La relación entrenador-atleta-padre : adaptación y validación de la versión árabe del cuestionario PNPCAP

The Coach-Athlete–Parent Relationship: Adaptation and Validation of the Arabic version of the PNPCAP Questionnaire

A relação entre treinador-atleta-pais: adaptação e validação da versão árabe do questionário PNPCAP

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RESUMEN

Los Procesos Positivos y Negativos del Cuestionario Entrenador-Atleta-Padres (PNPCAP) de 11 ítems es un nuevo cuestionario que mide la dinámica de las interacciones entre entrenadores, atletas y padres, así como sus propiedades psicométricas. Sin embargo, encontramos que no se utilizó ninguna versión árabe para examinar a la población árabe. Por lo tanto, el estudio tuvo como objetivo traducir y validar el PNPCAP a la versión árabe mediante análisis factorial exploratorio y confirmatorio. Le pedimos a un total de 439 atletas (15.51 ± 1.77) que completaran la versión árabe del PNPCAP utilizando el método de traducción hacia adelante y hacia atrás. Los resultados del análisis factorial exploratorio indicaron que la cantidad de componentes era adecuada para la investigación de campo, lo que llevó a la eliminación de tres ítems con valor menor a 0,40. El análisis factorial confirmatorio mostró un buen ajuste con los datos (CFI = 0.970, SRMR = 0.065, RMSEA = 0.044) y consistencia interna, con valores de alfa de Cronbach y omega de McDonald para el cuestionario global ambos superiores a 0,70. Esto significó que podría usarse para evaluar la relación entre el entrenador, el atleta y los padres entre los atletas jóvenes árabes. El cuestionario final árabe PNPCAP tiene dos dimensiones: procesos positivos y negativos. Cada dimensión tiene cuatro ítems. Otras naciones de habla árabe pueden tener costumbres familiares y deportivas diferentes, lo que hace que el contexto cultural del estudio sea irrelevante.

Palabras clave: deportes; entrenador; atleta; padre; Relaciones interpersonales, ambiente árabe.

ABSTRACT

The 11-item Positive and Negative Processes in the Coach-Athlete-Parent Questionnaire (PNPCAP) is a new questionnaire that measures the dynamics of interactions between coaches, athletes, and parents, as well as its psychometric properties. However, we found that no Arabic version was used to examine the Arabic population.

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Thus, the study aimed to translate and validate the PNPCAP into the Arabic version using exploratory and confirmatory factor analysis. We asked a total of 439 athletes (15.51 ± 1.77) to complete the PNPCAP Arabic version using the forward-backward translation method. The results of the exploratory factor analysis indicated that the quantity of components was appropriate for the field investigation, leading to the elimination of three items with a value less than 0.40. The confirmatory factor analysis showed a good fit with the data (CFI = 0.970, SRMR = 0.065, RMSEA = 0.044). Internal consistency, with Cronbach's alpha and McDonald's omega values for the overall questionnaire, were both higher than 0.70. This meant that it could be used to evaluate the relationship between the coach, athlete, and parent among Arabic youth athletes. The final Arabic PNPCAP questionnaire has two dimensions: positive and negative processes. Each dimension has four items. Other Arabic-speaking nations may have different family and sporting customs, rendering the cultural context of the study irrelevant.

Keywords: sports; coach; athlete; parent; interpersonal relationships, Arabic environment.

RESUMO

Os Processos Positivos e Negativos do Questionário Treinador-Atleta-Pais (PNPCAP) de 11 itens é um novo questionário que mede a dinâmica das interações entre treinadores, atletas e pais, assim como suas propriedades psicométricas. No entanto, descobrimos que nenhuma versão árabe foi utilizada para examinar a população árabe. Portanto, o estudo teve como objetivo traduzir e validar o PNPCAP para a versão árabe por meio de análise fatorial exploratória e confirmatória. Pedimos um total de 439 atletas (15.51 ± 1.77) que completaram a versão árabe do PNPCAP utilizando o método de tradução para frente e para trás. Os resultados da análise fatorial exploratória indicaram que a quantidade de componentes foi adequada para a investigação de campo, o que levou à eliminação de três itens com valor menor a 0,40. A análise fatorial confirmatória mostrou um bom ajuste com os dados (CFI = 0.970, SRMR = 0.065, RMSEA = 0.044) e consistência interna, com valores de alfa de Cronbach e ômega de McDonald para o questionário global ambos superiores a 0.70. Isso significou que você poderia usar para avaliar a relação entre o treinador, o atleta e os pais entre os atletas jovens árabes. O questionário árabe final PNPCAP tem duas dimensões: processos positivos e negativos. Cada dimensão tem quatro itens. Outras nações de fala árabe podem ter costumes familiares e esportivos diferentes, o que faz com que o contexto cultural do estúdio seja irrelevante.

