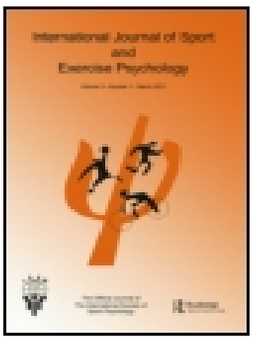

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The compassionate coach scale as perceived by the athlete: development and initial validation in Portuguese athletes

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ABSTRACT

The current study aimed to develop and validate a measure to assess an athlete's perception of a coach's compassionate qualities – The Compassionate Coach Scale as Perceived by the Athlete (CCS-PA). Two independent samples were used to validate this scale. Participants were Portuguese adult athletes of different sports, who completed self-reported measures on an online survey. The first sample (calibration sample; $N = 181$) was used to examine the structure of the scale. The second sample (validation sample; $N = 247$) was used to ascertain its structure and explore various aspects of its validity. A confirmatory factor analysis was employed to test the adequacy of the proposed hierarchical structure of the scale. One higher-order factor (perceived coach's compassionate qualities) with two lower-order factors (compassionate engagement and compassionate actions) revealed an adequate fit to the data. The scale showed high internal consistency, convergent, discriminant and external validity and it was invariant across gender. CCS-PA revealed to be a reliable measure that allows the assessment of the athlete's perception of the coach's qualities of engagement with their distress/suffering and the coach's abilities to take effective actions to prevent and alleviate it. This scale seems to be an important contribution for practical and research fields of clinical sport psychology, providing important help to identify features of the coaches that could be changed. Also, this study can be a potential contribution to alert coaches about the impact of their attitudes and behaviours on athlete' mental health.

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Coach; athlete; compassion; confirmatory factor analysis; sports

Introduction

Several studies have shown that compassion has a positive impact on physical, psychological and social well-being (e.g., Gilbert, 2014; López et al., 2018). Indeed, the benefits of compassion on physical and mental health and positive social relationships are increasingly recognised (e.g., Gilbert et al., 2017). Also, within a sport context, there has been a growing interest in the study of compassion skills as an emotional tool during challenging times in sport (Killham et al., 2018; Mosewich et al., 2013; Walton et al., 2020).

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Compassion

Compassion is an intrinsic quality in all human beings, determined, in part, by individual traits, and moderated by different conscious and unconscious factors, social and cultural backgrounds (Lown, 2015). As defined by Gilbert (2014), compassion is an intentional sensitivity to suffering, with a motivation and commitment to try to relieve it. Therefore, compassion refers to the capacity to be attuned and emotionally moved by one's own or someone else's suffering, as well as actions to give support. These qualities, despite being innate, can be learned and trained in order to regulate negative affect (Gilbert, 2015). Thus, compassion encompasses two distinct functional psychological processes: compassionate engagement and compassionate action (Gilbert, 2014; Gilbert et al., 2017). The first component involves 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 second component, compassionate action, concerns the ability to act with wisdom and courage to alleviate and prevent suffering (e.g., directing attention to what is helpful; thinking and reasoning about what is likely to be helpful; taking helpful actions and creating the inner feelings of support, kindness, helpfulness and encouragement to deal with distress; Gilbert, 2014; Gilbert et al., 2017). From this perspective, compassion can be understood as an integrated flow involving compassion towards others, becoming receptive to the compassion from others, and also to self-compassion (Gilbert et al., 2017).

Recently, Gilbert and colleagues (2017) developed the Compassionate Engagement and Action Scales (for the general population in Portugal, United Kingdom and United States of America) to assess compassionate-related engagement and action in three directions: for the self, for others and the ability to receive compassion from others. In general, the different components (engagement and action) and directions of compassion were positively associated with well-being and negatively linked with several psychopathological indicators, such as depression, anxiety and stress (Gilbert et al., 2017).

The protective role of compassion in sport context

Compassionate skills may play a protective role against the impact of adverse events and represent adaptive strategies to manage the internal and external burden of stressful circumstances. In sport context, injuries, fear of failure, pressure to win, being in the second string or last place, and feelings of shame are some of the common experiences that may elicit negative emotions in athletes (e.g., Correia & Rosado, 2018; Partridge & Elison, 2009). However, there are only a few studies that showed the protective role of compassion skills in sport context. For example, Mosewich and colleagues (2013) highlighted the potential contribution of self-compassion in sport by demonstrating its association with lower levels of state self-criticism, state rumination and concern over mistakes. Self-compassion was also negatively related to negative affect and several perfectionism components such as concern over mistakes, doubts about actions and perceived coach pressure (Mosewich et al., 2013). Another study conducted by Killham et al. (2018) showed positive relationships between higher levels of self-compassion and more positive perceived sport

performance. Nevertheless, these studies focused only on self-directed compassion and there are no studies, to our knowledge, that focus on receive compassion from others in sport context.

Receiving compassion from others refers to the ability to receive signals and expressions of compassion from others and to feeling soothed and cared for, when we feel they are supportive and have compassion skills (Gilbert et al., 2017). Recent evidence suggests that compassionate support from others has a major impact on resilience to distress and a range of health indices (e.g., Ferreira et al., 2020; Gilbert et al., 2017; Hermanto et al., 2016). In this sense, in sport context, receive compassion from others, especially from the coach, could play an important role on athletes' well-being.

