

INVESTIGATION ARTICLE

Validity evidence of the Perceived Available Support in Sport Questionnaire (PASS-Q) in young Brazilian athletes

Evidencia de validez del *Perceived Available Support in Sport Questionnaire* (PASS-Q) en jóvenes deportistas brasileños

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Abstract

The aim of this study was to translate, adapt and validate the Perceived Available Support in Sport Questionnaire into Brazilian Portuguese. For this purpose, analyses of reproducibility, internal consistency and confirmatory factor analysis were conducted. The final sample consisted of 533 athletes from 14 sports from 14 to 19 years old. High indices of internal consistency ($\alpha=0.861$), reproducibility (0.899) and content validity were found for language clarity (0.967), theoretical relevance (0.967) and practical relevance (1.000). In the confirmatory factor analysis, good fit indices were observed for a four-factor model reflecting emotional, esteem, informational, and tangible support (RMSEA=0.075; CFI=0.92; TLI=0.91; SRMR=0.042). It is concluded that the instrument has adequate psychometric indicators to assess the perceived available support in sport and its application in athletes involved in initiation, training and specialization sport programs is recommended.

Keywords: social support; athletes; adolescent; psychometrics; sport psychology.

Resumen

El objetivo de este estudio fue traducir, adaptar y validar el *Perceived Available Support in Sport Questionnaire* al portugués brasileño. Para ello se realizaron análisis de reproducibilidad, consistencia interna y análisis factorial confirmatorio. La muestra final estuvo conformada por 533 atletas de 14 deportes y edades de 14 a 19 años. Se encontraron altos índices de consistencia interna ($\alpha=0,861$), reproducibilidad (0,899) y validez de contenido para claridad del lenguaje (0,967), relevancia teórica (0,967) y relevancia práctica (1,000). En el análisis factorial confirmatorio, se observaron índices de buen ajuste para un modelo de cuatro factores que refleja el apoyo emocional, de estima, informativo y tangible (RMSEA=0,075; CFI=0,92; TLI=0,91; SRMR=0,042). Se concluye que el instrumento cuenta con indicadores psicométricos adecuados para evaluar el apoyo disponible percibido en el deporte y se recomienda su aplicación en deportistas involucrados en programas deportivos de iniciación, entrenamiento y especialización.

Palabras clave: apoyo social; atletas; adolescente; psicometría; psicología deportiva.

Introduction

Social support is a complex concept that covers structural and functional aspects of interpersonal relationships and can lead to a series of positive emotional, behavioral, and physiological states (Cohen & Wills, 1985; Cohen et al., 2000; Holt & Hoar, 2006; Rees, 2007; Vangelisti, 2009). In the sport context, the concept of social support has been explored and developed from two distinct perspectives called received and perceived support in sport. The received support reflects the specific help actions provided by friends, family, teammates, and coaches, usually during a specific period (Freeman et al., 2011), while the perceived support relates to the perception of potential access to social support related to sport. In addition, the perceived support characterized by the subjective judgment of the support or assistance that friends, family, teammates and coaches would provide, if necessary (Freeman et al., 2011).

Social support has been positively associated with a variety of factors that are important for sports performance, including self-confidence (Rees & Freeman, 2007), athletic performance (Rees & Freeman, 2010; Rees & Hardy, 2004), and perceived available support (Freeman et al., 2011). Studies have also demonstrated the benefits of social support among athletes on team cohesion (Westre & Weiss, 1991), management of competitive stress (Crocker & Graham, 1995), injury recovery (Carson & Polman, 2012), and resilience (Fletcher & Sarkar, 2012). Coaches, parents, and teammates play an important role in shaping the sports experience of young athletes, whether positively (influencing motivation and participation in elite sports) or negatively (leading to sports abandonment) (Sheridan et al., 2014).

Many studies have investigated specific the dimensions of perceived and received support in sports because of the complex nature of the construct (Freeman et al., 2011; Freeman et al., 2014; Rees & Hardy, 2000). Such studies were based on the conceptual model proposed by Cutrona and Russell (1990), in which functional social support is composed of four primary dimensions: emotional support, esteem support, informational support, and tangible support. Emotional support is defined by the ability to induce others to comfort and security during moments of stress, making the individual feel that they are cared for by others. Esteem support is the reinforcement of a person's self-esteem or sense of competence. Informational support is the provision of advice or guidance on problem-solving. Tangible support is defined as concrete instrumental assistance, such as, for instance, financial and physical assistance, to cope with difficulties. The dimensions proposed by Cutrona and Russell (1990) were also identified by Rees and Hardy (2000) in a qualitative study with high-performance adult British athletes.

In order to understand the behavior of support in sport with great depth, the importance of using accurate and context-specific measures is emphasized. Whereas no consensus has been reached on the global nature and definition of social support (Rees & Hardy, 2000), in sports, the construct has been more clearly defined by researchers (Sheridan et al., 2014). This led to the development and validation of two measures of social support: The Perceived Available Support in Sport Questionnaire (PASS-Q; Freeman et al., 2011), and the Athletes' Received Support Questionnaire (ARSQ; Freeman et al., 2014). The ARSQ measures the frequency with which an athlete received support from friends, family, teammates, and coaches, usually over the last week. The questionnaire has a retrospective character consistent with received measures in health and social psychology (Gottlieb & Bergen, 2010). PASS-Q, on the other hand, evaluates an athlete's perception of their available social support; that is, the potential access to social support and is characterized by the recipient's subjective judgment of the support or assistance that friends, family, teammates, and coaches would provide, if necessary (Freeman et al., 2011).