Palavras chave: esportes; treinador; atleta; pais; Relações interpessoais, ambiente árabe.

INTRODUCTION

Sport is a universal pastime that attracts individuals of all sexes, ages, and levels of health and fitness nowadays. The majority of athletes and exercise enthusiasts are younger and do it for their own physical and mental health. Important stakeholders in research on youth athletic engagement include parents and coaches (Lisinskiene et al., 2019a). Several studies (e.g., Kovács et al., 2024; Knight et al., 2011) have highlighted the expanding corpus of literature that aims to comprehend the dynamics of coaching and parental involvement in childhood sports. The perspectives of coaches (Camiré et al., 2012; MacDonald et al., 2020), parents (Holt, 2016; Holt et al., 2020), and youth athletes (Knight et al., 2011; Jowett, 2017) have enhanced our understanding of the complex and diverse nature of sporting experiences. So far, the complex interplay between these three key figures—the athletic triangle—has gone unnoticed. Danioni et al. (2017) stated that the parent, coach, and athlete create a triangle that greatly influences the athlete's growth.

Research is showing that when parents, athletes, and coaches all work together, it can greatly improve the quality of a youth athlete's experience (Sheridan et al., 2014). Collaboration between coaches and athletes improves both parties' experiences, fosters emotional bonds, and increases the likelihood that both will remain engaged in sports for a longer period of time, experience greater fulfilment, maintain motivation, and perform at a higher level, according to research (Jowett & Nezlek, 2012). Gardner et al. (2017) found that athletes report more satisfaction and motivation when they have supportive family ties. On the other hand, athletes whose parents' conversations

The Coach-Athlete–Parent Relationship (the Arabic version)

centre on their performance and rankings tend to be less enthusiastic and motivated. Both the efficacy of coaching and the success of sports parenting are strongly influenced by the quality of these interactions (Harwood & Knight, 2015; Tagliavini et al., 2023). In contrast, parental pressure is common in sports, and it manifests itself in a variety of ways, including setting unrealistically high standards, being harsh with their children after competitions, penalising them, and even 'withdrawing affection' when their children fall short (Gould et al., 2008; Weinberg & Gould, 2023). When a coach uses negative language and actions in training or competing, rather than relying on positive psychological aspects, it strains their relationship with the athlete (Weinberg & Gould, 2023; Weinberg & Gould, 2021). Negative attitudes towards certain actions seen in children's sports can lead to unfavourable outcomes. As per the findings of Lisinskiene et al. (2019a), it has been seen that youngsters could acquire an anxiety disorder, feel nervous before competitions, suffer from exhaustion, or even stop participating in sports completely.

Bowlby (1969-1982) established the attachment theory, which is highly influential in social psychology because it allows researchers to examine a wide range of variables, such as self-esteem, distress, happiness, and relationship quality (Felton & Jowett, 2013). In order to enhance the beneficial results of youth sports involvement, the study indicated above adds significantly to our understanding of the intricate relationships involving coaches, players, and parents within the realm of sports (Lisinskiene, 2019a).

According to investigations in sports, there needs to be more studies on the nuances of human relationships (Lisinskiene et al., 2019a). Many results, such as the cohesion of the team and its performance on the field, can be significantly influenced by the relationships that were mentioned earlier. Exploring the depth and breadth of these relationships can help shed light on the effectiveness of sports programmes, team dynamics, and internal motivation. Several studies have examined the dynamics of relationships between coaches, players, and their families. Several studies have examined the dynamics of relationships between coaches, players, and their families. Rhind and Jowett (2012) developed the coach-athlete relationship maintenance questionnaire (CARM-Q), while Jowett and Ntoumanis (2004) developed the coach-athlete relationship test (CART-Q). The original idea of the enabling or inhibitory training questionnaire by the trainer (EDMCQ-C) came from Appleton et al. (2016). In addition, a questionnaire was developed by Sanders et al. (2013) to assess PAFAS, an abbreviation for family adaptation techniques. Few tools were available to assess the dynamics of interactions between coaches, players, and parents before the coach-athlete-parent (C-A-P) questionnaire was created by Lisinskiene et al. (2019b). Lisinskiene et al. (2019b) changed the name of the coaches-athletes-parents questionnaire to "positive and negative processes in the coach-athlete-parent questionnaire" (PNPCAP). In accordance with Lisinskiene et al. (2019a), the 11-item PNPCAP questionnaire is a valid and useful tool for measuring the coaches perspective, players (12–18 years old), and parents in the youth sports atmosphere. Subscales in the C-A-P model measure confidence levels and excessive involvement in children's sports activities (Lisinskiene et al., 2022). Lisinskiene et al. (2022) point out that most of the original PNPCAP questionnaire was written in Lithuanian. The dynamics of the pitch and the capacities of the players are influenced by a complex network of relationships between coaches, parents, and players.

