German, Portuguese and Spanish Versions of the Revised Short Form of the Physical Self-Inventory (PSI-S-*R*)

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Abstract

The present study sought to examine the psychometric properties of new German, Portuguese and Spanish versions of the Revised Short Form of the Physical Self-Inventory (PSI-S-*R*), and to contrast these properties against those from the original French version of this instrument. Participants (n = 1802) were 288 French youth, 177 German youth, 848 Portuguese youth and 489 Spanish youth. Results from exploratory structural equation modeling (ESEM) analyses supported the factor validity and reliability of PSI-S-*R* across the overall sample and each linguistic sample. Subsequent analyses supported the weak, partial strong, and strict invariance of this measure, and revealed a lack of differential item functioning (i.e., measurement bias) as a function of age, body mass index, sex and sport involvement across all linguistic versions. However, latent mean differences were observed as a function of these predictors and countries.

Key words: Physical self-concept; Physical Self-Inventory; PSI-S; Exploratory structural equation modeling; ESEM.

In the physical education and exercise sciences, recent research has highlighted the value of validated measures focusing on constructs related to youth's perceptions of their own physical abilities (Rudd et al., 2017; Simonton et al., 2021; van Veen et al., 2020), and of measures validated for cross-cultural measurement (Gaion Rigoni et al., 2018; Nascimento-Junior et al., 2020; van Veen et al., 2020). Moreover, for purposes of conducting large-scale cross-cultural or longitudinal investigations, short questionnaires make it possible to maximize the richness of data collected among participants by incorporating measures of more constructs without increasing the human or monetary costs of data collection. In the present study, we focus on the physical self-concept, which has long been recognized as a critically important determinant and outcome of involvement, performance, and enjoyment in exercise, sport, physical activity and physical education among youth[1] (e.g., Babic et al., 2014). Unfortunately, although some measures have been recently proposed for the assessment of physical self-conceptions among younger children (Rudd et al., 2017; Simonton et al., 2021; van Veen et al., 2020) or adults (Bateman, et al., 2021; Chung et al., 2016), few short questionnaires are currently available to measure physical self-concept among older children, adolescents, and young adults, and even fewer have been cross-culturally validated (for a review, see Marsh & Cheng, 2012). One of these questionnaires is the short form of the Physical Self-Inventory (PSI-S; Maïano et al., 2008). The PSI-S was originally created in French as an adaptation of Fox and Corbin's (1989) Physical Self-Perception Profile and was designed to assess physical self-perceptions among early adolescents, late adolescents, and young adults. This questionnaire included 18 items (3 per dimension) encompassing youth's global self-worth (GSW), physical self-worth (PSW), physical attractiveness (PA), physical condition (PC), physical strength (PS), and sport competence (SC). However, a cross-validation study relying on exploratory structural equation modeling (ESEM) revealed some problems associated with the three negatively worded items included in the original PSI-S, and with one additional item from the PSW scale which was doubled barreled (Morin & Maïano, 2011). These observations led to a revised version of the PSI-S, including only positively worded items and a reformulated version of the double-barreled item.

Cross-validations of the PSI-S-*R*

The psychometric properties of this revised version (the PSI-S-*R*) were first examined by Morin et al. (2016), who can also be credited for the validation of the English version of this instrument. Using ESEM, these authors contrasted the psychometric properties of the original PSI-S with those of the PSI-S-*R* among samples of 224 French-Speaking and 1368 English-speaking youth. Their results demonstrated the superiority of the PSI-S-*R* (relative to the original PSI-S) and its measurement invariance across French and English versions. Additional results showed that boys tended to present higher levels than girls on all PSI-S-*R* factors, but fail to identify any age-related differences, which could be explained by the limited age range of their samples (12 to 14 years).

More recently, Morin et al. (2018) re-examined the psychometric properties of the French, Dutch, Turkish, Italian, and Arab versions of the PSI-S-*R* among 4867 older children, adolescents, and young adults (aged 11 to 21 years). Like the Morin and Maïano's (2011) and Morin et al.'s (2016) studies, their results provided further support for the superiority of an ESEM, relative to a confirmatory factor analytic (CFA) approach. From a statistical perspective, by providing a way to freely estimate all cross-loadings to a model that can still be defined *a priori*, ESEM has been shown to result in a more accurate estimation of latent constructs (Asparouhov et al., 2015) and of their relation with other constructs (Mai et al. 2018), while remaining unbiased when cross-loadings are unnecessary (Asparouhov et al., 2015). Furthermore, their results also supported the factor validity, reliability, and measurement invariance of the PSI-S-*R* in all linguistic versions, its superiority compared to the original version, and a lack of differential item functioning (DIF; i.e., measurement bias) as a function of age, body mass index (BMI), sex, and sport involvement. However, their results also revealed that boys, younger participants, and participants involved in sport tended to present significantly higher levels on all PSI-S-*R* factors (with the exception of the PA which did not differ as a function of sport involvement) relative to girls, older participants, and participants not involved in sport. Additional results also revealed that participants with higher BMIs tended to present significantly higher levels on the PS and SC factors than participants with lower BMIs, which they interpreted as reflecting the impact of muscularity and bone structure on BMI.

Objectives of the Study

The main objective of this study was to extend the results obtained by Morin et al. (2016, 2018) by proposing new linguistic versions (German, Portuguese and Spanish) of the PSI-S-*R* in order to extend researchers' ability to rely on this instrument in the context of cross-linguistic studies. To ascertain the equivalence of these new linguistic versions, results will be contrasted with those obtained with the original French version, which has already served as the benchmark for the development of the English, Italian, Dutch, Turkish, and Arab versions of the PSI-S-*R* (Morin et al., 2016, 2018). First, the factor validity and reliability of the PSI-S-*R* will thus be examined using ESEM among the overall sample, and then separately in each linguistic sample. Second, the measurement invariance of PSI-S-*R* responses will be examined across linguistic versions. Finally, the presence of DIF (i.e., measurement bias) and latent mean differences (i.e., discriminant validity) of PSI-S-*R* responses will be examined as a function of participants' age, BMI, sex and sport involvement.