The PASS-Q was developed and validated in two studies with 180 English university athletes and 145 competitive athletes who practiced team and individual sports at different competition levels (Freeman et al., 2011). The dimensions showed a good fit to the four-factor model, with a root mean square error of approximation (RMSEA) of 0.05, standardized root mean residual (SRMR) of 0.06, and comparative fit index (CFI) of 0.94. Significant correlations were observed between perceived available support (emotional, esteem, informational, and

tangible) and self-confidence ($r = 0.37-0.44$, $p < 0.01$), and burnout levels ($r = -0.29$ to -0.38 , $p < 0.01$). Reliability was assessed by Cronbach's alpha, which ranged from 0.68 to 0.84 for the four dimensions (Freeman et al., 2011). The PASS-Q, therefore, showed good psychometric properties and can be used to measure athletes' perceptions of their available support. In a systematic review of the social support of young athletes, Sheridan, Coffe and Lavallee (2014) found that coaches were identified as the most prevalent provider of social support through offering participants unique forms of tangible, informational, emotional and esteem support. However, the systematic review cited was based on studies from North America, Europe and Australia. To better understand the effects on perceived social support in different cultures, like south America area, however, it is important to examine whether the PASS-Q can be adapted to Brazilian Portuguese language.

The PASS-Q was constructed specifically for the sporting context and is defined as the assessment of the perceived social support of athletes in case of need, while other instruments validated and translated for the Brazilian population assess social support from different perspectives. In the KIDSCREEN-52 instrument, for example, social support is evaluated from a health-related quality of life perspective (Guedes et al., 2001; Grubertt, 2022), and in the instrument proposed by Farias Junior et al. (2011), social support is included as one of the factors for the practice of physical activity by adolescents. Although the PASS-Q has already been translated and validated into Portuguese by Gomes (2016), in the study in question, the mean age of the 205 participants was 23 (SD = 4.12) years and only 4.4% were Brazilians. In this sense, it is considered necessary and advantageous to observe the validity evidence of this instrument exclusively for Brazilian adolescent athletes, given the age range and cultural differences between Portuguese and Brazilians; in addition to verifying the understanding of the construct and ensuring that the translation of the PASS-Q questions reflect the cognitive stage of the sample, both in writing and in the format.

Given the impact of perceived social support on several sports-related variables and support research in Brazil is scarce, this study aimed to translate and adapt the PASS-Q instrument to Brazilian Portuguese and gather evidence of validity of the translated version. Validation of PASS-Q (BR) can help coaches and sports psychologists to answer important theoretical and applied questions, such as "how do types of perceived social support vary across age, type of sport, and competition level?" and "what are the implications of a high or low perceived social support on the psychological, social, and behavioral outcomes in high-school athletes in Brazil?"

Method

Participants

This study was part of an epidemiological, cross-sectional research entitled "Sport confidence and factors associated with competition performance in adolescent athletes in Santa Catarina, Brazil". In total, 586 adolescent athletes participated in the study at some point: four athletes in a focus group, 33 in a test-retest procedure (Group A), and 549 in a survey using the final version of PASS-Q (BR) before a high-level sports competition (Group B). Group B athletes who did not complete the questionnaire in full and/or were younger than 14 years were excluded from the study; therefore, 16 participants were excluded, 4 based on age and 12 for not answering one or more questions of PASS-Q (BR). The final survey sample comprised 533 adolescent athletes of team sports (handball, football, volleyball, beach volleyball, and basketball) and individual sports (athletics, swimming, karate, taekwondo, judo, tennis, artistic gymnastics, and cycling) who competed in a major sports event in Curitiba, Santa Catarina, southern Brazil. The sample selection process was carried out intentionally and non-probabilistically.

All athletes were invited to participate voluntarily. Individuals aged 18 years and older signed an informed consent form before enrollment. For adolescents under the age of 18 years, informed consent was obtained from themselves and their parents/guardians, in compliance with human research ethics guidelines and National Health Council Resolution no. 466/12. The study protocol was approved by the Human Research Ethics Committee of the Santa Catarina State University, Florianopolis, Brazil (protocol no. 2,776,501).

The study sample consisted of two distinct groups. Group A was used to evaluate the temporal stability of PASS-Q (BR) and Group B to assess construct validity. Group A comprised 33 male athletes aged 14–18 years (15.03 ± 3.03 years) competing in athletics (15.1%), volleyball (39.4%), and futsal (45.5%). Group B was composed of 533 athletes aged 14–19 years (16.30 ± 1.15 years) participating in team sports (basketball, soccer, futsal, handball, and volleyball) or individual sports (athletics, cycling, artistic gymnastics, judo, karate, swimming, taekwondo, and tennis).

Variables and instruments

Data were collected on sociodemographic characteristics (gender and age), sports-related variables, level of competition (state, national, or international), and sports experience measured in years of practice. Perceived available support, social status, and sport confidence were measured using specific instruments, as detailed below.

Perceived available support in Sport. The translated, adapted, and validated version of PASS-Q, based on the original version developed by Freeman, Coffee, and Rees (2011), was used to measure perceived available support among adolescent athletes. Consistent with the original PASS-Q, the PASS-Q (BR) contains 16 items grouped into four dimensions according to the social support categories proposed by Cutrona and Russell (1990) and Rees and Hardy (2000): emotional support (items 1, 8, 11, and 14), esteem support (items 2, 4, 9, and 12), informational support (items 5, 7, 13, and 15), and tangible aid (items 3, 6, 10, and 16). The questions were preceded by: “If needed, to what extent would someone...”, which was translated into Brazilian Portuguese as “*Se necessário, em que medida alguém iria...*”. Participants responded to questions on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely so). High values indicate high levels of perceived available support. This format is congruent with measures of perceived available support used in general social psychology studies (Gottlieb & Bergen, 2000).