To get a good reading of these personality dynamics, you need assessment techniques that are valid and reliable. Because of the significant impact of cultural (Wilson, 2013) and linguistic (Byrne, 2016) factors on interpersonal dynamics, it is crucial to update existing surveys to ensure they are suitable and applicable. In light of the suggestions made by Lisinskiene et al. (2022) and the fact that the PNPCAP is a relatively new instrument for measuring the quality of relationships among coaches, athletes, and parents, this study aims to validate an Arabic version of the instrument. The study highlights the importance of cultural sensitivity in psychological evaluation instruments used in sports environment.

MATERIAL AND METHODS

Research Design

The research design was classified using the system given by Ato et al. (2013) for psychological research. Utilizing an instrumental study methodology, we will systematically assess the psychometric features of the Arabic-adapted PNPCAP Questionnaire, yielding significant insights into its quality and efficacy.

Participants

The study contained 439 young athletes, aged 12 to 18 years (mean (M) = 15.51 years; standard deviation (SD) = 1.77). These athletes were actively involved in several sports disciplines, such as athletics, karate, basketball, football, handball, and swimming. There were 294 men (60.137%) and 175 women (39.863%), representing both genders (Table 1). The athletes originated from the cities of Ouargla and Touggourt in Algeria and have competed in local, national, and international tournaments. The sample members were selected randomly. Enrollment in the research was optional, and the identity of the participants was kept confidential. Participants were granted the autonomy to discontinue their involvement in the study at any point without incurring any repercussions.

Table 1

The demographic characteristics of the sample.

Characteristics	Frequency	Percentage	Mean (SD)
Age (years)			15,51 (1,77)
Study level			
Secondary	245	55.809	
Fundamental	194	44.191	
Gender			
Male	264	60.137	
Female	175	39.863	
Types of sports			
Athletics	131	29.841	
Karate-Do	49	11.162	
Basketball	26	5.923	
Football	131	29.841	
Handball	60	13.667	
Swimming	42	9.567	
Total	**439**	**100.000**	

Note: SD; Standard Deviation.

Instrument

The PNPCAP questionnaire, developed by Lisinskiene et al. (2019a; 2019b), was employed to assess perceived relationships between coaches, athletes, and parents. The PNPCAP consists of 11 items that address all aspects of interpersonal relationships, with each question considering the entirety of these interactions (Table 2). The 11 items are categorized into two subscales: positive C-A-P and negative C-A-P. The positive C-A-P subscale consists of seven questions that assess positive relationship processes, while the negative C-A-P subscale consists of four

questions that examine negative processes. Positive scale components encompass subjects such as support (e.g., expressing agreement and encouraging), teamwork (the collaborative efforts of the C-A-P working harmoniously to accomplish a goal), respect (demonstrating civility, honour, and caring for one another), and communication (the act of exchanging information). An example of a positive-scale question is "Mutual respect characterizes my C-A-P.". The negative scale includes subjects such as overinvolvement (overstepping of boundaries), being overly demanding, and having excessively high expectations. One example of a negative scale question is "In my C-A-P, at least one member expects too much." The questions used a five-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree).

Procedure

We translated the original form of the PNPCAP questionnaire (Lesinskiene et al., 2022) in accordance with the translation requirements (Cid et al., 2022). Two proficient bilingual translators, possessing a strong command of both English and Arabic, initially translated the PNPCAP from English to Arabic. Two separate bilingual translators then subjected the translated questionnaire to a back-translation process. Five bilingual specialists with expertise in sport psychology and physical education compared, reviewed, and verified both the backward translation and the original questionnaire. Item clarity, which included cultural objectivity, comprehensibility, and conceptual equivalence, was later considered by the experts as they completed the scale. Additionally, in order to ascertain whether the items were culturally appropriate for the local audience, the experts compared them to their comparable items in the original English edition and conducted additional assessments. Finally, the experts tasked a group of ten young athletes to evaluate the items' clarity, knowledge, and comprehension. The responses of the young athletes were constant and did not indicate a need for adjustment.