Method

Participants

The overall sample comprised 1802 (50.3% were boys) youth (10-21 years; *M* = 14.66; *SD* = 1.92) recruited in four European countries (i.e., France, Germany, Portugal and Spain). Participants' BMI ranged from 13.56 to 34.80 kg/m² (*M* = 20.70, *SD* = 3.07), and 66.2% practiced a sport outside of school. More specifically, the ***French*** sample comprised 288 youth (50.3% were boys; 13-20 years; *M* = 16.24, SD = 1.24) recruited in middle (*Collège*) and high schools (*Lycée*) from Southern France. Participants had a BMI between 14.79 to 34.35 kg/m² (*M* = 20.42, *SD* =2.81), and 80.2% practiced a sport outside of school. The ***German*** sample included 177 youth (58.2% were boys; 10-14 years; *M* = 11.46, SD = 1.18) attending a comprehensive school located in Northrhine-Westfalia. Participants had a BMI between 13.56 to 32.29 kg/m² (*M* = 19.35, *SD* =3.41), and 92.6% practiced a sport outside of school. The ***Portuguese*** sample comprised 848 youth (51.3% were boys; 11-21 years; *M* = 14.86, SD = 1.79) recruited in middle (*Ensino Básico*) and high schools (*Ensino Secundário*) located in Porto. Participants' BMI ranged from 13.63 to 34.80 kg/m² (*M* = 21.18, *SD* =3.11), and 56.7% practiced a sport outside of school. The ***Spanish*** sample included 489 youth (45.8% were boys; 12-18 years; *M* = 14.56, SD = 1.45) recruited in secondary (*Educación Secundaria Obligatoria*) schools located in Extremadura region. Participants had a BMI ranging from 14.10 to 31.20 kg/m² (*M* = 20.70, *SD* =2.82), and 64.3% practiced a sport outside of school.

Measures

Participants' Information. Participants were asked to report their age, sex, height, weight, and participation in a sport outside of school ("Do you practice a sport outside of the school?"). However, for German participants height and weight were objectively measured. Information about height and weight were used to estimate the participants BMI [weight/(height*height)]. To account for self-report biases in the estimation of height and weight, they were corrected (in all samples except for the German sample among whom height and weight were objectively measured) following Brettschneider et al.'s (2015) recommendations.

PSI-S-*R*. The French participants completed the validated French version of the PSI-S-*R* (Morin et al., 2016, 2018). The German, Portuguese and Spanish versions of the PSI-S-*R* were developed using a separate classical translation and back translation procedure for each of these languages (Hambleton, 2005). For each language, discrepancies between the original and the back translated versions were resolved through discussions involving at least two of the authors (to ensure that a native speaker of the original and translated version who was also a content expert could participate in the discussion). All of these discussions, for all languages, involved fine-tuning and very minor adjustments (no major issue was identified). Each time this happened, the item was again submitted to a new back-translation process to ensure equivalence with the original item. The 18 items and response scale of the English, French, German, Portuguese and Spanish versions are presented in Table S1 in the online supplements and can be used freely by researchers.

Procedures

First, data collection in each country was approved by the University research ethic committee from the main investigator in charge of country-specific data collections. Authorization to collect data was first granted from the schools. Finally, all interested participants (and their parents for minor participants) were asked to sign a consent form before data collection. Participants completed the PSI-S-*R* anonymously at school.

Data Analysis

Given the ordered categorical nature of the data, the analyses were performed using Mplus' (version 8.3; Muthén & Muthén, 2017) robust weighted least squares (WLSMV) estimator (Finney & DiStefano, 2013). The few missing responses available at the item level (.28% to 1.50%; *M* = .69%) were managed using algorithms implemented in Mplus's in conjunction with the WLSMV estimator (Asparouhov & Muthén, 2010), allowing us to retain all participants.

In a first stage, the *a priori* factor structure of the PSI-S-*R* was examined in the overall sample and separately in each linguistic sample using ESEM. The *a priori* ESEM model was estimated using a confirmatory form of factor rotation procedure referred to as target rotation (Asparouhov & Muthén, 2009; Browne, 2001). In this model, we assumed that responses to PSI-S-*R* would reflect six correlated factors defined by their *a priori* indicators, and all cross-loadings between items and non-target factors freely estimated. Target rotation made it possible to ascribe all cross-loadings a "target" value of 0 (this procedure did not, however, force these cross-loadings to have an exact value of 0) using the most commonly type of target rotation (Morin et al., 2020). It is theoretically possible to improve the accuracy of this rotation procedure by incorporating informed target values (i.e., indicating expected values for the loadings and cross-loadings; Myers et al., 2013, 2015). However, an *a priori* information was not sufficient to adopt more informed specifications in this study. Importantly, statistical simulation studies have shown that target rotation is quite robust relative to other rotations procedures (Myers et al., 2015), but have noted that risks were associated with the specification of incorrect target values (Guo et al., 2019), thus supporting our reliance on a more generic approach. The composite reliability of the PSI-S-*R* factors was estimated using the omega (ω) coefficient (McDonald, 1970). Model fit was assessed with the following fit indices (e.g., Hu & Bentler, 1999; Marsh et al., 2005; Yu, 2002): The comparative fit index (CFI), the Tucker-Lewis index (TLI; CFI and TLI≥ .90 or >. 95, respectively suggest acceptable and excellent fit), the root mean square error of approximation (RMSEA ≤. 08 or <. 06, respectively suggest acceptable and excellent fit), and its 90% confidence interval.

In a second stage, the measurement invariance of responses to the PSI-S-*R* was examined across linguistic groups in the following sequence (Pacewicz et al., 2021): (i) configural invariance; (ii) weak/metric invariance (invariance of loadings); (iii) strong/scalar invariance (invariance of thresholds); (iv) strict invariance (invariance of uniquenesses); (v) invariance of the latent variances/covariances; and (vi) invariance of latent mean factors. As noted by Pacewicz et al. (2021) the first four steps are necessary to unbiased group comparisons of latent relations (weak), latent means (strong), or observed scores (strict) across samples, whereas the last two steps rather seek to identify meaningful differences across samples. Comparisons between the sequences of invariance were based on changes (Δ) in CFIs, TLIs and RMSEAs. Invariance was supported when ΔCFIs/ΔTLIs were ≤ .01 and ΔRMSEAs ≤. 015 between a model and the previous one (Chen, 2007; Cheung & Rensvold, 2002). Due to their known oversensitivity to sample size and minor misspecifications, the WLSMV chi-square test of exact fit (Wχ^2) and changes in its values (ΔWχ^2 estimated using the Mplus DIFFTEST function) will only be reported, but not interpreted (e.g., Hu & Bentler, 1999; Marsh et al., 2005; Pacewicz et al., 2021).