Subjective social status. Subjective social status within the sports club community was assessed using the MacArthur Scale of Subjective Social Status – Youth Version (SSS) (Goodman et al., 2001). The scale is represented by a picture of a “social ladder”. From a sports perspective, the most wanted, respected, skilled, and popular athletes are at the top of the ladder, whereas the unskilled, least wanted, and least respected are at the bottom. Respondents were asked to indicate their perceived position on the social ladder with an “X”. Answers were scored as 1 if the “X” was marked on the first rung or the space above it, as 2 if it was marked on the second rung or the space above it, and so on until the last rung, which was scored as 10. The greater the SSS score, the greater the individual’s perceived social status within the community.

Sport confidence. Sport confidence, understood as the self-confidence or degree of certainty an athlete possesses about their ability to be successful in sport (Vealey, 1986), was measured by the Sport Confidence Inventory (SCI), developed by Vealey and Knight (2002). In the current study, we used a Brazilian Portuguese version of the SCI (SCI-BR), which was validated in a sample of 14–19-year-old Brazilian athletes by Barbosa, Vealey, and Felden (2020). The translated version maintained the multidimensional character of the original instrument and showed good reproducibility (ICC = 0.870), content validity (CVC = 0.833 for language clarity, CVC = 0.967 for practical pertinence and theoretical relevance), and construct validity (Tucker–Lewis index, TLI = 0.86; RMSEA = 0.078; CFI = 0.90; SRMR = 0.062) as well as satisfactory cross-cultural validity.

Procedure

Translation, back-translation, technical revision, expert evaluation, and instrument administration. The first step was to contact the authors of PASS-Q, who gave consent for the translation and cross-cultural adaptation of the instrument to Brazilian Portuguese. The cross-cultural adaptation followed the method of Herdman, Fox-Rushby, and Badia (1998), comprising the phases of translation, back-translation, technical revision, expert evaluation, focus group, test-retest, and instrument administration.

PASS-Q was translated from English to Brazilian Portuguese by two independent professional translators. Translations were combined in a single version and discussed by a group of five researchers. The resulting version was back translated into English by two native English speakers, one of which is a sports specialist. The back-translated version was revised and subjected to cultural and linguistic adaptations by four English-fluent researchers. This technical revision included mainly modifications to avoid ambiguity and improve language use. After this process, the instrument was evaluated for language clarity, practical pertinence, and theoretical relevance, according to criteria proposed by Hernandez-Nieto (2002), by six experts with a doctorate in physical education and sports ($n = 3$) and human movement sciences ($n = 3$).

In the final phase, the instrument was administered to the 533 adolescent athletes before a sports competition. For this, the heads, and coaches of major sports organizations in different regions of the state of Santa Catarina, Brazil, were contacted and informed about the study. After consent was obtained from their organizations, the athletes were invited to participate in the study. A researcher assisted the respondents during questionnaire completion. All answers were kept anonymous.

Content validity. The content validity of the translated version of PASS-Q was evaluated by the six experts in terms of language clarity, practical pertinence, and theoretical relevance. The adequacy of these parameters was rated on a 5-point Likert scale (1, inadequate; 2, slightly inadequate; 3, acceptable; 4, adequate; 5, very adequate). The cut-off value for satisfactory language clarity and practical pertinence was $CVC \geq 0.70$, as recommended by Cassepp-Borges, Balbinotti, and Teodoro (2010).

The expert team was also asked four questions to evaluate the quality of the translated instrument: i) "In your opinion, is the instrument a valid tool in our language and culture for the assessment of perceived social support in sport among adolescent athletes aged 14–18 years?" ii) "In your opinion, are the questions clear and pertinent to the proposed objective?" iii) "In your opinion, is the questionnaire heading adequate?" and iv) "In your opinion, do the instrument questions apply both to individual and team sport athletes?" Responses were recorded as "yes", "no", or "partially".

Focus group. Based on the extensive literature on social support underscoring that evaluation instruments need to be appropriate for the target population and context (Bianco & Eklund, 2001; House & Kahn, 1984; Wills & Shinar, 2000), this study conducted a focus group to analyze the semantics and comprehensibility of the translated instrument. Focus group participants comprised four track and field athletes aged 15–19 years from São José, Santa Catarina, Brazil. The questions were read one by one, and participants were asked to explain what they understood by them.

Reproducibility. The reproducibility of the translated version of PASS-Q was assessed by the ICC. A test-retest procedure was used for data collection. The instrument was administered to 33 adolescent athletes (Group A) on two separate occasions, seven days apart. Participants were male, aged 14 to 18 years (mean age of 15.03 ± 3.03 years), and practiced athletics, volleyball, or futsal.

Internal consistency. Internal consistency was analyzed in a sample of 533 adolescent athletes (Group B) who participated in a high-level competition. This step measured whether questions converged on the same construct. Internal consistency was estimated using Cronbach's alpha.

Construct validity. Confirmatory factor analysis (CFA) was conducted to confirm that the translated version preserved the four-dimensional structure of the original instrument. PASS-Q (BR) scores were also correlated with SSS and SCI-BR scores.

Data analysis

The Statistical Package for the Social Sciences (SPSS) version 20.0 and Stata v. 13.1 were used for data analysis.

Because the data were non-normally distributed, nonparametric tests were performed. Semantic content analysis was based on CVC values (Hernandez-Nieto, 2002). Kruskal–Wallis and post-hoc Dunn’s tests were used to compare total mean PASS-Q (BR) scores between competition levels. Spearman’s correlation test was used to investigate associations between PASS-Q (BR), SCI-BR, and SSS scores.