The role of coach on athletes' development and influence of receiving compassion on indicators of mental health

Perceptions of the athletes about their social environment may have psychophysiological implications (Barcza-Renner et al., 2016). Specifically, coaches represent a key factor of the social environment that may potentially have an effect on athletes' development (Arnold et al., 2013; Becker, 2009; DeFreese & Smith, 2014; Fletcher et al., 2006; Isoard-Gautheur et al., 2016; Oliveira et al., 2021). In fact, coach is an important component in the life of athletes, a meaningful figure, who influences not only their sport performance, but also their physical and psychological development (Jowett & Cockerill, 2002, 2003; Sagar & Stoeber, 2009; Siekanska et al., 2013). Karakoç and colleagues (2011) highlighted that the coach should establish a healthy and supportive relationship with athletes. In terms of a positive influence, supportive social interactions within the athletes' environment have the potential to enhance their performance and development (Bianco & Eklund, 2001).

At the same time, evidence has been demonstrated that compassionate support from others has a major impact on resilience to distress and a range of health indices (e.g., Gilbert et al., 2017; Hermanto et al., 2016). Individuals, who receive compassion from others, tend to present feelings of social safeness which is defined as a pleasant and safe affective state related to social context (i.e., feeling cared about, reassured by and connected to others (Gilbert et al., 2009; Kelly & Dupasquier, 2016). Feelings connected to, care for, valued and understood by others are associated with positive health outcomes (Baumeister & Leary, 1995; Gilbert et al., 2008; Malinauskas, 2010). On the other hand, lower levels of receiving compassion from others were associated with several psychopathological indicators, such as general feelings of shame (Ferreira et al., 2020), depression and self-criticism (Hermanto et al., 2016).

Sport by its nature is a social activity, indeed when athletes play sport they do so in the public arena. Athletes recognise that they are under the gaze or look of others (whether they are spectators, other players or coaches; Ryall, 2019). Therefore, sport is a context that can elicit feelings of shame in athletes and they can also internalise negative judgements and criticism from others, such that the person self-devalues (i.e., self-criticism; Gilbert, 1998). In fact, shame and self-criticism have empirical evidence of being associated with psychopathology (e.g., Allan & Gilbert, 1997), as opposed to receiving compassion from others, which has been associated with psychological quality of life and other positive outcomes (Ferreira et al., 2020; Hermanto et al., 2016).

Importance of the development of a measure of athletes' perception of the coach's compassionate qualities

Given the significance of the coach in the life of athletes (e.g., Jowett & Cockerill, 2002, 2003) and the benefits of perceiving and receiving compassion from others in mental health and well-being (e.g., Hermanto et al., 2016), it is important to create a measure that allows the assessment athletes' perception of the coach's compassionate qualities. The Compassionate Engagement and Action Scales were validated for the general population, but sport and athletes are a specific population, and coach–athletes relationship is particular. For example, in sport and specifically in high-level sport, compassionate abilities could be particularly valuable for athletes struggling with any kind of stressful sport-related challenges (Baltzell et al., 2019). These challenges can arise from distressful pre-performance anxiety, difficult thoughts and emotions, difficulty learning a new skill, mistakes during performance, accumulated exhaustion, adaptation to a new condition or performance level and injury (Baltzell et al., 2019). Compassionate abilities acknowledge that difficult experiences are normal; accept them, and take actions that allow the athletes to tolerate such difficult moments of sport. If the athletes are able to do this, they are cultivating the possibility of acting with courage to face these challenges (Baltzell et al., 2019). Essentially, these abilities help the athlete accept and/or tolerate such difficult and distracting thoughts and emotions (Baltzell et al., 2019). Then, the coach can play a very important role in challenges faced by athletes (Mottaghi et al., 2013). Therefore, we suggest that this scale needs to be adapted and tested in these specific populations. Indeed, up to here, there have been no instruments to measure compassion in coaches from the perspective of the athletes. The existent measures allow the assessment of some coach's positive attitudes and behaviours but do not address compassionate qualities. For example, The Coach–Athlete Relationship Questionnaire was developed by Jowett and Ntoumanis (2004) with the purpose of assessing the nature of the coach–athlete relationship focused on positive aspects of the emotions of coaches and athletes (Closeness); cognitions (Co-orientation) and behaviours (Complementarity). More recently, Perceived Coach Attitudes and Behaviours Scale (Uzum et al., 2018) was developed to assess the perception of athletes on their coaches' knowledge and skills, fairness, and characteristic features. Although these scales assess proximal components, none of them measure the compassionate engagement and actions of the coach to identify and relieve athletes' distress or suffering.