In a third stage, a hybrid multiple indicators multiple causes (MIMIC) multiple-group model (e.g., Morin et al., 2018) was used to examine: (a) DIF, that is direct associations between the predictors and item responses over and above the association between the predictors and the latent factors; (b) the associations between predictors (i.e., age, BMI, sex and sport involvement) and PSI-S-*R* latent factors; and (c) the equivalence of these associations across the four PSI-S-*R* linguistic groups. These models were built from the most invariant multiple-group model identified in the second stage, to which the predictors were added (Morin et al., 2018). More specifically, hybrid MIMIC models were estimated in the following sequence (Marsh et al., 2013; Morin et al., 2013): (a) Null effects model (paths from the predictors to the PSI-S-*R* latent factors and item responses were constrained to be zero); (b) saturated model (paths from the predictors to the item responses were freely estimated, while paths from the predictors to the PSI-S-*R* latent factors were constrained to be zero); and (c) factors only model (paths from the predictors to the PSI-S-*R* latent factors were freely estimated, while paths from the predictors to the item responses were constrained to be zero). To ease interpretations, age and BMI were standardized prior to the analyses. Improvement in fit (ΔCFIs/TLIs ≥ .01 and ΔRMSEAs ≥ . 015; see Morin et al., 2018) between the factors only and saturated models relative to the null effects model provided support for the presence of associations between predictors and PSI-S-*R* responses. Furthermore, improvement in model fit for the saturated model relative to the factors only model provides support for DIF. These models were studied with all associations freely estimated (or constrained to equally) across PSI-S-*R* linguistic versions. Then, the most appropriate model was retained and compared to an alternative model in which all associations were constrained to be equal across samples.

Results

Factor Validity and Reliability of the PSI-S-*R*

The goodness-of-fit statistics of ESEM models of the PSI-S-*R* for the overall sample and language version samples are displayed in Table 1 (models 1-1 to 1-5). Results revealed a satisfactory level of fit to the data in both the overall sample and in the specific linguistic samples (Table 1).

The standardized parameter estimates from these solutions are reported in Table 2 (overall) and Tables S2-S5 of the online supplements (linguistic samples). As shown in Table 2, results obtained in the overall sample revealed factor loadings that were generally acceptable (GSW: M_λ = .605; PSW: M_λ = .657; PA: M_λ = .626; PS: M_λ = .716; PC: M_λ = .815; SC: M_λ = .809), with small cross-loadings, with the exception of items GSW1 and PA1. Indeed, these two items factors presented a similar pattern of association with PA (GSW1: λ = .303) and GSW (PA1: λ = .452) factors, respectively. These results also reveal that the latent correlations between the six factors are significant, positive and modest (M_r = .536), thus supporting the distinctive, yet interrelated, nature of these factors. Finally, the composite reliability coefficients of the six factors were all satisfactory (ω = .781 to .887; M_ω = .835).

As shown in Tables S2-S5, results obtain in each linguistic sample also revealed similarly satisfactory factor loadings (GSW: M_λ = .399 for German to M_λ = .684 for Spanish; PSW: M_λ = .620 for Spanish to M_λ = .642 for Portuguese; PA: M_λ = .598 for Portuguese to M_λ = .701 for Spanish; PS: M_λ = .686 for Portuguese to M_λ = .764 for German; PC: M_λ = .664 for Portuguese to M_λ = .826 for French; SC: M_λ = .660 for German to M_λ = .846 for Portuguese), with small cross-loadings. The few exceptions were mainly sample specific, and related to items GSW1 (German), PSW3 (French, German, and Spanish), PA1 (Portuguese and Spanish), and SC2 (German). Indeed, these items presented a similar or higher pattern of association with other factors relative to their *a priori* factor. These results also revealed significant, positive and modest latent correlations between the six factors (M_r = .421 for German to M_r = .503 for Portuguese). Finally, as illustrated in Tables S2-S5, the composite reliability coefficients were also all satisfactory (M_ω = .782 for German to M_ω = .838 for Portuguese and Spanish).

Measurement Invariance across PSI-S-*R* Language Versions

The goodness-of-fit statistics of measurement invariance models are presented in Table 1 (models 2-1 to 2-7). These results supported the weak (model 2-2) and strict (model 2-5) invariance of the model, but not the strong invariance of the response thresholds (model 2-3). Examination of the parameter estimates from the previous weak invariance solution (i.e., the forward method outlined by Pacewicz et al., 2021) and of the modification indices associated with the failed strong invariance solution (i.e., the backward method suggested by Pacewicz et al., 2021) indicated that constraints had to be relaxed on two response thresholds (out of a total of 90 response thresholds per sample) in the Spanish sample (both related to PS), and 9 response thresholds in the Portuguese sample (2 for GSW, 2 for PSW, 3 for PA and 2 for SC). The resulting model of partial strong invariance was supported by the data. Finally, the last two steps also supported the invariance of latent variances/covariances (model 2-6), but revealed the presence of latent means differences (model 2-7) across samples. These latent mean differences are reported in Table 3, and revealed that most latent means were lower in the French sample and higher in the Portuguese sample relative to the other samples. Falling in between, latent means were also generally higher in the German sample than in the Spanish sample.

DIF and Latent Mean Differences: Age, BMI, Sex and Sport Involvement

The results from the MIMIC models are presented in Table 1. These models were estimated starting from the most invariant model from the previous sequence (model 2-6: invariance of latent variances/covariances). The results from these analyses revealed that both the saturated (model 3-2) and factors only models (model 3-3) resulted in a substantial improvement in model fit relative to the null effects model (model 3-1). These results support the idea that the predictors are associated with PSI-S-*R* responses. Additionally, the factors only model resulted in a similar level of model fit than the saturated model ($\Delta W\chi^2$ = 427.469, df = 192, p < .001, ΔCFI = -.002, ΔTLI = +.001, ΔRMSEA = -.001), thus supporting a lack of DIF as a function of any of the predictors. Finally, the last model (model 3-4), built from the retained factors only model, revealed that relations between the predictors and the latent factors could be considered to generalize (i.e., be equivalent) across samples.

The results from this final model are reported in Table 4. First, these results showed that sex and sport involvement significantly and positively predicted all the latent factors (except for GSW in relation to sport involvement). More precisely, boys (relative to girls) and youth involved in sport outside of school (compared to those not involved) tended to present higher physical self-perceptions. Second, BMI significantly and negatively predicted all the latent factors, with the exception of one positive association with the PS factor. Thus, individuals with higher BMIs tended to present significantly lower levels of physical self-perceptions (but higher PS levels). Finally, results showed that age significantly and negatively predicted the latent PSW and PS factors, thus revealing that older youth tended to present lower levels PSW and PS.