Values of $CVC \geq 0.70$ (Hernandez-Nieto, 2002), $ICC \geq 0.51$ (Fermanian, 1984), and Cronbach’s $\alpha \geq 0.70$ (Terwee et al., 2007) were considered adequate. The strength of correlations was categorized as follows: $0.100 \leq r < 0.299$, weak; $0.300 \leq r < 0.499$, moderate; and $r \geq 0.500$, strong (Cohen, 1992). The Kaiser–Meyer–Olkin (KMO) test was used to measure sample adequacy; KMO values between 0.80 and 1.0 were considered adequate.

CFA was used to assess the goodness-of-fit of both a one-factor model and a four-factor model. The weighted least squares method was applied to construct the CFA model, as normality assumptions were not met (Acock, 2013). The following absolute fit indices were determined: chi-squared test (χ^2), CFI, TLI, SRMR, and RMSEA. The cut-off criteria proposed by Hu and Bentler (1999) were adopted for goodness-of-fit indicators: CFI and TLI values greater than 0.90 and SRMR and RMSEA values lower than 0.08 (Browne et al., 1992). For all statistical analyses, the significance level was set at $p < 0.05$.

Results

Regarding the present sample the majority was male (51.8%), and the average experience in the sport was 5.16 ± 2.93 years. Of the 533 athletes, 52.9% competed at the state level, 30.1% at the national level, and 16.9% at the international level.

Translation, back-translation, and technical revision

After translation and back-translation, PASS-Q was analyzed and discussed by a technical revision team. Important adaptations were made to improve the semantics and increase the clarity of translated questions. A detailed description of the translation, back-translation, and final version of the instrument is shown in [Table 1](#).

Table 1. Analysis of translation and back-translation of instrument questions.

Original	Translation	Back-translation	Final
1. provide you with comfort and security.	1. fornecê-lo com conforto e segurança.	1. provide you with comfort and safety.	1. lhe proporcionar conforto e segurança.
2. reinforce the positives.	2. reforçar os seus aspectos positivos.	2. reinforce your positive aspects.	2. reforçar os seus aspectos positivos.
3. help with travel to training and matches	3. ajudar com viagens a treinamentos e jogos.	3. help with trips for training and games.	3. ajudar com viagens para treinamentos e jogos.
4. enhance your self-esteem.	4. melhorar sua autoestima.	4. improve your self-esteem.	4. melhorar sua autoestima.
5. give you constructive criticism.	5. dar-lhe críticas construtivas.	5. give you constructive criticism.	5. dar-lhe críticas construtivas.
6. help with tasks to leave you free to concentrate.	6. ajudar com tarefas para deixa-lo livre para se concentrar.	6. help with tasks to let you free to focus.	6. ajudar com tarefas para deixa-lo livre para se concentrar.
7. give you tactical advice.	7. dar-lhe conselhos táticos.	7. give you tactical advices.	7. dar-lhe conselhos táticos.
8. always be there for you.	8. sempre estar lá para você.	8. always be there for you.	8. sempre estar lá para você.
9. instil you with the confidence to deal with pressure.	9. instila-lo com confiança para lidar com a pressão.	9. stimulate with trust to deal with the pressure.	9. lhe transmitir confiança para lidar com a pressão.

10. do things for you at competitions/matches.	10. fazer coisas para você em competições/jogos.	10. do things for you in competition/games.	10. fazer coisas para você nas competições/jogos.
11. care for you.	11. cuidar de você.	11. take care of you	11. cuidar de você.
12. boost your sense of competence.	12. aumentar seu senso de competência.	12. improve your sense of competence	12. aumentar seu senso de competência.
13. give you advice about performing in competitive situations.	13. dar-lhe conselhos sobre a realização de situações competitivas.	13. give you advices about the execution of competitive situations.	13. dar-lhe conselhos sobre como agir em situações competitivas.
14. show concern for you.	14. mostrar preocupação com você.	14. show concern about you	14. mostrar preocupação com você.
15. give you advice when you're performing poorly.	15. dar-lhe conselhos quando você está tendo um desempenho fraco.	15. give you advices when you are having a low performance	15. dar-lhe conselhos quando você está tendo um desempenho fraco.
16. help you organize and plan your competitions/matches.	16. Ajudá-lo a organizar e planejar suas competições/jogos.	16. help you to organize and plan for your competitions/games	16. ajudá-lo a organizar e planejar suas competições/jogos.

Content validity

The CVC of PASS-Q (BR) was 0.967 for language clarity and theoretical relevance and 1.000 for practical pertinence. All experts answered “yes” to three of the four complementary questions, indicating that PASS-Q (BR) can be adequately used to assess the perceived social support of team and individual sport athletes aged 14–19 years and that questions are clear and relevant. When questioned whether the heading of the instrument was adequate, 83.3% of the experts answered “yes” and 16.7% answered “partially.” On the basis of experts’ suggestions, the following phrase was added to the heading to inform that the respondent should select only one answer for each question: “Circle only **one** number for each item.”

In the focus group, participants had no doubts regarding the clarity or content of PASS-Q (BR) questions and did not suggest modifications.

Reproducibility

The ICC of PASS-Q (BR) was 0.789 (95% CI, 0.573–0.896; $p < 0.001$). No significant differences ($p = 0.429$) were observed between the mean score of the test (3.35 ± 0.55) and that of the retest (3.47 ± 0.69).

Descriptive analysis

Regarding the descriptive analysis of the items and dimensions of the PASS-Q (BR), it was found that the items 7, 13, and 15 had the highest scores, and items 4, 6, and 10 had the lowest scores (Table 2).

Table 2. Descriptive analysis of the questions in the PASS-Q (BR), considering the guiding phrase “If necessary, to what extent someone would ...” (n = 533).