Data collection

During the consenting procedure, participants were apprised of the aims as well as their ethical rights. Institute of Physical Education and Sports, University of Ouargla, granted ethical approval for the project (UKMO/ISTAPS/EC0115092023), and sports team staff helped get parents' consent as well. Following the principles outlined in the International Declaration of Helsinki, all procedures were carried out (WMA, 2013, Bošnjak 2001, Tyebkhan 2003,Lahman, 2018). The study was voluntary, conducted from October 2023 to May 2024, and used a cross-sectional design. In this study, participants were asked to fill out an informed consent form after they had already agreed to take part. During this period, all necessary procedures have been taken to maintain the confidentiality and reliability of the information, as well as the characteristics and peculiarities of the sample members (Harriss et al., 2019). Everyone involved in the study made sure they understood their involvement would remain private. In addition, all personal data of individuals (name,family name,age …) was protected in accordance with Basic Law 3/2018, issued on December 5, on the protection of personal data and the guarantee of digital rights.

Data analysis

Analysis of the PNPCAP survey was carried out using the JASP 0.18.1.0 statistical programme (JASP Team., 2023). We also used SPSS 29 for this research. Researchers used confirmation factor analysis (CFA) to assess the most adequate model from the proposed models (one-factor model, two-factor model, and two-factor model with acquiescence control).During this process, the accuracy of the CFA analysis was verified by conducting several previous verifications. These tests can help detect anomalous values and perform a multi-variable classification nature test. The Chi-squared statistic (χ^2) was effective in evaluating the model's goodness, but the results were insignificant. An important thing to keep in mind while analysing the χ^2 statistic is that it is sensible to use a large sample size. Even if the data are greatly matched to the proposed standard model, this sensibility may lead to the recommendation of a good misfit, according to Alnahdi (2024) and Bern (2010). To verify a strong model fit, researchers "Hu and Bentler (1999) and Wang et al." (2017) used values of 0.90 or higher for CFI and TLI, 0.06 or less for RMSEA, and 0.08 or less for SRMR. Researchers used a cutoff value of less than or equal to 0.30 to determine the factor loading for all items. Items with factor loadings exceeding 0.3 were deemed acceptable (Hassim, 2020).

Table 2

The original version of the Positive and Negative Processes in the Coach-Athlete–Parent Questionnaire (PNPCAP) interpersonal relationships of the C–A–P.

Item Description	Totally Disagree	Disagree	Neither Agree, Neither Disagree	Agree	Totally Agree
1. My C–A–P relationship is reliable during hardship (P-Support) *	1	2	3	4	5
2. In my C–A–P, we are a team (P-Support) *	1	2	3	4	5
3. My C–A–P is positive (P-Support) *	1	2	3	4	5
4. In my C–A–P, everyone works together (P-Teamwork)*	1	2	3	4	5
5. Mutual respect characterizes my C–A–P(P-Support) *	1	2	3	4	5
6. My C–A–P is supportive (P-Support) *	1	2	3	4	5
7. Everyone in my C–A–P listens to each other point of view (P-communication) *	1	2	3	4	5
8. In my C–A–P, at least one member expects too much(N-over-involved)**	1	2	3	4	5
9. In my C–A–P, at least one member overstep boundaries (N-over-involved)**	1	2	3	4	5
10. At least one member in my C–A–P is too demanding((N-over-involved)**	1	2	3	4	5
11. At least one member is over-involved(N-over-involved)**	1	2	3	4	5

Note. The explanation of the item distribution in two higher-order factors: * (P-subscale)—Positive group processes;** (N-subscale)—Negative group processes.

The multigroup analysis aims to assess if the measurement model's structure is equal (invariant) across diverse groups with varying characteristics (such as gender or sports modality). Byrne (2010) and Cheung and Rensvold (2002) assert that the existence of invariance necessitates the verification of two criteria: Each group must tailor the measurement model, and a multigroup analysis necessitates the examination of the following types of invariances:

configural invariance (unconstrained model), metric invariance (weak invariance), scalar invariance (strong invariance), and residual invariance (strict invariance). The invariance assumptions are validated by the differences in the χ^2 test, CFI, SRMR, and RMSEA, which should satisfy $\Delta CFI \leq .01$, $\Delta SRMR \leq 0.015$, and $\Delta RMSEA \leq 0.01$ (Chen, 2007; Nevitt & Hancock, 2001).

The internal consistency coefficients of the two-factor model were assessed using the results of Cronbach's alpha (α) and McDonald's omega ($\ddot{u}$). Scores of 0.70 or above were considered esteemed following the criteria established by Stensen and Lydersen (2022). Then, we used descriptive statistics to describe the participant's attributes in detail.