The aim of the current study was to develop and validate the Compassionate Coach Scale as Perceived by the Athlete (CCS-PA). This new scale assesses athletes' perception on two crucial components of a compassionate coach: (1) coach qualities of engagement with athletes' distress/suffering and (2) coach abilities to take effective actions to prevent and alleviate athletes' distress/suffering. In this sense, this study presented the development and validation of CCS-PA, examining its factorial validity, external validity and its reliability. Also, CCS-PA is a new scale and we cannot assume that this construct can be applied to human beings universally. Measurement invariance across gender is an important analysis to support instrument validity (Chen, 2007). In this sense, besides the test of mean differences across gender, the invariance of the factorial structure of the CCS-PA across gender was also explored.

It was hypothesised that CCS-PA presented a second-order factor structure, with a higher-order factor (global coach's compassionate qualities) and two lower-order factors (coach's compassionate engagement and coach's compassionate actions), taking into account the literature review regarding the definition of compassion. Also, it was hypothesised that the range of factor loadings of the CCS-PA will be between .61 and .91 given the reported factor loadings of other previously developed instruments that also evaluate perceptions of compassionate qualities from others in various samples (e.g., Gilbert et al., 2017). Regarding psychometric characteristics, it was expected that this new scale would present adequate values of Cronbach alphas, convergent and discriminant validities. Concerning measurement invariance, it was expected that CCS-PA would be invariant across genders, since in other scales that evaluate compassionate qualities (e.g., Gilbert et al., 2017), differences between males and females have not been found. Also, it was hypothesised that CCS-PA would present positive associations with indicators of mental health (athlete-related social safeness and psychological quality of life) and negative associations with indicators of psychopathology (shame and self-criticism).

Material and methods

Scale development

The CCS-PA was developed as a measure of athletes' perception of coaches' compassionate qualities in the context of sport. Twenty-four items were created by three psychologists in Biopsychosocial Model and Compassion-Focused Therapy. The expert panel is based on the literature review of Compassion-Focused Therapy and in The Compassionate Engagement and Action Scales, namely subscale of receiving compassion from others (see Gilbert et al., 2017), in order to develop the items. Guidelines for item wording (Clark & Watson, 1995) were followed to maximise their specificity and clarity. The items were created in accordance with the assumption of over-inclusiveness (i.e., the expert panel sampled a sufficient breadth of content and wrote more items than necessary to assess the intended construct), basic principles of writing (i.e., understandable and appropriate language, avoiding expressions pertaining to a specific sport to broaden the applicability of the questionnaire across sports), iterative processes during which the items were rewritten several times before reaching the final version. Therefore, the items were subject to discussion and revision by the same expert panel, and some items were dropped (those that did not fully capture an athlete's perception of a coach compassionate qualities and items with redundant content). The final item pool consisted of 16 items, divided as two distinct components of receiving compassion from a coach: compassionate engagement and compassionate actions. In this sense, eight items assess the athlete's perception of a coach's compassionate engagement (e.g., "I feel that my coach has an accepting non-critical or non-judgmental attitude towards my feelings, anxieties and suffering."), and eight items measure the athletes' perception of a coach's compassionate actions (e.g., "I feel that my coach supports me and encourages to act in accordance with what is important and useful for me as an athlete, even if this is very difficult"). The 16 items were administered to 15 athletes (8 females and 7 males) to review the wordings and understandability of the items. All items were deemed understandable and feasible to athletes, and they were subsequently used to

form the initial version of the CCS-PA. Each item was scored on a 5-point scale ranging from 0 ("Never") to 4 ("Always"). In this sense, CCS-PA comprised 16 items with higher scores indicating athletes' perception of higher levels of a coach's compassionate qualities.

Participants

The current study comprised 455 Portuguese adult athletes divided into two independent samples. We assumed a 10:1 ratio (i.e., 10 subjects for each parameter to be estimated), as suggested by Kline (2016). One first sample (calibration sample) was used to examine the structure of the scale. The second sample (validation sample), obtained three months later, was used to confirm its structure and explored various aspects of validity. The first sample comprised 181 athletes of both genders (114 males and 67 females) who competed in different sports: volleyball (45.3%), soccer (21.5%), rugby (16.6%), handball (11%), roller hockey (2.8%), basketball (1.7%) and futsal (1.1%). The mean age was 23.18 ($SD = 5.55$), ranging from 18 and 44 years old. Regarding competitive level, 74.6% athletes competed at national level and 25.4% at district level. Regarding gender and ages of their coaches (reported by athletes), 91.7% were males and 8.3% were females and the majority with ages ranged 30 and 39 years old (47%). The second sample of this study comprised 247 athletes of both genders (136 females and 111 males) who were active in their sport. The mean age was 21.77 ($SD = 3.29$), ranging from 18 to 30 years old. The athletes competed in different sports: handball (44.9%), futsal (19%), soccer (17%), volleyball (15%), basketball (3.6%) and roller hockey (0.5%). Regarding the competitive level, 70.9% athletes indicated that they were competing at national level and 29.1% at district level. Regarding gender and ages of their coaches (reported by athletes), 94.7% were males and 5.3% were females and the majority (40.5%) with ages ranged between 40 and 49 years old.