Discussion

This study sought to verify the psychometric properties of German, Portuguese and Spanish versions of the PSI-S-*R*. First, our results supported the factor validity and reliability of these linguistic versions of the PSI-S-*R*, and provided additional support to the factor validity and reliability of the original French version. Second, our results revealed that some items tended to present relatively high cross-loadings and/or a suboptimal pattern of association with their main factors across more than one sample (GSW1, PA1, PSW3). This observation is consistent with previous results (Morin & Maïano, 2011; Morin et al., 2016, 2018) showing that GSW, PSW, and PA appear to share some common indicators. Although the SC2 item also appeared slightly suboptimal in the German sample, this result seems to reflect random sampling variation given that the complete measurement invariance of responses to the PSI-S-*R* (including responses specific to this item) was demonstrated in this study. Furthermore, the composite reliability of all PSI-S-*R* factors, across all linguistic versions, was found to be satisfactory. Consistent with previous results (Morin et al., 2016, 2018) the latent factor correlations also remained modest, thus supporting the discriminant validity of all six PSI-S-*R* factors across linguistic versions, but significant, thus supporting their interrelated nature.

Second, the present results supported the weak, partial strong, and strict invariance of the PSI-S-*R* response across all linguistic samples, and only revealed some deviations in relation to a small subset of response thresholds that seemed to perform differently in the Spanish and Portuguese samples. These results thus suggest that the PSI-S-*R* can be reliably used to conduct cross-linguistic comparisons across samples of French, Spanish, German, and Portuguese participants. Indeed, our results further revealed latent means differences across all four linguistic samples, which revealed that physical self-perceptions tended to be higher in the Portuguese sample, followed by the German sample, then by the Spanish sample, and finally by the French sample. Despite their interest, the identification of these latent mean differences were not a main objective of the present study, and would require further investigation in order to better understand the mechanisms at play in explaining these differences. The fact that a limited number of response thresholds seem to differ for the Spanish and Portuguese versions suggest that, pending replication, meaningful latent mean comparisons involving Spanish and Portuguese participants would benefit from relying on latent procedures (rather than scale scores), providing a way to achieve comparability within a model of partial invariance.

Third, results revealed a lack of DIF as a function of age, BMI, sex and sport involvement that generalized to all linguistic versions. Therefore, the observed scores or latent means scores of the PSI-S-*R* scales subscales can confidently be used, in each of the linguistic versions, to compare youth as a function of their age, BMI, sex and sport involvement. Subsequent analyses confirmed previous results obtained with the PSI-S-*R* (e.g., Morin et al., 2016, 2018) or with other physical self-concept measures (e.g., Findlay & Bowker, 2007; Hagger et al., 2005; Marsh et al., 2007; Maïano et al., 2015; Sung et al., 2005), by showing that physical self-perceptions tended to be higher in (a) boys compared to girls; (b) youth involved in sport compared to those not involved in sport; (c) youth with lower BMI (except for PS, which may reflect the impact of muscularity and bone structure on BMI); and (d) younger participants.

The present study has limitations that should be considered when interpreting the results. First, as recommended by Myers et al. (2016, 2018) power estimation based on the model data fit was conducted using an online calculator developed by Preacher and Coffman (2006). The following parameter were selected: α = .05; df = 60; sample size = 1802 (total sample), 288 (French), 177 (German), 848 (Portuguese), 489 (Spanish); Null RMSEA = .08; Alt. RMSEA = .050 (total sample), .060 (French), .024 (German), .066 (Portuguese), .052 (Spanish). Results revealed a power higher than 80% for most of the samples (total = 100%, German = 98.9%, Portuguese = 91.2%, and Spanish = 99.6%), except for the French sample (72.6%), and indicated that 50 more participants would be necessary to reach a power of 80% in this sample. Consequently, this lower power should be considered when interpreting our results. Second, all versions of the PSI are designed to be relevant to the assessment of physical self-conceptions among typically developing early adolescents, late adolescents and young adults, and have been found to perform in an unbiased manner across all of these age groups (e.g., Maïano et al., 2008; Morin & Maïano, 2011; Morin et al., 2016, 2018). The results from the present study lend additional support to this conclusion. However, it appears important to acknowledge that the German sample included slightly younger participants than previous studies (starting at 10, rather than 11 or 12) and only covered the early adolescence period, thus making it impossible to verify whether the German PSI-S-*R* truly performed as well as the other versions across the full age range for which it was originally designed. Future studies will thus be required to assess the equivalence of the German version across this full age range, and to ensure that understanding remains adequate in youth as young as 10 years old (Horn, 2004; Smith et al., 2012).

Third, although participants were recruited from different schools, information about the identity of the schools was not recorded in our data, making it impossible to correct our estimates of standard error and model fit for this nesting structure. As all of the measures taken in this study are about physical self-conceptions and since all students were recruited into schools that could be considered to be typical of their countries in terms of the amount and nature of exposure to physical education, we had no reason to expect this nesting structure to influence our results. Yet, this expectation should be more thoroughly verified in future studies. Fourth, although height and weight were corrected for self-report biases (except for the German sample among whom this information was objectively measured), it is currently unknown whether similar pattern of results would have been found while relying on direct objective measures, an issue that should be more thoroughly investigated in future studies. Fifth, the convergent validity of the German, Portuguese and Spanish versions of the PSI-S-*R* was not examined in the present study. Therefore, this issue should be examined in future research examining the relationship between the German, Portuguese and Spanish versions of the PSI-S-*R* and other physical self-concept measures, as well as with external criteria (e.g., physical fitness measures). Sixth, no evidence of the test-retest reliability and longitudinal measurement invariance of the German, Portuguese and Spanish versions of the PSI-S-*R* was proposed in the present study. These psychometric properties should thus be more thoroughly examined in future research. Seventh, our measure of sport involvement has never been psychometrically validated. Therefore, it remains possible that the present results might have been biased by our reliance on this measure. Moreover, by strictly focusing on whether youth were involved, or not, in sport practice outside of the school settings, this measure clearly cannot be considered to fully reflect the nature, frequency, or intensity of participants' involvement in different types of sports or physical activities inside or outside of the school setting. As a result, it would be important to verify the generalizability of our results in relation to a more comprehensive (and objective) assessment of youth involvement in sport and physical activity. Eight, in a recent study, Chung et al. (2016) demonstrated the value of a bifactor ESEM approach in physical self-concept measurement, showing that this approach made it possible to achieve a measure of the PSW dimension (which is typically measured by specific item, as in the present study) using a global factor defined by all of the physical self-concept items taken from the PA, PC, PS and SC subscales. Although, to our knowledge, a bifactor approach has never been found to perform very well with the various versions of the PSI, it would appear important for future research to keep in mind this alternative approach to measurement when considering youth's physical self-concept. Finally, the psychometric properties, and even the relevance and content validity, of the current French, Spanish and Portuguese versions of the PSI-S-*R* remains unknown when used among non-European populations speaking the same languages (e.g., French-speaking Canadians or Africans, Portuguese-speaking Brazilians, Spanish-speaking South Americans, etc.).