RESULTS

Confirmatory factor analysis (CFA)

The calculated model exhibited a satisfactory level of fit and produced a statistically significant result for the Chi-square test (χ^2 = 99.265, df = 43, p <.001). The χ^2/df ratio was 2.308, indicating an acceptable fit for the model.

The model fit indices were as follows: comparative fit index (CFI) = 0.970, Tucker-Lewis index (TLI) = 0.950, root mean square error of approximation (RMSEA) = 0.044, and standardized root mean square residual (SRMR) = 0.065. The CFA estimate concludes that the measurement model exhibits a high degree of fit.

Table 3

Goodness-of-Fit Indices for the Arabic version of the PNPCAP Questionnaire.

CFA	χ^2	Df	RMSEA (90% CI)	CFI	TLI	SRMR
Criterial values	p <.001		≤ 0.06	≥ 0.90	≥ 0.90	≤ 0.08
One-factor model	815.719	44	0.200	0.416	0.271	0.154
Two-factor model	99.265	44	0.044	0.970	0.950	0.065
Two-factor model with acquiescence control	178.753	30	0.106	0.888	0.816	0.060

Note : χ^2: Chi-Square ; Df :Degree of freedom; RMSEA: Root Mean Square Error of Approximation; CFI: Comparative Fit Index; TLI: Tucker-Lewis Index; SRMR: Standardized Root Mean Square Residual.

Table (3) displays the Goodness-of-Fit Indices for the Arabic version of the PNPCAP Questionnaire across three confirmatory factor analysis (CFA) models: the one-factor model, the two-factor model, and the two-factor model with acquiescence control. The findings demonstrate that the two-factor model provides the optimal fit, with an RMSEA of 0.044, a CFI of 0.970, and a TLI of 0.950, all of which meet or above the requisite thresholds. The one-factor model has inadequate fit, indicated by a high RMSEA (0.200), low CFI (0.416), and high SRMR (0.154), hence not satisfying the criteria for satisfactory model fit. The two-factor model with acquiescence control exhibits modest efficacy, with certain indices such as RMSEA (0.106), CFI (0.888), and TLI (0.816) failing to meet the required thresholds, while its SRMR (0.060) remains within acceptable limits. The two-factor model demonstrates the most robust fit to the data, underscoring its appropriateness for the Arabic version of the questionnaire.

Table 4

Confirmatory Factor Analysis Results for Positive and Negative Process Constructs.

Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)	Square Root of AVE	Correlation Between Constructs
Pst	0.73	0.526	0.229	-0.04
Ngt	0.81	0.587	0.766	-0.04

Confirmatory Factor Analysis (CFA) is employed to evaluate the measurement model of constructs inside structural equation modelling (SEM). The assessment encompasses the evaluation of reliability and validity metrics, such as composite reliability (CR), average variance extracted (AVE), convergent validity, and discriminant validity. The results (Table 4) indicated that the composite reliability (CR) for positive process items (Pst) was 0.73, while for negative process items (Ngt) it was 0.81; both CR values are deemed satisfactory. The AVE values for Pst and Ngt were 0.526 and 0.587, respectively, demonstrating acceptable convergent validity. The square roots of AVE for Pst and Ngt were 0.74 and 0.61, respectively, both exceeding the correlation between them (-0.04), so affirming that the discriminant validity is satisfactory. The findings align with the principles established in Partial Least Squares Structural Equation Modelling (PLS-SEM) and Confirmatory Factor Analysis (CFA); Composite Reliability (CR) values span from 0 to 1, with values exceeding 0.70 deemed acceptable, and an Average Variance Extracted (AVE) value of 0.50 or greater regarded as acceptable (Hair et al., 2021).

Table 5
Goodness-of-fit indices of the gender sport modality invariance measures for Arabic version of the PNPCAP Questionnaire.