Procedures

The present study's procedures respected ethical and deontological requirements inherent to scientific research and the study was approved by the Ethical Board of the Faculty of Psychology and Education Sciences of the University of Coimbra (FPCEUC). 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. The online advertisement included 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. Two internet links were generated for collecting two independent samples in two different time periods. The first link comprised informed consent and a protocol with sociodemographic data and CCS-PA. The other link comprised the same protocol but with more self-reported measures. Thus, participants, who accepted to participate in the study ($N = 490$), gave their informed consent and completed the online survey. Considering the aims of the present study, the database was cleaned to exclude: (i) participants who completed the survey but were not athletes; (ii) participants

younger than 18 years old. This process resulted in a final sample of 181 and 247 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.

Measures

Demographic data of participants and the coach

Participants reported their age, sex, type of sports they competed, competitive level, years of practice of sport, and sex and age of their coaches.

In addition to the CCS-PA previously described, the following self-reported instruments were used (in the second sample) in order to contribute to the study of the validity of CCS-PA.

Athlete-related social safeness

We used the Social Safeness and Pleasure Scale-Athletes version, which is an adapted athlete version of *the Social Safeness and Pleasure Scale* (SSPS; Gilbert et al., 2009; Pinto-Gouveia et al., 2008), in order to measure participants' social safeness in the context of sport – athlete-related social safeness (sense of belonging, acceptance and connectedness in their teammate relationships). Regarding this version, only initial instructions have been changed. The original SSPS is a self-report measure composed of 11 items designed to measure social safeness, i.e., the extent to which individuals feel a sense of acceptance and connectedness in their relationships (e.g., "I feel accepted by people"). The response options are rated on a 5-point scale (1 = "Almost never" to 5 = "Almost all the time"). SSPS-AV has shown good internal consistency in the original study ($\alpha = .91$; Gilbert et al., 2009). In the presented study the scale showed high internal consistency ($\alpha = .94$).

Shame

The Other as Shamer Scale – 2 (OAS-2; Matos et al., 2015) was used to evaluate levels of general feelings of shame (i.e., the perception of being negatively evaluated and judged by others). This scale comprises 8 items such as "Other people see me as small and insignificant" or "Other people see me as defective as a person" scored on a 5-point scale from 0 ("Never") to 4 ("Almost always"). In the original study, the scale showed high internal consistency ($\alpha = .82$; Matos et al., 2015). In the present study, the scale presented high internal consistency ($\alpha = .90$).

Self-criticism

We used *The Forms of Self-Criticizing & Self-Reassuring* Scale (FSCRS; Castilho et al., 2015; Gilbert et al., 2004) that is a 22-item scale designed to assess participants' critical and self-reassuring responses when confronted with failures or setbacks. This scale comprises three subscales which measure: (1) inadequate-self, focused on the feelings of inferiority and inadequacy; (2) hated-self, characterised by feelings of disgust and self-punishment and (3) self-reassurance, to assess the ability to self-reassure. Participants were asked to answer all items following the statement "When things go wrong for me … " in a 5-point scale (0 = "Not at all like me" to 4 = "Extremely like me"). All subscales presented good psychometric properties in the original version (Cronbach's alphas ranged between .86 and .90) and Portuguese version (Cronbach's alphas ranged between .86

and .96). For the purpose of this study, only the self-criticism dimension (calculated from the sum of inadequate-self and hated-self subscales) was used, which presented high internal consistency ($\alpha = .92$).

Psychological quality of life

The World Health Organization Brief Quality of Life Assessment Scale (WHOQOL-Bref; Vaz-Serra et al., 2006; WHOQOL Group, 1998) was used to evaluate the psychological quality of life. WHOQOL-Bref is a short-form scale of perceived quality of life (QoL), assessed on four broad domains: physical health, psychological health, environmental health and social relationships. WHOQOL-Bref comprises 26 items rated on a 5-point scale. This scale presents adequate psychometric properties in its original (with Cronbach's alphas ranging between .66 and .84) and Portuguese validation studies (αs between .67 and .87). For the purpose of this study, psychological health domain was considered, which presented adequate internal consistency (α = .81).

Analytic strategy

Following collection, data were transferred into the Statistical Package for the Social Sciences (SPSS), version 22. First, a series of preliminary analysis was run. It verified the presence of univariate and multivariate outliers. The normality of the distribution was verified through the distribution kurtosis and skewness for each item. All values are greater than −7 and less than 7, indicating that no item is considered to have a severe normality problem (Bandalos & Finney, 2010; Byrne, 2010). The multivariate normality of the items was assessed by the Mahalanobis distance (D^2) and statistically by Mardia's normalised estimate of multivariate kurtosis in the form of critical ratio of kurtosis in Amos. Critical ratio of kurtosis <5.0 indicates multivariate normality and then bootstrapping should be conducted (Byrne, 2010). Potential multicollinearity was tested by calculating the Variance Inflation Factor (VIF). Multicollinearity may be considered an issue if VIF values are below 1 and above 10 (Hair et al., 2010).