In conclusion, results from the current study supported the psychometric properties of the German, Portuguese and Spanish versions of the PSI-S-*R*. These linguistic versions can be used in studies involving European youth speaking French, German, Portuguese and Spanish, and used for group-based comparisons as function of age, BMI, sex, and sport involvement. However, future studies would be needed to document the relevance of these measures outside of Europe.

Endnote

[1] The term "youth" is used to encompass early adolescence to early adulthood

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Table 1.

Goodness-of-Fit Statistics of Exploratory Structural Equation Modeling (ESEM) for the PSI-S-R

Models	Nº	Description	Wχ² (df)	CFI	TLI	RMSEA	RMSEA 90% CI	CM	ΔWχ² (df)	ΔCFI	ΔTLI	ΔRMSEA
ESEM	1-1	ESEM - Overall sample	328.708(60)*	.995	.987	.050	.045-.055	-	-	-	-	-
	1-2	ESEM - French sample	121.682(60)*	.990	.975	.060	.044-.075	-	-	-	-	-
	1-3	ESEM - German sample	66.332(60)	.999	.997	.024	.000-.054	-	-	-	-	-
	1-4	ESEM - Portuguese sample	279.985(60)*	.993	.983	.066	.058-.074	-	-	-	-	-
	1-5	ESEM - Spanish sample	139.764(60)*	.994	.984	.052	.041-.063	-	-	-	-	-
Measurement invariance	2-1	Configural invariance	562.814(240)*	.994	.986	.055	.049-.061	-	-	-	-	-
	2-2	Weak (λs) invariance	1200.358(456)*	.987	.983	.060	.056-.064	2-1	709.701(216)*	-.007	-.003	+.005
	2-3	Strong (λs, νs) invariance	2238.242(654)*	.973	.974	.073	.070-.077	2-2	1143.309(198)*	-.014	-.009	+.013
	2-4	Partial strong invariance	1864.680(643)*	.979	.980	.065	.062-.068	2-2	782.044(187)*	-.008	-.003	+.005
	2-5	Strict (λs, νs, δs) invariance	2316.093(697)*	.972	.975	.072	.069-.075	2-4	449.496(54)*	-.007	-.005	+.007
	2-6	Latent variances-covariances (λs, νs, δs, ξs/φs) invariance	1711.611(760)*	.984	.987	.053	.049-.056	2-5	223.802(63)*	+.012	+.012	-.019
	2-7	Latent means (λs, νs, δs, ξs/φs, ηs) invariance	2544.602(778)*	.970	.976	.071	.068-.074	2-6	356.072(18)*	-.014	-.011	+.018
DIF: Age, body mass-index, sex, and sport involvement	3-1	Null effects	3173.846(1048)*	.948	.955	.073	.070-.075	-	-	-	-	-
	3-2	Saturated	1392.056(760)*	.984	.982	.046	.043-.050	3-1	2179.983(288)*	+.036	+.027	-.027
	3-3	Factors only	1698.929(952)*	.982	.983	.045	.042-.049	3-1	1206.368(96)*	+.034	+.028	-.028
	3-4	Factors only (invariance)	1872.707(1024)*	.979	.982	.046	.043-.050	3-3	182.361(72)*	-.003	-.001	+.001

Notes. Wχ² = robust weighed least square (WLSMV) chi-square; ; λ = factor loadings; ν = thresholds; δ = Uniquenesses; ξ = factor variances; φ =factor covariances; η = factor means; Δ = change from the previous model; ΔWχ² = WLSMV chi square difference test (calculated with the Mplus DIFFTEST function); CFI = comparative fit index; CM = comparison model; df = degrees of freedom; DIF = differential item functioning; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; RMSEA = root mean square error of approximation; 90% CI = 90% confidence interval of the RMSEA; TLI = Tucker-Lewis index. The fact that WLSMV χ² values are not exact, but "estimated" as the closest integer necessary to obtain a correct *p* value explains the fact that the Wχ² and the resulting CFI values can be non-monotonic with model complexity. **p* <.01.

Table 2

Standardized Parameters Estimates from the Exploratory Structural Equation Model of the PSI-S-R in the Overall Sample

Items	GSW (λ)	PSW (λ)	PA (λ)	PS (λ)	PC (λ)	SC (λ)	δ
GSW1	.373	.109	.303	.122	-.063	.078	.404
GSW2	.684	.092	.104	.042	-.003	.073	.242
GSW3	.757	.080	.068	-.068	.089	.034	.222
PSW1	.069	.667	.071	.025	.036	.086	.258
PSW2	-.051	.988	-.048	-.013	.027	.028	.084
PSW3	.215	.317	.096	.287	.107	.070	.249
PA1	.452	.154	.387	-.047	.066	.018	.200
PA2	-.040	.106	.756	.052	.046	.003	.279
PA3	-.012	-.139	.734	.005	.029	.087	.509
PS1	-.066	.002	.078	.699	.058	-.048	.484
PS2	.001	.090	.021	.852	-.029	-.018	.214
PS3	.019	-.014	-.121	.596	.069	.170	.479
PC1	-.127	.239	.095	-.019	.663	.043	.273
PC2	.038	-.050	.029	-.004	.985	-.072	.147
PC3	.014	-.115	-.071	.043	.797	.076	.369
SC1	-.134	-.016	.110	-.043	-.033	.974	.157
SC2	.181	.015	-.068	.097	-.026	.680	.371
SC3	.015	.064	-.049	-.004	.110	.772	.223
ω	.791	.868	.781	.797	.883	.887	
Latent Factor Correlations							
Factor	GSW	PSW	PA	PS	PC	SC	
GSW	-						
PSW	.610	-					
PA	.649	.635	-				
PS	.267	.582	.416	-			
PC	.277	.596	.379	.586	-		
SC	.392	.703	.505	.714	.735	-	

Notes. λ = factor loadings; δ = Uniquenesses; ω = McDonald's omega coefficient of composite reliability; Greyscale = main loadings; non-significant parameters are underlined; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; PSW = physical self-worth; SC = sport competence. All correlations are statistically significant ($p \leq .01$).