Models	χ^2	df	$\Delta\chi^2$	Δ df	p	CFI	ΔCFI	SRMR	ΔSRMR	RMSEA	ΔRMSEA
Positive Process (positive dimension)											
Gender (male and female)											
CI	229.41	28	-	-	<0.001	0.93	-	0.07	-	0.05	-
MI	265.63	34	36.22	6	<0.001	0.92	0.00	0.07	0.00	0.05	0.00
SI	278.77	40	49.36	12	<0.001	0.92	0.00	0.07	0.00	0.05	0.00
RI	309.21	47	79.80	19	<0.001	0.92	0.00	0.07	0.01	0.05	0.00
Sport modality (individual and team)											
CI	203.87	28	-	-	<0.001	0.95	-	0.07	-	0.05	-
MI	225.17	34	21.30	6	<0.001	0.93	0.00	0.07	0.00	0.05	0.00
SI	229.87	40	26.00	12	<0.001	0.93	0.00	0.07	0.00	0.05	0.00
RI	268.31	47	64.44	19	<0.001	0.95	0.00	0.07	0.01	0.05	0.00
Negative Process (Negative dimension)											
Gender (male and female)											
CI	11.85	4	-	-	<0.001	0.98	-	0.06	-	0.05	-
MI	13.07	7	1.22	3	<0.001	0.98	0.00	0.06	0.00	0.05	0.00
SI	18.94	10	7.09	6	<0.001	0.98	0.00	0.06	0.00	0.05	0.00
RI	70.58	14	58.73	10	<0.001	0.98	0.00	0.06	0.00	0.05	0.00
Sport modality (individual and team)											
CI	24.69	4	-	-	<0.001	0.96	-	0.06	-	0.05	-
MI	48.62	7	23.93	3	<0.001	0.96	0.00	0.06	0.00	0.05	0.00
SI	58.44	10	33.75	6	<0.001	0.96	0.00	0.06	0.00	0.05	0.00
RI	77.86	14	53.1	10	<0.001	0.96	0.00	0.06	0.00	0.05	0.00

Note. χ^2 = chi-square; df = degrees of freedom; $\Delta\chi^2$ = differences in chi-square values; Δdf = differences in degrees of freedom; CFI = comparative fit index; ΔCFI = differences in comparative fit index values; SRMR = standardized root mean square residual; ΔSRMR = differences in standardized root mean square residual values; RMSEA = root mean square error of approximation; ΔRMSEA = differences in root mean square error of approximation values. CI = configural invariance; MI = metric invariance; SI = scalar invariance; RI = residual invariance.

The results shown in Table (5) show that the model fits well across all levels of configural (CI), metric (MI), scalar (SI), and residual (RI) invariance for both dimensions. The alterations in fit indices (ΔCFI, ΔSRMR, and ΔRMSEA) are modest among the models, signifying robust invariance. The gender comparison for the positive component reveals a consistent CFI of 0.92–0.93, while comparisons by sport modality show a slightly elevated

CFI of 0.93–0.95. The negative component exhibits a consistently elevated CFI (0.96–0.98) for both gender and sport modality, highlighting the questionnaire's robustness across both demographics. The results indicate the tool's reliability and applicability for various demographic comparisons.

All factor loadings for the items (as shown in figure 1) were over the cut-off value of 0.30, ranging from 0.39 to 0.91, except for P5 with a loading of 0.21, P6 with a loading of 0.24, and P7 with a loading of 0.18. There are four items that belong to the second dimension, which represents negative processes. We found the maximum value in item P2 with a score of 0.91, and the lowest value in item N1 with a score of 0.39.

Figure 1
CFA, confirmatory factor analysis; two-factor model.
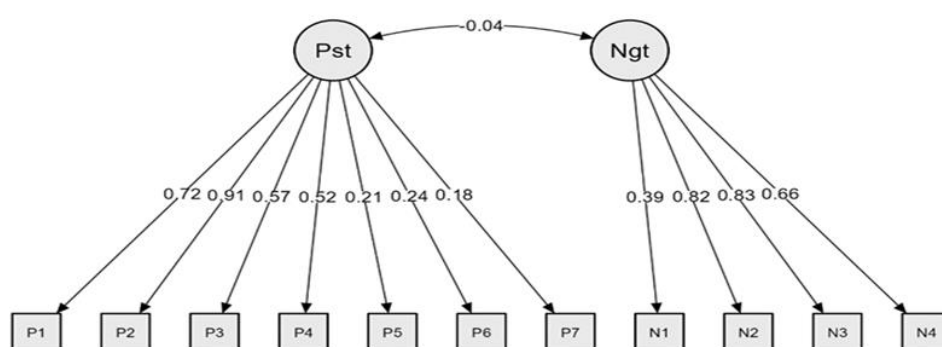
Note: Pst: items of positive processes dimension; Ngt: items of negative processes dimension

The final Arabic version of the PNPCAP questionnaire comprises two dimensions: the positive processes dimension and the negative processes dimension. There are four items in each dimension (Table 6).

Table 6
The Arabic version of the Positive and Negative Processes in the Coach-Athlete–Parent Questionnaire (PNPCAP) interpersonal relationships of the C–A–P.