Dimensions/questions	Min	Max	Mean (sd)
Emotional support			
1 ... provide you with comfort and safety.	0	4	3.08 (0.87)
8 ... always be there for you.	0	4	3.07 (0.95)
11 ... take care of you.	0	4	3.10 (1.05)
14 ... show concern about you.	0	4	3.18 (0.94)
Total, points	0	4	3.11 (0.74)

Esteem support			
2 ... reinforce your positive aspects.	0	4	3.10 (0.84)
4 ... improve your self-esteem.	0	4	3.00 (1.03)
9 ... stimulate with trust to deal with the pressure.	0	4	3.11 (0.93)
12 ... improve your sense of competence	0	4	3.11 (0.95)
Total, points	0	4	3,08 (0.74)
Informational support			
5 ... give you constructive criticism.	0	4	3.17 (0.94)
7 ... give you tactical advices.	0	4	3.34 (0.88)
13 ... give you advice about performing in competitive situations	0	4	3.25 (0.91)
15 ... give you advices when you are having a low performance	0	4	3.27 (0.94)
Total, points	0	4	3.26 (0.72)
Tangible support			
3 ... help with trips for training and games.	0	4	3.19 (0.98)
6 ... help with tasks to let you free to focus.	0	4	2.43 (1.13)
10 ... do things for you in competition/games.	0	4	2.79 (1.03)
16 ... help you to organize and plan for your competitions/games	0	4	3.04 (1.03)
Total, points	0	4	2.86 (0.76)
Total score PASS-Q (BR), points	15	64	49.23 (10.34)

Higher mean PASS-Q (BR) scores were obtained by athletes competing at the international level than those competing at national and state levels ($p = 0.006$, Kruskal–Wallis test). Dunn’s post-hoc test revealed that the score of athletes competing at the international level (3.27 ± 0.55) was significantly higher than that of athletes competing at the national (3.06 ± 0.63 , $p = 0.041$) and state (3.02 ± 0.67 , $p = 0.004$) levels.

Internal consistency

PASS-Q (BR) had a Cronbach’s alpha of 0.919, considering all dimensions. Tangible support had a Cronbach’s alpha of 0.702; information support, 0.788; esteem support, 0.795; and emotional support, 0.787.

Construct validity

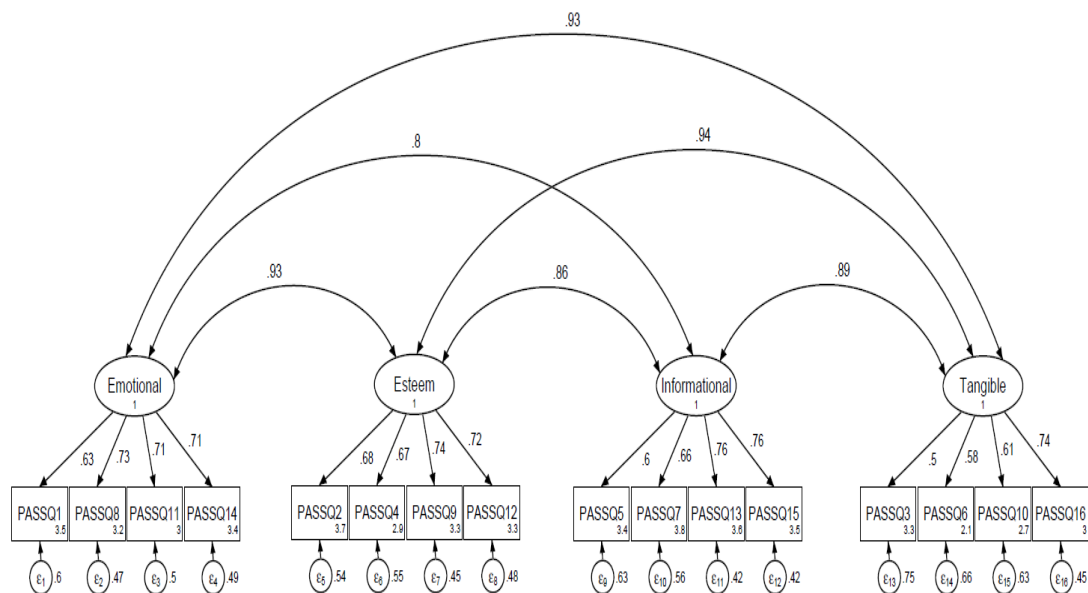
The KMO index was 0.942 for both one- and four-factor models, indicating that the dataset was adequate for CFA analysis. The one-factor model for PASS-Q (BR) showed good absolute fit indices: RMSEA = 0.084, CFI = 0.90, TLI = 0.88, = SRMR = 0.047. However, the four-factor model, which reflected the four dimensions of PASS-Q, provided a better fit to the data: RMSEA = 0.075, CFI = 0.92, TLI = 0.91, and SRMR = 0.042 (Table 3).

Table 3. Adjustment statistics for the PASS-Q (BR) model composed of one and four factors ($n = 533$).

Model	χ^2	CFI	TLI	RMSEA	SRMR
PASS-Q (1 factor)	493.335	0.90	0.88	0.084	0.047
PASS-Q (4 factors)	388.705	0.92	0.91	0.075	0.042

CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Square Residual; KMO: Kaiser-Meyer-Olkin.

Factor loadings ranged from 0.63 to 0.73 in the emotional support dimension, 0.67 to 0.74 in the esteem support dimension, 0.60 to 0.76 in the informational support dimension, and 0.50 to 0.74 in the tangible aid dimension (Figure 1). Significant correlations were identified between the total PASS-Q (BR) score and total SCI-BR ($r_s = 0.340, p < 0.001$) and SSS ($r_s = 0.333, p < 0.001$) scores. The correlations remained significant between the SCI-BR score and the emotional ($r_s = 0.289, p < 0.001$), tangible ($r_s = 0.285, p < 0.001$), informational ($r_s = 0.271, p < 0.001$) and esteem ($r_s = 0.339, p < 0.001$) domains of PASS-Q.