Table 3
Latent Mean Differences Observed across the Four Different Samples

Factors	French	Spanish	German	Portuguese
Global self-worth	0	1.006**	.499**	.686**
Physical self-worth	0	.474**	.510**	.957**
Physical attractiveness	0	.195*	.191	.572**
Physical strength	0	.318**	.613**	.713**
Physical condition	0	-.015	.167	.113
Sport competence	0	.089	.527**	.498**
Global self-worth	-1.006**	0	-.507**	-.320**
Physical self-worth	-.473**	0	.037	.483**
Physical attractiveness	-.195*	0	-.005	.376**
Physical strength	-.318**	0	.295**	.395**
Physical condition	.015	0	.182*	.128*
Sport competence	-.089	0	.438**	.409**
Global self-worth	-.498**	.507**	0	.187*
Physical self-worth	-.510**	-.037	0	.446**
Physical attractiveness	-.191	.005	0	.381**
Physical strength	-.613**	-.295**	0	.100
Physical condition	-.167	-.181*	0	-.053
Sport competence	-.527**	-.439**	0	-.029
Global self-worth	-.686**	.320**	-.187*	0
Physical self-worth	-.957**	-.483**	-.447**	0
Physical attractiveness	-.572**	-.377**	-.381**	0
Physical strength	-.713**	-.395**	-.100	0
Physical condition	-.113	-.128*	.054	0
Sport competence	-.498**	-.409**	.029	0

Notes. *$p \leq .05$; **$p \leq .01$.

Table 4

Relations between the PSI-S-R Latent Factors and the Predictors

		Sample-specific standardized coefficients.			
	b(SE)	*β* (French)	*β* (Spanish)	*β* (German)	*β* (Portuguese)
Age					
Global self-worth	-.031(.031)	-.031	-.031	-.031	-.030
Physical self-worth	-.141(.029)**	-.133**	-.131**	-.133**	-.129**
Physical attractiveness	.002(.030)	.002	.002	.002	.002
Physical strength	-.083(.030)**	-.073**	-.072**	-.076**	-.072**
Physical condition	.034(.029)	.029	.028	.030	.027
Sport competence	-.014(.029)	-.012	-.012	-.013	-.012
Body mass-index					
Global self-worth	-.153(.031)**	-.150**	-.149**	-.150**	-.149**
Physical self-worth	-.197(.028)**	-.185**	-.183**	-.186**	-.180**
Physical attractiveness	-.238(.031)**	-.231**	-.230**	-.231**	-.229**
Physical strength	.192(.031)**	.169**	.167**	.175**	.167**
Physical condition	-.274(.029)**	-.235**	-.224**	-.240**	-.220**
Sport competence	-.151(.028)**	-.136**	-.132**	-.139**	-.130**
Sex[a]					
Global self-worth	.257(.064)**	.127**	.126**	.125**	.126**
Physical self-worth	.400(.061)**	.189**	.185**	.187**	.183**
Physical attractiveness	.155(.063)*	.075*	.075*	.074*	.075*
Physical strength	.825(.063)**	.362**	.357**	.370**	.358**
Physical condition	.905(.061)**	.388**	.369**	.390**	.362**
Sport competence	.725(.057)**	.327**	.315**	.330**	.312**
Sport involvement[b]					
Global self-worth	.015(.072)	.006	.007	.004	.007
Physical self-worth	.437(.066)**	.163**	.193**	.108**	.198**
Physical attractiveness	.188(.066)**	.072**	.086**	.048**	.090**
Physical strength	.592(.068)**	.206**	.244**	.141**	.255**
Physical condition	.818(.065)**	.277**	.318**	.187**	.325**
Sport competence	.702(.063)**	.251**	.292**	.169**	.300**

Notes. *$p \le .05$; **$p \le .01$; [a] males were coded 1 and females were coded 0; [b] youth involved in sport outside of school were coded 1 and youth not involved in sport outside of school were coded 0; *b* = unstandardized regression coefficient taken from the factors-only model (3-4) invariant across samples; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; SE = standard error of the coefficient; *β* = sample-specific standardized regression coefficient (although some of the relations are invariant across samples, the standardized coefficients may still show some variation as a function of within-samples estimates of variability). Because age and body-mass index were standardized prior to these analyses and that the PSI-S-*R* factors are estimated based on a model of latent variance-covariance invariance in which all latent factors have a SD of 1, all unstandardized coefficients can be directly interpreted is SD units.

Online Supplements for:

German, Portuguese and Spanish Versions of the Revised Short Form of the Physical Self-Inventory (PSI-S-*R*)

Table S1

English, French, German, Portuguese and Spanish Back-Translated Items from the PSI-S-R