The adequacy of the scale was confirmed 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 was represented by a higher-order factor (global coach's compassionate qualities) with two lower-order factors (coach's compassionate engagement and coach's compassionate actions). The second-order structure hypothesised in Model 3 should only be tested if there is evidence that the two lower-order factors are correlated (Byrne, 2010). The Maximum Likelihood estimation, which is robust against departures from multivariate normality, was applied. The following good-of-fit indices were considered: 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), Normed Fit Index (NFI; a good fit when above .90; Hair et al., 2010). Comparative Fit Index (CFI) and the Tucker and Lewis Index (TLI), which indicate a good fit when above .90 (Hu & Bentler, 1999). The Standardised Root-Mean Square Residual (SRMR) and the Root-Mean Square Error of Approximation (RMSEA) were also analysed considering that values below .08 demonstrate an acceptable fit (Hu & Bentler, 1999). All these steps were applied to both samples. The next steps were

applied for the second sample with the purpose of exploring various aspects of its validity (convergent, discriminant, external validity and invariance across gender).

A multi-group CFA was performed in order to assess the measurement invariance across gender. The measurement invariance tests are a series of hierarchically nested confirmatory factor analyses by increasing levels of cross-group equality constraints. Thus, first, configural invariance tests whether each common factor is associated with identical items across groups, fixing construct dimensionality to be invariant. The second level of invariance, namely metric invariance, is tested by constraining the factor loadings to be equivalent across groups. Third, scalar invariance is tested at the intercept level, whereby the intercepts are constrained to be equal across groups, to examine whether the comparisons of group means are meaningful. We considered invariance as established when the added restrictions did not lead to a worse model fit. The non-significant result of the χ^2 difference test and the change value of Comparative Fit Indices (ΔCFI) equal or smaller than .01 indicate that the invariance tests claimed are supported (Byrne, 2010). Therefore, total and factor scores were obtained by imputation in AMOS and *t*-tests for independent samples were used to test gender differences on the CCS-PA global score and the subscales in SPSS.

The CCS-PA's psychometric properties were further examined through additional analyses. Internal reliability was analysed through Cronbach's alpha, with values above .70 indicating good reliability (Kline, 2000) and composite reliability (which should also be above .70; Fornell & Larcker, 1981). To examine the CCS-PA' convergent validity, the average variance extraction (AVE) was calculated; this indicator should be above .50 (Fornell & Larcker, 1981). Discriminant validity was assumed when AVE of each construct was greater than the squared correlation between that construct and any other (Fornell & Larcker, 1981). Pearson correlation coefficients (Cohen et al., 2003) were estimated to analyse the relationships among total score of compassionate coach scale and respective subscales. External validity was analysed by Pearson's correlation coefficients among athletes' perceptions of compassionate coach's qualities, athlete-related social safeness, shame, self-criticism and psychological quality of life.

Results

Preliminary analysis

A preliminary analysis on CCS-PA's items indicated that data presented a normal distribution in both samples (Bandalos & Finney, 2010; Byrne, 2010). However, the Mardia's coefficients of multivariate kurtosis in the sample were 39.11 and 39.89 in sample 1 and in sample 2, respectively, showing a problem of multivariate normality. According to Byrne's (2010) recommendation, if the Mardia's coefficient has a value greater than 5, then bootstrapping should be conducted.

However, it detected some outliers (occurring in 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 3.995 and 3.929 in sample 1 and 2, respectively; Hair et al., 2010).

Confirmatory factor analysis

A CFA of CCS-PA was performed in sample 1 with the remaining 16 items to examine the scale's structure and adequacy ($N = 181$). 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 250 and the bias-corrected confidence interval was set at the 95% confidence level (Nevitt & Hancock, 2001). Three models were tested. A unifactorial factor model (Model 1) was tested and a poor fit to the data was shown: (CMIN/df = 5.34, $\chi^2(104) = 555.220$, $p < .001$; NFI = .85; CFI = .87; TLI = .85; SRMR = .05; RMSEA = .16). Model 2 revealed an acceptable fit to the data, with CMIN/df = 3.53, $\chi^2(103) = 364.033$, $p < .001$; NFI = .90; CFI = .93; TLI = .91; SRMR = .04; and RMSEA = .12. Given that coach's compassionate engagement and coach's compassionate actions factors are substantially correlated with each other ($r = .90$; $p < .001$), a model with second-order structure was tested (Model 3): a higher-order factor (global coach's compassionate qualities) and two lower-order factors (coach's compassionate engagement and coach's compassionate actions). Results revealed that Model 3 adjusted to data adequately (CMIN/df = 3.534, $\chi^2(103) = 364.033$, $p < .001$; NFI = .90; CFI = .93; TLI = .91; SRMR = .04; RMSEA = .12), presenting similar adequate global fit indexes to Model 2. The factor loadings between the first-order factors (coach's compassionate engagement and coach's compassionate actions) and the global factor were .95 for both, which is in line with Koufteros and colleagues' recommendations for testing the second-order models. Model 3 was, therefore, chosen by the authors as the most adequate to represent the theoretical model and was in accordance with the aim of developing a measure that would allow, not only the assessment of athletes' perception of a coach's compassionate engagement and athletes' perception of a coach's compassionate actions, but also the assessment of a global sense of athletes' perceptions of coach compassionate qualities. Furthermore, this higher-order model was the one that best represented the theoretical framework and the objective underlying the designing of the CCS-PA. This factor structure was confirmed in sample 2 ($N = 247$) and the model also revealed to be adjusted to data adequately (CMIN/df = 3.323, $\chi^2_{(103)} = 342.304$, $p < .001$; NFI = .92; CFI = .95; TLI = .94; SRMR = .03; RMSEA = .09). Thus, CCS-PA seems to present adequate global adjustments (see Table 1).