Note: The factors are represented by the circle and the indicators (questions) are represented by rectangles. The arrows from the factors to the indicators represent the factor loads. The simple variances are represented by the circle below the indicators. The arrows linking the factors indicate the correlation between them.

Figure 1. Graphical representation of the confirmatory factor analysis of PASS-Q composed of four factors.

Discussion

A thorough analysis of the semantic equivalence of an original instrument and its translated and adapted version is essential before application because of cultural differences (behaviors and beliefs) between different populations. Perceived social support has been positively associated with a range of positive outcomes in athletic populations (Defreese & Smith, 2013; Gabana et al., 2017; Sheridan et al., 2014). Despite this evidence, measures of social support have predominantly been validated in English-speaking countries. The present study addressed this issue by adapting the PASS-Q to Brazilian Portuguese and examining its psychometric properties in a youth sample. Evidence was provided for the content validity, reproducibility, internal consistency and construct validity of the PASS-Q (BR). Moreover, it is important to assess whether the factorial structure of the adapted version is equivalent to that of the original and that the results of the instrument are comparable to that of other variables of theoretical and empirical relevance (in the case of social support among athletes, subjective social status and sport confidence). In this study, we translated and adapted PASS-Q to Brazilian Portuguese and validated the translated instrument.

The translated instrument had high acceptability indices, as questions referring to language clarity, practical pertinence, and theoretical relevance received high scores by experts, higher than that considered adequate (≥ 0.700) by Hernandez-Nieto (2002). Almost all experts answered “yes” to the four questions on the adequacy of the adapted instrument. The current study is the first to translate a perceived social support in sport measure into Brazilian Portuguese and provides tool to enable researchers to explore the impact of perceived support in different countries. When considered alongside the content validity of the original PASS-Q, the strong CVCs

identified indicate that the same supportive behaviors may hold relevance for samples of different nationalities and age groups.

Reproducibility (ICC = 0.789) and internal consistency (Cronbach's alpha = 0.919) were adequate, further demonstrating the acceptability of the psychometric properties of the PASS-Q (BR). Cronbach's alpha coefficients for the dimensions tangible support (0.702), informational support (0.788), esteem support (0.795), and emotional support (0.787) were close to those obtained for original dimensions by Freeman, Coffee, and Rees (2011): 0.680 for tangible aid, 0.810 for informational support, 0.830 for esteem support, and 0.870 for emotional support.

Regarding construct validity, the absolute fit indices of the four-factor model were satisfactory (RMSEA = 0.075, CFI = 0.92, TLI = 0.91, and SRMR = 0.042) (Hu & Bentler, 1990) and higher than those of the one-factor model (RMSEA = 0.084, CFI = 0.90, TLI = 0.88, and SRMR = 0.047). This result agrees with the validation study of the original PASS-Q, in which the authors observed adequate absolute fit indices for the four-factor model (RMSEA = 0.5, SRMR = 0.6, and CFI = 0.94) (Freeman et al, 2011). The four-factor PASS-Q (BR) model is therefore considered adequate to assess perceived social support among athletes aged 14 to 19 years competing in different sports and at different competition levels. Cutrona and Russel (1990) also identified the same four dimensions of functional support in their literature review on health psychology.

Regarding the descriptive analysis, the dimension with the lowest mean score was tangible aid (2.86 ± 0.76 points) and that with the highest score was informational support (3.27 ± 0.96 points). Freeman and Rees (2010) in a study with 152 English university athletes aged 20.1 ± 1.4 years observed lower scores on informational support (3.10 ± 0.79) and tangible aid (3.10 ± 0.82) and higher scores on esteem support aid (3.37 ± 0.90). As in the current study, athletes had a low perception of the available tangible aid. However, informational support received higher scores among Brazilian adolescent athletes than among British university athletes. This result may be due to the athletes' reference of perceived support. In the study of Freeman and Rees (2010), perceived support was evaluated in relation to teammates, whereas, in the present study, it was assessed in relation to coaches, teammates, and family members.

Brazilian adolescent athletes perceived greater social support in relation to advice on tactics (item 7), competitive situations (item 13), and low performance (item 15), pertaining to the informational support dimension. Young Brazilian athletes are likely involved in training and competition environments with high availability of relevant information and support for performance improvement provided by coaches, technical assistants, family members, and teammates. Cutrona and Russell (1990) defined informational support as the provision of advice or guidance on problems and their solutions in sports.

Perceived support regarding self-esteem (item 4, esteem support dimension), help with tasks, and support during competitions/matches (items 6 and 10, tangible aid dimension) received the lowest scores. Thus, although Brazilian athletes have a great availability of advice on sports performance, they seem to not have concrete assistance (e.g., financial or physical assistance, as in the case of injury treatment by physiotherapists) or psychological support (e.g., boosting of self-esteem) for coping with difficulties (Cutrona & Russell, 1990; Rees & Hardy, 2000).

The development of the PASS-Q (BR) allows the effectiveness of different dimensions of perceived support to be examined in Brazilian youth athletes. Understanding whether dimensions have unique effects of outcomes could hold great potential for theory development and the design of social support interventions. For example, future research could test the predictions of the optimal matching model (Cutrona & Russell, 1990) which suggests dimensions of support should be matched to the needs of specific stressors. In a qualitative study that examined how high-level Norwegian adolescent athletes deal with competitive and organizational stress (housing, food aid, and transportation), Kristiansen and Roberts (2010) found that both emotional and informational support,

along with cognitive strategies, were important elements for coping with stressful competitive situations, whereas tangible aid was important for dealing with organizational stress.

