60	.36	
10. Penso ou reflito sobre o sofrimento dos meus atletas e encontro formas úteis de os/as ajudar a lidar com ele. [I think about or reflect on my athletes' suffering and I find useful ways to help them deal with it.]	3.28 (.66)	.69	.48	
11. Exprimo ou demonstro sentimentos de suporte, ajuda e encorajamento perante situações difíceis ou quando estão angustiados/as. [I express or show feelings of support, help, and encourage my athletes in difficult situations or when they are anxious.]	3.40 (.66)	.68	.47	
12. Dirijo a minha atenção para o que poderá ajudar ou ser útil para os meus atletas em momentos difíceis. [I focus my attention on what may help or what may be useful for my athletes in difficult moments.]	3.37 (.66)	.75	.57	
13. Tenho a capacidade de ouvir e compreender os meus atletas quando estão chateados/as, frustrados/as ou preocupados/as com alguma coisa. [I am able to listen and to understand my athletes when they are angry, frustrated or worried about something.]	3.38 (.67)	.72	.52	
14. Dou suporte e encorajo os meus atletas a agir de acordo com aquilo que valorizam, mesmo que isso seja difícil para eles. [I support and encourage my athletes to act in accordance with what are important and useful for them, even if this is very difficult.]	3.42 (.69)	.76	.58	
15. Sou capaz de identificar as emoções dos meus atletas em momentos difíceis e de tensão, sem agir de uma forma impulsiva. [I am able to identify my athletes' emotions at difficult times and in moment of tension without acting in an impulsive way.]	3.09 (.62)	.66	.43	
16. Ajo de forma tranquila e bondosa perante momentos de tensão, ou quando os meus atletas experienciam angústia, frustração ou raiva. [I act in tranquil and kind way in moments of tension or when my athletes experience anxiousness, frustration or anger.]	3.08 (.75)	.68	.46	

**Table 2.** Results of the Multi-Group Analysis across the Unconstrained Model and the Constrained Models of the CCS-CV (Calibration Sample: N = 196; Validation Sample: N = 287).

	$\chi^2$	df	p	CFI	TLI	SRMR	RMSEA [95% CI]	$\Delta\chi^2$	$\Delta df$	p	$\Delta CFI$
<b>Multi-group analyses</b>											
Unconstrained model	17.93	14	.21	.92	.91	.06	.05 [.05/.06]	-	-	-	-
Measurement weights	.97	1	.33	.92	.92	.06	.05 [.05/.06]	17.93	16	.000	.002

Note.  $\chi^2$  = chi-square goodness-of-fit statistic; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = Standardized Root Mean Squared Residual; RMSEA = The Root Mean Square Error of Approximation.

factor 2 (coach's abilities to take effective actions to prevent and alleviate athletes' distress/suffering) and global score, respectively. Composite reliability presented values of .86, .89, and .94 for factors 1, 2, and global score, respectively, which indicated that the CCS-CV presented construct reliability (Fornell & Larcker, 1981). AVE presented values of .65, .72, and .69, for factors 1, 2, and global score, respectively, which showed that the CCS-CV has convergent validity (Fornell & Larcker, 1981). Moreover, the discriminant validity of the measures was accepted given the squared correlations between each construct and any other lower than the AVE values for each construct in the model (Fornell & Larcker, 1981). The correlation between factor 1 and 2 is .78. The square of .78 is lower than AVE.

### CCS-CV's relationship with other measures

In order to explore the relationship between CCS-CV and other variables Pearson correlations among this scale and other relevant measures were performed. Correlations results showed that the CCS-CV (total, engagement and action subscales) were positively associated with self-compassion (total, engagement and action subscales and with quality of life). Also, self-compassion was positively associated with quality of life. See Table 3.

## Discussion

This study presented the development and validation of the Compassionate Coach Scale – Coaches Version (CCS-CV), a scale to measure the compassionate qualities of coaches directed towards their athletes. The CCS-CV factor structure was tested through CFA, where three models were compared: a unifactorial model (Model 1); a two-factor model hypothesising the intercorrelation between the coach's compassionate engagement and coach's compassionate action factors (Model 2); and a Model 3 with a higher-order factor (global sense of coach's compassionate qualities) with two lower factors (coach's compassionate engagement and coach's compassionate actions factors). Similarly to CCS-PA, Model 3 was chosen, since this higher-order model also showed an acceptable fit in two independent samples and was the one that best represented the theoretical framework. Also, the global and local adjustment indices showed the suitability of the CCS-CV's factorial structure, taking into consideration the recommended standards. In addition, the two lower factors (coach's compassionate engagement and coach's compassionate actions) and the global compassionate qualities

**Table 3.** CCS-CV' correlations with other variables (Sample 2; N = 287).

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.
1. Compassionate Coach (global sense)	51.51	8.12	-	-	-	-	-	-
2. Coach's compassionate engagement	25.80	4.27	.94***	-	-	-	-	-
3. Coach's compassionate actions	25.70	4.34	.94***	.78***	-	-	-	-
4. Self-compassion (total)	89.95	10.36	.24***	.20**	.25***	-	-	-
5. Self-compassion (engagement)	51.40	5.91	.21***	.21***	.19**	.82***	-	-
6. Self-compassion (action)	38.55	6.48	.19**	.13*	.23***	.85***	.40***	-
7. Quality of Life	75.36	11.45	.22***	.22***	.20**	.37***	.23***	.38***

Note. Compassionate Coach was assessed by SCS-CV; Self-compassion was assessed by CEAS; Quality of life was assessed by EUROHISQOL-8.