Multi-group CFA for measurement invariance across gender groups

Table 2 presents a summary of goodness-of-fit indices for measurement invariance across gender groups in sample 2. Before undertaking the measurement invariance tests, the confirmatory factor analyses were separately conducted for the male and female groups, which confirmed goodness-of-fit for both male (CFI = .93) and female (CFI = .91) groups, respectively.

The baseline unconstrained model tested the structure of the CCS-PA across both gender groups simultaneously. Results showed an acceptable model fit (CFI = .92), indicating that the factor structure model fitted the data well in both groups (configural invariance). Subsequently, a measurement weight model was tested with factor loadings constrained to be equal across gender groups. This model showed an acceptable model fit (CFI = .92). When compared to the baseline unconstrained model, no significant

Table 1. CCS 'items' means (M), standard deviations (SD), standardised regression weights (SRW) and squared multiple correlations (SMC) (Sample 2; $N = 247$).

α total = .97			
Items (When I'm not motivated or upset with something I feel that my coach …)	M (SD)	SRW	SMC
Coach's Compassionate Engagement		.95	
1. Is motivated in confronting or trying to deal with this moments of suffering and anxiousness.	2.85 (1.00)	.80	.64
2. Is able to identify and does not try to avoid or ignore my worries and anxieties as an athlete.	2.65 (1.08)	.77	.59
3. Notices and is sensitive to my negative feelings (such as dismotivation, fear, shame) when they are present.	2.59 (1.08)	.86	.73
4 Feels emotionally moved when I show negative feelings or when I am going through difficult times.	2.30 (1.17)	.79	.63
5. Is able to reflect on and understand my suffering and my frustrations as an athlete.	2.66 (1.00)	.88	.77
6. Accepts, without criticising, my opinion.	2.55 (1.06)	.72	.52
7. Is tolerant and sensitive towards the various emotions that are part of my life as an athlete.	2.62 (1.02)	.91	.82
8. Has an accepting non-critical or non-judgmental attitude towards my feelings, anxieties and suffering.	2.69 (1.03)	.83	.68
Coach's Compassionate Action		.95	
9. Acts or does things that are useful and positive for me in moments of tension.	2.63 (0.95)	.83	.68
10. Thinks about or reflects on my suffering and finds useful ways to help me deal with it.	2.55 (1.01)	.91	.83
11. Expresses or shows feelings of support, helps and encourages me in difficult situations or when I am anxious.	2.72 (1.07)	.92	.85
12. Focuses their attention on what may help or what may be useful for me in difficult moments.	2.72 (1.05)	.91	.83
13. Is able to listen and to understand me when I am angry, frustrated or worried about something.	2.73 (0.99)	.89	.80
14. Supports me and encourages to act in accordance with what is important and useful for me as an athlete, even if this is very difficult.	2.79 (0.97)	.91	.83
15. Is able to identify my emotions at difficult times and in moment of tension without acting in an impulsive way.	2.58 (1.03)	.86	.74
16. Acts in way tranquil and kind way in moments of tension or when I experience anxiousness, frustration or anger.	2.63 (1.02)	.85	.73

Note: The factor loadings between first-order factors (coach's compassionate engagement and coach's compassionate actions) and the global factor were .95 for both.

Table 2. Summary of fit indices for measurement invariance across gender groups (Sample 2; $N = 247$).

	χ^2	*df*	*p*	CFI	SRMR [95% CI]	$\Delta\chi^2$	Δdf	*p*	ΔCFI
Summary of fit statistics									
Females	310.12	103	<.01	.91	.04 [.11/.14]				
Males	239.92	103	<.01	.93	.04 [.09/.13]				
Multi-group analyses									
Unconstrained model	18.85	14	.17	.92	.04 [.07/.09]	–	–	–	–
Measurement weights	28.33	16	.03	.92	.04 [.07/.09]	18.848	14	.000	.001
Measurement intercepts	0.08	1	.77	.92	.04 [.07/.09]	28.326	16	.000	.003

Note. χ^2 = chi-square goodness-of-fit statistic; *df* = degrees of freedom; CFI = comparative fit index; SRMR = The Standardised Root-Mean Square Residual.

changes occurred (ΔCFI = .001), indicating that the factor loadings were invariant across groups (metric invariance). Finally, a measurement intercept model was tested, which also showed a good model fit (CFI = .92). When compared to the measurement weight

model, no significant changes occurred (ΔCFI = .003), indicating that the intercepts are constrained to be equal across groups (scalar invariance).

Taking together, these results suggest that the CCS-PA is fit to assess athletes' perception of coach' compassionate qualities, in both gender groups. Since the three invariance tests were all satisfied, the *t*-test for independent samples was conducted in the next stage.