N°	Items	English Items	French Items	German Items	Portuguese Items	Spanish Items
1	GSW 1	I have a good opinion of myself	J'ai une bonne opinion de moi-même	Ich habe eine gute Meinung von mir.	Eu tenho uma boa opinião sobre mim próprio(a).	Tengo una buena opinión de mí mismo
2	PSW 1	Globally, I'm proud of what I can do physically	Globalement, je suis satisfait(e) de mes capacités physiques	Im Großen und Ganzen bin ich stolz auf meine körperlichen Leistungen.	Em geral, eu estou orgulhoso(a) com as minhas capacidades físicas.	En general, estoy satisfecho de lo que soy capaz de hacer físicamente
3	PA 1	I am really pleased with the appearance of my body	J'aime beaucoup mon apparence physique	Ich mag mein Aussehen.	Eu estou realmente satisfeito(a) com o aspeto do meu corpo.	Estoy muy satisfecho/a con mi físico
4	PS 1	I'm physically stronger than most people	Je suis physiquement plus fort(e) que les autres	Ich bin körperlich stärker als die meisten anderen.	Eu sou fisicamente mais forte do que a maioria das pessoas.	Soy más fuerte físicamente que la mayoría de la gente
5	GSW 2	Overall I am satisfied with being the way I am	Globalement, je m'accepte tel que je suis	Im Großen und Ganzen bin ich so, wie ich bin, zufrieden.	Em geral, eu estou satisfeito(a) por ser como sou.	En general, estoy satisfecho de ser como soy
6	PSW 2	I am happy with what I can do physically	Je suis content(e) de ce que je peux faire physiquement	Ich bin mit dem, was ich körperlich leisten kann, zufrieden.	Eu estou contente com o que consigo fazer fisicamente.	Estoy contento/a de lo que soy capaz de hacer físicamente
7	PC 1	I would be good at physical stamina exercises	Je serais bon(ne) dans une épreuve d'endurance	Ich wäre gut in Ausdauerleistungen.	Eu serei bom/boa em exercícios de resistência.	Sería bueno/a en ejercicios de resistencia física
8	SC 1	I find that I'm good in all sports	Je trouve que je suis bon(ne) dans tous les sports	Ich finde, dass ich generell im Sport gut bin.	Eu penso que sou bom/boa em todos os desportos.	Considero que soy bueno/a en todos los deportes
9	PA 2	I have a nice body to look at	J'ai un corps agréable à regarder	Mein Körper sieht gut aus.	Eu tenho um corpo agradável à vista.	Tengo un cuerpo atractivo de ver
10	PS 2	I would be good at exercises that require strength	Je serais bon(ne) dans une épreuve de force	Ich wäre gut in Sportarten, die Kraft erfordern.	Eu serei bom/boa em exercícios que exigem força.	Sería bueno/a en ejercicios de fuerza
11	PSW 3	I'm confident about my physical self-worth	Je suis confiant(e) vis-à-vis de ma valeur physique	Ich habe ein gutes körperliches Selbstwertgefühl.	Eu acredito nas minhas capacidades físicas.	Estoy seguro/a de mi valía física
12	PC 2	I think I could run for a long time without tiring	Je pense pouvoir courir longtemps sans être fatigué(e)	Ich denke, lange laufen zu können, ohne zu ermüden.	Eu penso que consigo correr durante muito tempo sem me cansar.	Creo que podría correr durante mucho tiempo sin cansarme

N°	Items	English Items	French Items	German Items	Portuguese Items	Spanish Items
13	SC 2	I can find a way out of difficulties in all sports	Je me débrouille bien dans tous les sports	In allen Sportarten weiß ich mir bei Schwierigkeiten zu helfen.	Eu "safo-me" bem em todos os desportos.	Puedo encontrar soluciones a las dificultades que se me presentan en cualquier deporte
14	PA 3	I am really pleased with the appearance of my body	Tout le monde me trouve beau(belle)	Jeder findet, ich sehe gut aus.	Todos pensam que eu sou bonito(a).	Todo el mundo piensa que soy atractivo/a
15	PS 3	Faced with a situation requiring physical strength, I'm the first to offer assistance	Face à des situations demandant de la force, je suis le(la) premier(ière) à proposer mes services	Ich biete in Situationen, in denen Kraft erforderlich ist, sofort meine Hilfe an.	Perante situações que exijem força física, eu sou o(a) primeiro(a) a oferecer ajuda.	A la hora de afrontar una situación que requiere fortaleza física, yo soy el primero/a en ofrecerme
16	PC 3	I could run five kilometers without stopping	Je pourrais courir 5 km sans m'arrêter	Ich kann fünf Kilometer laufen, ohne anhalten zu müssen.	Eu conseguiria correr 5 quilómetros sem parar.	Podría correr cinco kilómetros sin parar
17	SC 3	I do well in sports	Je réussis bien en sport	Ich bin gut im Sport.	Eu sou bom/boa no desporto.	Soy bueno/a en los deportes
18	GSW 3	I would like to stay as I am	Je voudrais rester comme je suis	Ich möchte so bleiben, wie ich bin.	Eu gostaria de continuar a ser como sou.	Me gustaría seguir siendo como soy
Response scale		1- Not at all 2- Very little 3- Some 4- Enough 5- A lot 6- Entirely	1- Pas du tout 2- Très peu 3- Un peu 4- Assez 5- Beaucoup 6- Tout à fait	1- Trifft überhaupt nicht zu 2- Eher nicht 3- Ein wenig 4- Ziemlich treffend 5- Zutreffend 6- Trifft vollständig zu	1- Nada 2- Muito pouco 3- Pouco 4- Suficiente 5- Muito 6- Completamente	1- Nada 2- Poco 3- Algo 4- Bastante 5- Mucho 6- Totalmente

Notes. PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSW = physical self-worth; SC = sport competence.

Table S2

Standardized Parameters Estimates from the Exploratory Structural Equation Model of the PSI-S-R in the French-Speaking Sample

Items	GSW (λ)	PSW (λ)	PA (λ)	PS (λ)	PC (λ)	SC (λ)	δ
GSW1	.408	.039	.235	.071	.013	.058	.543
GSW2	.908	-.011	-.047	.022	.021	.003	.211
GSW3	.546	.130	.101	-.176	.029	.139	.459
PSW1	.076	.693	.071	.094	-.055	.054	.307
PSW2	-.046	.945	-.067	-.002	.062	.024	.110
PSW3	.201	.282	.228	.287	.174	-.070	.315
PA1	.205	.167	.637	-.068	-.030	.095	.185
PA2	.140	.044	.531	.165	.042	-.046	.479
PA3	-.078	-.049	.748	-.032	.066	.101	.444
PS1	-.054	.100	.174	.518	.141	.072	.401
PS2	-.027	.117	.053	.810	-.068	.062	.199
PS3	.009	.023	-.173	.739	.016	.112	.390
PC1	-.099	.221	-.009	-.110	.748	.098	.231
PC2	.035	-.014	.078	-.038	.907	-.029	.174
PC3	.061	-.146	-.080	.125	.823	.020	.340
SC1	-.146	-.011	.128	.058	.027	.826	.235
SC2	.103	-.067	.026	.033	-.058	.940	.117
SC3	.127	.098	-.147	.045	.140	.645	.297
ω	.741	.834	.768	.812	.892	.900	
Latent Factor Correlations							
Factor	GSW	PSW	PA	PS	PC	SC	
GSW	-						
PSW	.487	-					
PA	.626	.523	-				
PS	.261	.509	.330	-			
PC	.356	.571	.366	.426	-		
SC	.451	.660	.480	.561	.687	-	

Notes. λ = factor loadings; δ = Uniquenesses; ω = McDonald's omega coefficient of composite reliability; Greyscale = main loadings; non-significant parameters are underlined; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSW = physical self-worth; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; SC = sport competence. All correlations are statistically significant ($p \leq .01$).