\*\*\* $p < .001$ ; \*\* $p < .010$ ; \* $p < .05$ .

factor revealed good internal consistencies. Furthermore, CCS-CV presented composite reliability, convergent validity, and discriminant validity. In order to examine external validity, correlational analyses were performed between this new measure and other relevant variables. Results demonstrated that CCS-CV was positively associated with positive outcomes, namely with self-compassion and quality of life. These results are in line with previous studies in the context of sport since compassionate competencies (such as self-compassion) have been associated with positive outcomes, such as indicators of psychological health (e.g., Mosewich et al., 2019; Oliveira et al., 2022b; Röthlin et al., 2019). Furthermore, these data added new relevant data to literature, focusing on coaches (a population less studied when compared to athletes), and demonstrating the pertinence of evaluating these skills in coaches.

In fact, the work environment for coaches could be very challenging and stressful. Their daily work with athletes, combined with performance-related pressures, financial concerns, and relations with other colleagues are a few examples of stressors that impact their day-to-day (Lundkvist et al., 2014; Norris et al., 2017). Although some coaches handle it well, others may feel the strain of accumulating stress, which may be problematic, especially if these stressors are reflecting in their interactions with athletes. For example, athletes sometimes choose to stop playing sports due to negative experiences in this context, including a negative relationship with their coaches (Coakley, 2004). A negative coach-athlete relationship is associated with lower levels of athletes' satisfaction, with negative indicators of mental health (self-criticism, shame, symptoms of anxiety and depression), and with inhibition of their athletic development and progress (Davis et al., 2019; Oliveira et al., 2021; Siekanska et al., 2013).

Therefore, since compassion plays a protective role against the impact of adverse situations and is an adaptive emotional process to manage the internal and external burden of stressful events, it is important to evaluate this skill in coaches. This study seems to suggest that coaches' compassionate skills directed towards athletes are linked to the mental health indicators of coaches. The promotion of these skills in coaches may also be beneficial to their athletes.

Nonetheless, these findings need to be interpreted taking into consideration some methodological limitations. Firstly, although these data pointed out the validity of the CCS-CV, future research should investigate the structure and reliability of this new scale in other samples (e.g., coaches who train athletes that practice other types of sports that were not included in our samples), languages, countries, and cultures. This scale was developed for the Portuguese language and is not validated for other languages. Thus, it would be interesting to validate the questionnaire in other languages (e.g., English). Secondly, in the samples of this study, the majority of coaches were men. It would be important to examine this new scale in samples with a more homogeneous distribution of the gender, in order to analyse differences across gender. Furthermore, it would be interesting to study the relationship between this new scale and other directions of compassion (compassion from others and towards others). However, taking into account the difficulties of collecting samples when the questionnaires are long, it would be interesting to develop a short version of the CCS-CV in order to promote the adherence of more subjects to participate in these types of studies. In fact, the short version of an instrument has the advantage of being able to be administered in a shorter period of time and with a decrease in respondents' fatigue, and can be more

easily used in sports and research contexts (Gordts et al., 2017). Finally, future studies ought to explore whether the perceptions of coach compassionate qualities directed towards athletes (as measured by CCS-CV) are in accordance with the athletes' perceptions of coach compassionate qualities (as assessed by CCS-PA).

Overall, CCS-CV is a reliable measure of coach compassionate qualities directed towards their athletes and could represent an important tool for practical and research fields of sport context. This study can be a contribution in terms of assessment and, consequently, in terms of psychological intervention with coaches. At research level, these new data enable the development of studies that can cross data from the two sources of information (athletes and coaches) and enable clarification on how compassion is associated with other relevant variables in the athlete-coach dyad. From a practical point of view, these novel findings provide a utility to researchers and practitioners (e.g., psychologists, sports coaches), since it can be employed as an assessment tool in the context of sport, providing important help to identify features of the coaches that could be changed. The presence of these skills from the coach (sensitivity to suffering, and acting to alleviate the athletes' frustration such as in situations of injuries, situations in which athletes feel fear of failure, sports anxiety, or not being summoned to play) seems to be crucial for the mental health of athletes (Oliveira et al., 2022a) but also for the mental health of the coaches. Finally, this study seems to suggest the pertinence of the adoption of compassionate qualities by coaches (fundamental abilities to a new generation of coaches) and encourages the development of compassion-based intervention programs directed towards coaches.

### Data Sharing Policy

The data are not publicly available due to restrictions (e.g. their containing information that could compromise the privacy of research participants).

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