Gender differences on athletes' perception of coach's compassionate qualities as measured by the CCS-PA

No differences were found when comparing men's and women's scores on the CCS-PA global scale [$M = 41.71$; $SD = 14.11$ vs. $M = 42.73$; $SD = 13.71$, $t_{(245)} = -0.57$; $p = .57$;] and this effect was of small magnitude (Cohen's $d = .07$). Additionally, no significant differences were found between men and women regarding CCS-PA's factor 1 [$M = 20.50$; $SD = 7.38$ vs. $M = 21.26$; $SD = 6.86$, $t_{(245)} = -0.84$; $p = .40$] or CCS-PA' factor 2 [$M = 21.22$; $SD = 7.30$ vs. $M = 21.47$; $SD = 7.28$, $t_{(245)} = -0.27$; $p = .79$] and these effects were of small magnitudes (values of Cohen's *d* were .11 and .03 for factor 1 and 2, respectively).

Psychometric properties

All Cronbach alphas are indicative of high reliability of the scale (Kline, 2011, with values of .94, .97 and .97 for factor 1 (coach's qualities of engagement with athletes' distress/suffering), 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 .94, .97 and .98 for factors 1, 2 and global score, respectively, which indicated that the CCS-PA presented construct reliability (Fornell & Larcker, 1981). AVE presented values of .82, .88 and .85, for factors 1, 2 and global score, respectively, which demonstrated that the CCS-PA 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 were lower than the AVE values for each construct in the model (Fornell & Larcker, 1981). These results could be better scrutinised in Table 3.

CCS-PA' relationships with other measures

In order to explore the external validity of CCS-PA was performed Pearson correlations among this scale and other variables. Results demonstrated that the CCS-PA was positively associated with athlete-related social safeness and psychological quality of life, and negatively linked with general feelings of shame and self-criticism. Age of athletes

Table 3. Discriminant validity results (Sample 2; $N = 247$).

	AVE	1. .85	2. .82	3. .88
1.CCS-PA_total score (compassionate coach)	.85	–	–	–
2.CCS-PA_factor coach's compassionate engagement	.82	.96***	–	–
3.CCS-PA_factor coach's compassionate actions	.88	.97***	.86***	–

Note. *** $p < .001$.

Table 4. CCS-PA' correlations with other variables (Sample 2; $N = 247$).

	M	*DP*	1.	2.	3.	4.	5.	6.
1. Compassionate Coach	42.27	13.87	–					
2. Social Safeness	45.94	7.89	.36***	–				
3. Shame	5.39	5.15	−.25***	−.64***	–			
4. Self-criticism	8.18	5.43	-.25***	-.53***	.52***	–		
5. Psyc. quality of life	75.51	13.90	.18**	.58***	−.52***	−.60***	–	
6. Age of athletes	21.77	3.29	−.01	.00	−.09	−.22**	.09	–
7. Years of practice	11.23	4.49	−.01	.05	−.09	−.14*	.12	.50***

Note. Compassion Coach = Compassionate Coach Scale as Perceived by the Athlete; Social Safeness = Social Safeness and Pleasure Scale; Shame = The Other as Shamer Scale-2; Self-criticism = dimension of self-criticism of Forms of Self-Criticising and Self-Reassuring Scale; psyc. quality of life = psychological dimension of WHOQOL-bref).
** $p < .01$; *** $p < .001$.

and years of practice of the respective sport, did not present significant associations with CCS-PA (Table 4).

Discussion

The present study presented the development and validation of the CCS-PA, a measure to assess the athletes' perceptions of coach's compassionate qualities.

Particularly, the CCS-PA's items were designed to assess compassionate qualities of the coach, based on theoretical literature of Biopsychosocial Model and Compassion-Focused Therapy (Gilbert, 2014; Gilbert et al., 2017). The CCS-PA factor structure was tested through CFA, where three models were compared: a unifactorial model; a two-factor model hypothesising the intercorrelation between the coach's compassionate engagement and coach's compassionate action factors; and 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) model. The first model presented a poor fit to the data and. Even though the second model revealed an acceptable fit, the higher-order model also showed an acceptable fit and was the one that best represented the theoretical framework. Additionally, it was according to the objective underlying the designing of the CCS-PA. These findings are in line with the literature review, the Biopsychosocial Model, and Compassion-Focused Therapy (Gilbert, 2014; Gilbert et al., 2017) that inspired the CCS-PA development.

Results regarding factorial structure of the present scale showed that the 16 items were relevant to measure compassionate qualities from the coach and presented adequate psychometric properties. The CCS-PA factorial structure was tested through a second-order model using CFA. A model with a second-order structure was represented by one higher-order factor (global coach's compassionate qualities) with two lower-order factors: coach's compassionate engagement (coach's compassionate qualities of engagement with athletes' distress/suffering) and coach's compassionate actions (coach's abilities to take actions to prevent and alleviate athletes' distress/suffering) was tested. Results revealed that this model presented an adequate fit to the data in two independent samples.

Concerning reliability, the total-item correlations further confirmed the adequacy of the items. In addition, the two lower factors (coach's compassionate engagement and coach's compassionate actions) and the global compassionate qualities factor presented

very good internal consistencies (ranging from .94 to .97). This scale showed composite reliability, convergent validity and discriminant validity for each factor.