Item Description	Totally Disagree	Disagree	Neither Agree, Neither Disagree	Agree	Totally Agree
1. My C–A–P relationship is reliable during hardship (positive processes) اعتمد على علاقتي بالمدرب والوالدين لمواجهة المواقف الصعبة	1	2	3	4	5
2. In my C–A–P, we are a team (positive processes) نتصرف كمجموعة واحدة في علاقتي بالمدرب و الوالدين	1	2	3	4	5
3. My C–A–P is positive ((positive processes تربطني علاقة إيجابية مع المدرب والوالدين	1	2	3	4	5
4. In my C–A–P, everyone works together ((positive processes) نعمل جميعا مع بعضنا البعض في علاقتي بالمدرب و الوالدين	1	2	3	4	5
8. In my C–A–P, at least one member expects too much (negative processes) **شخص واحد على الأقل هو القائد في علاقتي مع المدرب والوالدين**	1	2	3	4	5
9. In my C–A–P, at least one member overstep boundaries (negative processes يوجد تجاوز من شخص واحد على الأقل في علاقتي مع المدرب والوالدين	1	2	3	4	5
10. At least one member in my C–A–P is too demanding (negative processes) **يوجد شخص واحد على الأقل يلح على أشياء كثيرة في علاقتي مع المدرب والوالدين**	1	2	3	4	5
11. At least one member is over-involved (negative processes) يوجد شخص على الأقل يسبب المشاكل في أمور كثيرة في علاقتي مع المدرب والوالدين	1	2	3	4	5

The reliability

The Cronbach's alpha (α) coefficients for internal consistency were as follows: 0.706 for positive processes, 0.761 for negative processes, and 0.726 for the overall questionnaire. The McDonald's omega (ω) values were as follows: 0.726 for positive processes, 0.794 for negative processes, and 0.745 for the overall questionnaire. The results indicated that the PNPCAP questionnaire demonstrated satisfactory to exceptional stability over time.

DISCUSSION

This study is the first to adapt and validate the accuracy of the PNPCAP (Parent, Coach, and Athlete Perception) Questionnaire in a different version, specifically for the Arabic-speaking culture. We developed the Arabic version of the PNPCAP questionnaire through a meticulous procedure that involved translation, cultural adaptation, and psychometric validation using confirmatory factor analysis (CFA). Poor performance led to the removal of three items from the study, but the psychometric qualities remained acceptable. The final version is as good as expected. The results showed that the model was very well fitted, which is in agreement with what Hu and Bentler (1999) and Kline (2015) have said.

The PNPCAP questionnaire's internal structure validation through CFA supports the two-factor model. This is in line with the ideas behind dual-process theory in psychology, which says that positive and negative cognitive processes are two separate but connected systems (Evans & Stanovich, 2013). This theoretical foundation is essential as it elucidates the need for distinguishing these categories in sports psychology, especially regarding the dynamics of coach-athlete-parent interactions.

Jowett and Cockerill's (2003) empirical research underscores the intricate nature of coach-athlete interactions, a concept that also applies to triadic partnerships involving parents. These findings indicate that different characteristics of contact (e.g., supportive versus conflictual) are essential for a thorough understanding of the dynamics of these relationships. Also, using RMSEA, CFI, and TLI as fit indices and figuring out what they mean in this work follows the rules set by Hu and Bentler (1999), who say that these levels are the best way to tell if a model is right. Using similar validations, such as Wylleman and Lavallee's (2004) research on transitional dynamics in athletes, can also show how the PNPCAP's ideas are relevant and backed up by evidence in the larger body of sports and developmental psychology literature. To contextualise the findings of the PNPCAP questionnaire's validation in sports psychology, it is beneficial to compare them with analogous research that have examined the dynamics of coach-athlete relationships and the influence of gender and sport modality. Jowett and Ntoumanis (2004) examined the coach-athlete connection through a dyadic lens, offering substantial insights into the variability of relational variables such as closeness, commitment, and complementarity across various sports and genders. Their findings revealed distinct patterns in the assessment of these associations, akin to the variances in the goodness-of-fit indices noted in our study across gender and sports modalities.

Rebustini et al. (2016) investigated the invariance of psychometric instruments in sports psychology, highlighting the significance of model stability across various demographic groups and modalities. Rodrigues et al. (2023) looked at measurement invariance in the Portuguese version of the PRETIE-Q questionnaire and found that high CFI values (≥ 0.95) mean that the questionnaire can be used with different groups of people. Calculating the Cronbach alpha (α) and McDonald omega (ω) values allowed us to determine the PNPCAP Arabic questionnaire's internal consistency. Since the whole survey's (α) and (ü) values exceeded the 0.70 criterion, the results demonstrated excellent reliability, as stated by Stensen and Lydersen (2022). The components within each dimension constantly evaluate the same core notion, ensuring the stability and reliability of the questionnaire.