Table S3

Standardized Parameters Estimates from the Exploratory Structural Equation Model of the PSI-S-R in the German-Speaking Sample

Items	GSW (λ)	PSW (λ)	PA (λ)	PS (λ)	PC (λ)	SC (λ)	δ
GSW1	.117	.408	.113	.173	.007	.211	.370
GSW2	.632	.264	.124	.046	.041	.053	.207
GSW3	.448	.136	.448	.071	-.048	.018	.270
PSW1	.098	.669	.039	.063	.167	.129	.125
PSW2	.164	.570	.019	.083	.097	.200	.220
PSW3	.426	.195	.167	.160	.036	.109	.360
PA1	.366	.026	.622	.022	-.015	.129	.144
PA2	-.019	.318	.496	.089	.111	.070	.252
PA3	.002	-.181	.811	.060	.148	.053	.308
PS1	-.045	.033	-.115	.808	.047	-.070	.434
PS2	-.065	.076	.183	.851	-.005	-.149	.265
PS3	-.049	-.206	-.111	.632	-.072	.244	.582
PC1	-.102	-.017	.190	-.029	.701	.145	.270
PC2	.013	.042	-.044	.043	.789	.016	.322
PC3	.003	-.007	-.045	-.028	.858	-.094	.397
SC1	-.117	.047	.139	.005	-.011	.929	.009
SC2	.455	-.172	-.212	.155	.108	.352	.560
SC3	-.137	.152	.030	-.009	.138	.699	.249
ω	.628	.745	.841	.804	.848	.827	
Latent Factor Correlations							
Factor	GSW	PSW	PA	PS	PC	SC	
GSW	-						
PSW	.295	-					
PA	.380	.574	-				
PS	.408	.414	.368	-			
PC	.129	.418	.346	.408	-		
SC	.311	.554	.492	.572	.645	-	

Notes. λ = factor loadings; δ = Uniquenesses; ω = McDonald's omega coefficient of composite reliability; Greyscale = main loadings; non-significant parameters are underlined; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSW = physical self-worth; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; SC = sport competence. All correlations are statistically significant except PC with GSW ($p \leq .01$).

Table S4

Standardized Parameters Estimates from the Exploratory Structural Equation Model of the PSI-S-R in the Portuguese-Speaking Sample

Items	GSW (λ)	PSW (λ)	PA (λ)	PS (λ)	PC (λ)	SC (λ)	δ
GSW1	.532	.051	.187	.195	-.096	.018	.396
GSW2	.709	.119	.133	.070	-.003	-.010	.177
GSW3	.740	.101	.101	-.118	.083	.062	.188
PSW1	.105	.568	.099	.063	.020	.145	.252
PSW2	-.015	.939	.020	-.004	.032	.011	.071
PSW3	.197	.418	.055	.249	.077	.132	.183
PA1	.484	.149	.369	-.108	.056	.039	.196
PA2	-.102	.131	.854	.019	.021	.021	.191
PA3	.096	-.209	.570	.046	-.017	.105	.651
PS1	-.017	-.040	.058	.731	.030	-.072	.521
PS2	-.028	.113	.076	.798	.006	.013	.182
PS3	.113	.061	-.189	.529	.081	.170	.498
PC1	-.091	.295	.115	.068	.523	.105	.259
PC2	.006	.027	.108	.070	.846	.011	.102
PC3	.086	-.077	-.051	.140	.624	.191	.348
SC1	-.075	-.072	.126	.000	.034	.908	.154
SC2	-.004	.049	-.008	-.001	-.066	.907	.197
SC3	.048	.129	-.042	.037	.112	.723	.158
ω	.838	.880	.756	.779	.849	.927	
Latent Factor Correlations							
Factor	GSW	PSW	PA	PS	PC	SC	
GSW	-						
PSW	.607	-					
PA	.702	.629	-				
PS	.235	.549	.380	-			
PC	.183	.464	.300	.497	-		
SC	.420	.698	.543	.720	.614	-	

Notes. λ = factor loadings; δ = Uniquenesses; ω = McDonald's omega coefficient of composite reliability; Greyscale = main loadings; non-significant parameters are underlined; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSW = physical self-worth; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; SC = sport competence. All correlations are statistically significant ($p \leq .01$).

Table S5

Standardized Parameters Estimates from the Exploratory Structural Equation Model of the PSI-S-R in the Spanish-Speaking Sample

Items	GSW (λ)	PSW (λ)	PA (λ)	PS (λ)	PC (λ)	SC (λ)	δ
GSW1	.509	-.028	.286	.063	-.036	.128	.382
GSW2	.804	.051	.035	-.008	-.042	.116	.192
GSW3	.739	.132	.068	.025	.043	-.088	.260
PSW1	.071	.694	.076	-.060	.074	.099	.268
PSW2	-.050	.901	.009	.042	.010	.068	.111
PSW3	.210	.265	.095	.244	.161	.137	.298
PA1	.383	.266	.431	-.020	.027	-.065	.180
PA2	-.057	.005	.905	-.010	.032	-.009	.237
PA3	.000	-.095	.768	.030	-.035	.050	.451
PS1	-.040	.013	.071	.840	-.011	-.121	.389
PS2	.034	.039	-.076	.856	-.049	.005	.299
PS3	-.009	-.063	.000	.521	.144	.228	.439
PC1	-.110	.295	.094	.130	.577	.014	.282
PC2	.074	-.035	.043	-.011	.860	.106	.125
PC3	.029	.036	.001	.134	.665	.103	.296
SC1	-.150	.094	.092	.003	-.042	.868	.207
SC2	.252	.065	-.074	.036	.021	.519	.513
SC3	.048	.029	-.035	.045	.042	.829	.176
ω	.835	.836	.836	.813	.863	.846	
Latent Factor Correlations							
Factor	GSW	PSW	PA	PS	PC	SC	
GSW	-						
PSW	.634	-					
PA	.652	.550	-				
PS	.260	.479	.371	-			
PC	.208	.444	.266	.505	-		
SC	.365	.586	.392	.674	.569	-	

Notes. λ = factor loadings; δ = Uniquenesses; ω = McDonald's omega coefficient of composite reliability; Greyscale = main loadings; non-significant parameters are underlined; GSW = global self-worth; PA = physical attractiveness; PC = physical condition; PS = physical strength; PSW = physical self-worth; PSI-S-*R* = Revised version of the Physical Self-Inventory – Short form; SC = sport competence. All correlations are statistically significant ($p \leq .01$).