CCS-PA was positively associated with feelings of belonging to the team (athlete-related social safeness) and with athletes' psychological quality of life and negatively linked with general feelings of shame and self-criticism, which demonstrated CCS-PA's external validity. Correlational results demonstrated that this new scale (CCS-PA) was not significantly associated with the athletes' age nor with the years they had practised their respective sport. Furthermore, the literature has shown that compassionate competencies are important in a general context, such as demonstrated in Gilbert and colleagues' study (2017) by showing that receiving compassion from others is negatively associated with self-criticism, depression, and stress, and positively correlated with well-being. In the context of sport, compassionate competencies (such as self-compassion) have also been shown to play a crucial role in coping with adversity (Ingstrup et al., 2017). In fact, athletes deal with negative events and experiences of adversity in sport context, such as injuries, getting benched, negative interactions with teammates, balancing commitments and losing a game (e.g., Galli & Vealey, 2008). In this sense, this study is in line with previous studies and added new data to the literature seeming to suggest that it is crucial that athletes perceive their coaches as compassionate (through feelings of support, kindness, presenting qualities to engage with suffering and skills to act to alleviate suffering) because it links with mental health indicators. In other words, this study seems to highlight the importance of being a compassionate coach. In fact, the current data seem to suggest that these feelings of affiliation promoted by the coach can have a positive association not only on the team (promoting social safeness, i.e., feelings of belonging to the team) but also on the health and the well-being of the athlete.

Moreover, the model invariance between males and females was tested. As in previous studies, specifically in Gilbert and colleagues' study (2017) no gender significant differences were found. These data seem to suggest that, in the sports context, there are also no differences between the perception of male and female athletes regarding the compassionate qualities of the coach.

Nevertheless, some methodological limitations should be taken into account when interpreting these results. Firstly, this was the first study examining the structure of a new measure of an athlete's perception of a coach's compassionate qualities in a sample of Portuguese adult athletes. To ensure the plausibility of this structure, future research should be conducted to test CCS-PA in other samples (e.g., samples of adolescents and athletes who practise other types of sports that were not included in this sample) and in other languages. Compassion is contextual and culturally sensitive, so future studies should be conducted within different cultures. Secondly, in this study sample the majority of athletes reported have male coaches (94.7%) and with ages ranging between 40 and 49 years old (40.5%). It would be important to test this scale in samples with a more homogeneous distribution of the gender and age of the coaches, in order to analyse differences among these variables. Therefore, more studies are needed to further our understanding of how male and female coaches differ in compassion qualities. Another limitation of this study was the poor value of RMSEA. Although the proposed model does not reach all the cut-off values proposed by the literature for the incremental adjustment (RMSEA < .08), a decision

was made not to modify the model so as not to change the theoretical model of the definition of compassion proposed by the literature, and supported by Gilbert and colleagues (2017). Also, other indicators of fit were adequate. The cross-sectional nature of the study does not inform us whether athletes' perceptions of coach's compassionate qualities oscillate over time in accordance with different events that take place in sporting season or throughout a sport career. Also, in future studies, it will be important to understand whether the athletes' perception of coach compassionate qualities will be dependent on other contextual variables (type of sport, performance level, team cohesion). Future studies also could explore the effect of athletes' perceptions of coach compassionate qualities on coach–athlete relationship and whether this new variable has an impact on athletes' quality of life. Also, future studies ought to explore whether the athletes' perceptions of coach compassionate qualities are in accordance with the coaches' perceptions of athletes' compassionate qualities. Finally, future studies could also evaluate the factorial structure of this scale from an ESEM perspective, since ESEM has been demonstrated superior to CFA when having high inter-factor correlations.

In sum, CCS-PA is a reliable measure of an athlete's perception of a coach's compassionate qualities and seems to be an important contribution for practical and research fields of sport psychology. The role of the CCS-PA in sport setting is crucial. In fact, since this study provided a distinctive utility to researchers and practitioners (e.g., psychologists, sport coaches) from a practical point of view, it can be employed as an assessment tool on coach–athlete relationship, providing important help to identify features of the coaches that could be changed. Indeed, this new measure can be a potential contribution to alert coaches about the impact of their attitudes and behaviours. Moreover, research in this field may have a positive impact on the promotion of a positive and compassionate coach's attitudes in the face of athletes' difficulties. In fact, the presence of compassionate qualities from the coach (sensitivity to suffering, take concrete actions to alleviate the athletes' frustration such as in situations of injuries, situations in which the athlete feels fear of failure or not being summoned to play) seems to be crucial for the mental health of athletes. These novel findings suggest the relevance of the adoption of supportive, warm, safeness and compassionate qualities by coaches, fundamental abilities to a new generation of coaches. Also, taking into account that human beings are born with the capacity for compassion, and everyone can learn to deepen these capacities, it is possible that coaches learn to deepen compassionate qualities. In this sense, compassion-focused interventions for coaches could be beneficial in the context of sport.

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Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This study was approved by the Ethical Board of the Faculty of Psychology and Education Sciences of the University of Coimbra.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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