Other studies are focusing on modifying and implementing standard psychology tools for diverse contexts, and the findings of this study align with those of previous studies. Several countries have improved cultural adaptations for encouraging climate scale for youth sports (MCSYS), with USA and Portugal serving as remarkable examples. According to "Monteiro et al. (2018)" and "Smith et al. (2008)", this adaptation has exposed remarkable scalar

characteristics. This focus on the importance of promoting an inspiring atmosphere that advances youth sports. Adapting the task orientation and ego in sports questionnaire (TEOSQ) for using with adolescent athletes enriches the reliability and validity of this tool for measuring orientations across various populations and different sports, as previous research has proven (Tomczak et al., 2020; Tracey et al.,2021; Cecchini et al., 2001). Young male and female athletes in a range of cultural settings, including China and Greece, constantly and abstractly verified the result of the coach-athlete relationship questionnaire (CART-Q). no matter of sport or gender, this highlights the importance of coach-athlete communication (Olympiou et al., 2008; Yang & Jowett, 2012).

 Because adolescent boys constitute the largest part of the study's participants (60 percent), it's possible that item deletions P5, P6, and P7 were necessary. Interactions with adults, including parents, coaches, and teammates, can reveal interesting characteristics in adolescent boys who play sports. One defining characteristic of this group is an aversion to or complete rejection of any form of external assistance in favour of working alone (Weinberg & Gould, 2015). One of the most important things for teenage boys is to be able to rely on themselves and their own judgement (Eccles & Barber, 1999). An example of this behaviour is when people don't want to hear other people out, particularly those in positions of power, because they assume that these people are trying to force their views on them. These actions take on a greater significance when male athletes contend for supremacy in a fiercely competitive setting (Vella et al., 2013).

Scores on the Athletic Identity Measurement Scale (AIMS) in a variety of sports, such as soccer and basketball, demonstrate that athletic identity is an important concept for many types of players. Visek et al. (2008) and Cabrita et al. (2014) state that this shows how important it is to use personalised psychometric assessments. Cultural norms affect individuals' perceptions and responses to questionnaire items, particularly with sports involvement and emotional processing.

Studies conducted by Rodrigues et al. (2023) and Rebustini et al. (2016) illustrated the importance of considering cultural and environmental elements to attain genuine invariance. Three studies highlighted the importance of cultural sensitivity when adjusting questionnaires by omitting questions with low factor loadings: Beaton et al. (2000), Hair et al. (2019), and Hambleton (2005). This research demonstrates that psychometric tests are viable and dependable ways to get to the nuanced experiences of athletes from all walks of life and all kinds of sports. Therefore, we know that these instruments are multifunctional.

LIMITATIONS AND FUTURE RESEARCH

Researching the dynamics among coaches, athletes, and parents in Arabic with a sample of young athletes (average age: 15.51) presents a variety of obstacles. The sample primarily consists of teenage boys, making it impossible to generalise the results to any other demographic. The study's cross-sectional design also makes it difficult to draw any firm conclusions about cause and effect, and the fact that participants described their own experiences leaves room for biases like social desirability and memory bias. Other Arabic-speaking nations may have different traditions about family and sports; therefore, the study's cultural context might not be completely relevant to them. Improving the questionnaire's transferability to other settings will require larger samples, longitudinal methods to monitor how relationship dynamics change over time, and consideration of cultural variations. To better understand the coach-athlete-parent dynamic and develop successful therapies, it is necessary to combine qualitative and quantitative methodologies.

CONCLUSION

First of its kind, this study shows that the PNPCAP questionnaire can be reliably and factually tested on an Arabic-speaking population. As the three missing items show, it is critical to adapt psychometric examinations to different cultures. A useful tool for evaluating the coach-athlete-parent link is the validated questionnaire, which can help coaches and players in Arabic-speaking contexts.

PRACTICAL APPLICATIONS

In Arabic-speaking communities, the PNPCAP's Arabic version can be used to evaluate the relationships between coaches, athletes, and parents. It provides insightful information for enhancing these relationships in athletic contexts by assisting in identifying both positive and negative interactions. By pointing up areas for improving cooperation and communication, this tool can aid in the creation of training initiatives. In order to comprehend how cultural elements impact coach-athlete-parent interactions in different Arabic-speaking nations, the questionnaire can also be modified for use in diverse cultural contexts.

AUTHOR CONTRIBUTIONS

The study's concept, questionnaire design, data collection, initial manuscript writing, data analysis, results, discussion, and conclusion were all created by K.M. and B.I. The work was examined and translated by K.N. The article's final draft was approved by all authors.

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