Similar to the observed in the validation study of PASS-Q (Freeman et al., 2011), in which perceived social support in the four dimensions was positively associated with self-confidence ($r = 0.370\text{--}0.44$, $p < 0.001$), in the present study, we found positive correlations between sport confidence and all PASS-Q (BR) dimensions (ranging from $r_s = 0.271$ to $r_s = 0.339$, $p < 0.001$). Freeman and Rees (2010), in a study investigating which types of perceived available support by teammates most predicted self-confidence, found that all dimensions of perceived social support positively predict self-confidence ($\Delta R^2 = 0.13\text{--}0.17$, $p < 0.01$). Rees and Freeman (2009) found an association between social support and high self-efficacy in high-level golfers, which, in turn, was associated with increased performance.

A positive correlation was also found between PASS-Q (BR) and SSS scores ($r = 0.333$, $p < 0.001$), indicating that athletes with a higher perception of social status in the sports community are those with a higher perception of available social support. Furthermore, athletes who compete at an international level had higher PASS-Q (BR) scores than athletes who compete at national ($p = 0.041$) or state ($p = 0.004$) levels.

It is important to highlight that perceived available support in sport is an important variable that can be assessed among all athletes, regardless of whether they receive social support. For instance, athletes may receive social support in their day-to-day life but have a negative perception when asked about whether they would have social support related to sports performance (information, advice, guidance, and financial assistance) or personal issues (self-esteem and anxiety control) if needed. On the other hand, athletes may not receive support on a daily basis because they do not need it and yet perceive that, in case of need, they would have social support at their disposal.

This study was the first to translate, adapt, and validate the PASS-Q in Brazil. PASS-Q (BR) showed acceptable reliability and internal consistency. CFA revealed that the adapted version represented well the four original dimensions of emotional, esteem, informational, and tangible support. Thus, we propose that PASS-Q (BR) can be used to assess the perception of the available social support in sport by Brazilian adolescent athletes of different levels of competition. A strength of this study was the size and variety of the sample, which included team and individual sports athletes of different competition levels. The correlation of PASS-Q (BR) scores with sport confidence and social status in the sports environment reinforces the validity of the four-factor construct, as assessed by CFA.

It is considered that the validation and translation of the PASS-Q for Brazilian adolescent athletes will significantly contribute to the availability of a reliable and valid tool of perceived social support for different sports contexts, in addition to making meaningful comparisons with previous sports studies. Further studies should investigate the factors associated with low or high perceived available support in sport and the effect of perceived social support on the behavioral, psychological, and sports performance of athletes.

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References

- Acock, A. C. (2013). Discovering structural equation modeling using Stata: Revised edition. *Stata press books*.
- Barbosa, D. G., Vealey, R., Pelegrini, A., Farias, G., Corazza, S., & Felden, É. (2021). Validation and cultural adaptation of the Sport Confidence Inventory (SCI) for Brazilian adolescent athletes. *Revista Brasileira de Psicologia do Esporte*, 11(2). <https://doi.org/10.31501/rbpe.v11i2.12498>
- Bianco, T., & Eklund, R. C. (2001). Conceptual considerations for social support research in sport and exercise settings: The case of sport injury. *Journal of sport and exercise psychology*, 23(2), 85-107. <https://doi.org/10.1123/jsep.23.2.85>
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological methods*

- & research, 21(2), 230-258.
<https://doi.org/10.1177/0049124192021002005>
- Carson, F., & Polman, R. (2012). Experiences of professional rugby union players returning to competition following anterior cruciate ligament reconstruction. *Physical Therapy in Sport*, 13(1), 35-40.
<https://doi.org/10.1016/j.ptsp.2010.10.007>
- Cassepp-Borges, V., Balbinotti, M. A., & Teodoro, M. L. (2010). Tradução e validação de conteúdo: uma proposta para a adaptação de instrumentos. *Instrumentação psicológica: Fundamentos e práticas*, 506-520.
- Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155. <https://doi.org/10.1037/14805-018>
- Cohen, S., Underwood, L. G., & Gottlieb, B. H. (Eds.). (2000). *Social support measurement and intervention: A guide for health and social scientists*. Oxford University Press.
<https://doi.org/10.1176/appi.ps.52.10.1404>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin*, 98(2), 310. <https://doi.org/10.1037/0033-2909.98.2.310>
- Cutrona, C. E., & Russell, D. W. (1990). Type of social support and specific stress: Toward a theory of optimal matching.
<https://psycnet.apa.org/record/1990-97699-013>
- Defreese, J. D., & Smith, A. L. (2013). Teammate social support, burnout, and self-determined motivation in collegiate athletes. *Psychology of Sport and Exercise*, 14(2), 258-265.
<https://doi.org/10.1016/j.psychsport.2012.10.009>
- Farias Júnior, J. C. de., Lopes, A. da S., Reis, R. S., Nascimento, J. V. do., Borgatto, A. F., & Hallal, P. C. (2011). Development and validation of a questionnaire measuring factors associated with physical activity in adolescents. *Revista Brasileira de Saúde Materno Infantil*, 11(3), 301-312.
<https://doi.org/10.1590/S1519-38292011000300011>
- Fermanian, J. (1984). Measuring agreement between 2 observers: a quantitative case. *Revue d'épidemiologie et de sante publique*, 32(6), 408.
- Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of sport and exercise*, 13(5), 669-678.
<https://doi.org/10.1016/j.psychsport.2012.04.007>
- Freeman, P., Coffee, P., Moll, T., Rees, T., & Sammy, N. (2014). The ARSQ: the athletes' received support questionnaire. *Journal of Sport and Exercise Psychology*, 36(2), 189-202.
<https://doi.org/10.1123/jsep.2013-0080>
- Freeman, P., Coffee, P., & Rees, T. (2011). The PASS-Q: The perceived available support in sport questionnaire. *Journal of Sport and Exercise Psychology*, 33(1), 54-74.
<https://doi.org/10.1123/jsep.33.1.54>
- Freeman, P., & Rees, T. (2010). Perceived social support from team-mates: Direct and stress-buffering effects on self-confidence. *European Journal of Sport Science*, 10(1), 59-67.
<https://doi.org/10.1080/17461390903049998>
- Gabana, N. T., Steinfeldt, J. A., Wong, Y. J., & Chung, Y. B. (2017). Gratitude, burnout, and sport satisfaction among college student-athletes: The mediating role of perceived social support. *Journal of Clinical Sport Psychology*, 11(1), 14-33.
<https://doi.org/10.1123/jcsp.2016-0011>
- Gomes, J.M.P. (2016). Presentismo no desporto: o papel das fontes stressoras e da perceção do suporte social [Master's Thesis, University Institute of Lisbon]. ISCTE-IUL.
<http://hdl.handle.net/10071/12589>
- Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001). Adolescents' perceptions of social status: development and evaluation of a new indicator. *Pediatrics*, 108(2), e31. <https://doi.org/10.1542/peds.108.2.e31>
- Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of psychosomatic research*, 69(5), 511-520.
<https://doi.org/10.1016/j.jpsychores.2009.10.001>
- Grubertt, G. A. (2022). Health-related quality of life of pupil-athletes from Southern Brazil: A cross-sectional study. *Revista Iberoamericana de Psicología del Ejercicio y El Deporte*, 17(3), 94-97.
<https://dialnet.unirioja.es/servlet/articulo?codigo=8543243>
- Herdman, M., Fox-Rushby, J., & Badia, X. (1998). A model of equivalence in the cultural adaptation of HRQoL instruments: the universalist approach. *Quality of life Research*, 7(4), 323-335.
<https://link.springer.com/article/10.1023/A:1024985930536>
- Hernández-Nieto, R. A. (2002). Contributions to statistical analysis. *Mérida: Universidad de Los Andes*, 193.
- Holt, N. L., & Hoar, S. D. (2006). The multidimensional construct of social support. *Literature reviews in sport psychology*, 199-225.
- House, J. (1984). Measure and concepts of social support. *Social support and health*, 83, 123-140.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1-55.
<https://doi.org/10.1080/10705519909540118>
- Kristiansen, E., & Roberts, G. C. (2010). Young elite athletes and social support: Coping with

- competitive and organizational stress in "Olympic" competition. *Scandinavian Journal of Medicine & Science in Sports*, 20(4), 686-695. <https://doi.org/10.1111/j.1600-0838.2009.00950.x>
- Rees, T. (2007). Influence of Social Support on Athletes. In S. Jowett & D. Lavalley (Ed.). *Social Psychology in Sport* (pp. 223-232). Champaign, IL: Human Kinetics. <http://dx.doi.org/10.5040/9781492595878.ch-016>
- Rees, T., & Freeman, P. (2009). Social support moderates the relationship between stressors and task performance through self-efficacy. *Journal of Social and Clinical Psychology*, 28(2), 244-263. <https://doi.org/10.1521/jscp.2009.28.2.244>
- Rees, T., & Freeman, P. (2007). The effects of perceived and received support on self-confidence. *Journal of sports sciences*, 25(9), 1057-1065. <https://doi.org/10.1080/02640410600982279>
- Rees, T., & Hardy, L. (2000). An investigation of the social support experiences of high-level sports performers. *The sport psychologist*, 14(4), 327-347. <https://doi.org/10.1123/tsp.14.4.327>
- Rees, T., & Hardy, L. (2004). Matching social support with stressors: Effects on factors underlying performance in tennis. *Psychology of sport and exercise*, 5(3), 319-337. [https://doi.org/10.1016/S1469-0292\(03\)00018-9](https://doi.org/10.1016/S1469-0292(03)00018-9)
- Rees, T., & Freeman, P. (2010). Social support and performance in a golf-putting experiment. *The Sport Psychologist*, 24(3), 333-348. <https://doi.org/10.1123/tsp.24.3.333>
- Sheridan, D., Coffee, P., & Lavalley, D. (2014). A systematic review of social support in youth sport. *International Review of Sport and Exercise Psychology*, 7(1), 198-228. <https://doi.org/10.1080/1750984X.2014.931999>
- Terwee, C. B., Bot, S. D., de Boer, M. R., van der Windt, D. A., Knol, D. L., Dekker, J., Bouter, L.M., & de Vet, H. C. (2007). Quality criteria were proposed for measurement properties of health status questionnaires. *Journal of clinical epidemiology*, 60(1), 34-42. <https://doi.org/10.1016/j.jclinepi.2006.03.012>
- Vangelisti, A. L. (2009). Challenges in conceptualizing social support. *Journal of Social and Personal Relationships*, 26(1), 39-51. <https://doi.org/10.1177/0265407509105520>
- Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport and Exercise Psychology*, 8(3), 221-246. <https://doi.org/10.1123/jsp.8.3.221>
- Vealey, R., & Knight, B. (2002). Initial development of the multidimensional Sport Confidence Inventory (SCI). In *Association for the advancement of applied sport psychology conference proceedings*, Tucson, AZ.
- Wills, T. A., & Shinar, O. (2000). Measuring perceived and received social support. *Social support measurement and intervention: A guide for health and social scientists*, 4, 86-135. <https://doi.org/10.1093/med:psych/9780195126709.003.0004>