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Psychometric Properties of the Brazilian Version of the Multidimensional Sportspersonship Orientations Scale (MSOS)

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ABSTRACT – This study investigated the psychometric properties of the Brazilian version of the Multidimensional Sportspersonship Orientations Scale (MSOS). The cross-cultural adaptation committee was composed of three experts. Our validation sample consisted of 643 athletes from individual and team sports. The results showed clear and relevant content validation and satisfactory internal consistency of the items in the Portuguese version. EFA suggested the exclusion of nine items and the retention of four factors. The CFA analysis with 16 items showed satisfactory adjustment of the model [$X^2/df = 2.70$; $CFI = 0.928$; $TLI = 0.911$, $RMSEA = 0.05$]. The 16-item scale had adequate reliability (> 0.70). It was concluded that the Brazilian version of MSOS showed acceptable psychometric properties.

KEYWORDS: psychometrics, sportspersonship orientations, sport psychology

Propriedades Psicométricas da Versão Brasileira da Escala Multidimensional de Orientação Esportiva (MSOS)

RESUMO – Este estudo investigou as propriedades psicométricas da versão brasileira da Escala Multidimensional de Orientação Esportiva (MSOS). O instrumento foi traduzido e adaptado por três especialistas da área. A amostra de validação foi composta por 643 atletas de modalidades coletivas e individuais. Os resultados demonstraram traduções claras e pertinentes entre os três especialistas, e consistência interna satisfatória dos itens em português. A AFE sugeriu a exclusão de nove itens e a retenção de quatro fatores. O modelo da AFC com 16 itens apresentou índices de ajustamento satisfatórios [$X^2/gl = 2{,}70$; $CFI = 0{,}928$; $TLI = 0{,}911$, $RMSEA = 0{,}05$]. A escala com 16 itens apresentou adequada confiabilidade ($CC > 0{,}70$). Concluiu-se que a versão brasileira da MSOS apresentou propriedades psicométricas aceitáveis.

PALAVRAS-CHAVE: psicometria, orientação esportiva, psicologia do esporte

In sports, the performance atmosphere and achievement of goals can promote a sporting behavior in which the athlete aims to win at any cost. However, sports can also develop attitudes that are consistent with social morals, such as respect for rules and others. To understand moral attitudes and athletic actions, researchers have sought to examine the notion of sportspersonship orientation to assess trends toward good sporting behavior.

Sportspersonship orientation, based on the psychosocial approach, proposes a multidimensional understanding of sportsmanship, pointing out positive issues, such as concern and respect for the refereeing officials and rules, social conventions, and opponents, as well as a total commitment to the sport. Furthermore, sportsmanship in the multidimensional perspective comprises negative aspects, which can be observed in the sporting behaviors adopted by

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athletes, that can be manifested by misbehavior and when they make mistakes when competing for individual awards (Vallerand et al., 1996).

In this regard, prosocial behavior is represented by cooperation, altruism, and sharing, with the main characteristic being voluntary attitudes to help or benefit other people (Al-Yaaribi et al., 2018). The activities carried out, as well as the relationships established in the sporting context, help this process, such as social interaction with coaches, teammates, parents, and fans. These relationships can influence the athlete's tendency to respect the rules, opponents, and teammates, contributing to their development and moral conduct (Guivernau & Duda, 2002). Therefore, moral behavior refers to the athlete's ability to reason and act following moral principles (Kavussanu & Stanger, 2017).

To this end, to study moral behavior in sports, some instruments were developed, among which the Prosocial and Antisocial Behavior in Sport Scale-PABSS (Kavussanu & Boardley, 2009), the Moral Disengagement in Sport Scale-Short (Boardley & Kavussanu, 2007) and the Multidimensional Sportspersonship Orientations Scale (Vallerand et al., 1997) stand out. However, there is a predominance of research on this topic carried out in Europe (Oliveira, 2015), with gaps in the literature on the existence of research on morality in the sports context in Brazil.

One of the instruments used for such assessments is the Multidimensional Sportspersonship Orientations Scale (MSOS), originally developed in Canada, in 1997 (Vallerand et al., 1997). The scale seeks to assess sportspersonship orientation concerning the moral postures adopted by athletes regarding social conventions, rules, judges, and sporting opponents (Vallerand et al., 1997). MSOS has already been used in studies in French (Chantal et al., 2009), Norwegian (Lemyre et al., 2002), Spanish (Martín-Albo et al., 2006), Greek (Pavlopoulou et al., 2003; Proios et al., 2006), and Chinese (Shuge, 2011).

The research carried out by Lemyre et al. (2002) with Norwegian youth players showed low reliability for the negative dimension. In the same viewpoint, the studies by Barkoukis et al. (2013) with young Turkish people, and by Sezen-Balcikanli (2010), with elite Greek athletes, also opted to exclude this dimension due to the inconsistencies found. Thus, the four-factor version has also been used in literature. Although the MSOS is an instrument that demonstrates reliability and validity, due to the observed inconsistencies, further investigations are needed to provide evidence of its psychometric properties.

When considering the relevance of the MSOS as a useful tool to understand the athlete's ability to make judgments before specific situations in the sporting context concerning the rules and relationships with teammates and opponents, it becomes important to assess the effects of this participation and interventions in the development of sportspersonship orientations for young athletes in the Brazilian context. Given such information, this research had the goal of evaluating the psychometric properties of the MSOS for Brazilian athletes through three steps: Step 1 – adaptation and validity of content to the Portuguese language; Step 2 – internal consistency and construct validity; Step 3 – external validity and temporal stability.

METHODS

Participants

The validation sample consisted of 643 athletes from collective and individual sports (274 of female gender and 369 of male gender), coming from different regions of Brazil, with an average age of 15.09 years (*SD* = 2.9). All the athletes who participated in the research agreed to voluntarily participate in the study by signing the Informed Consent Form (In Brazilian Portuguese, *Termo de Consentimento Livre e Esclarecido*, or TCLE).

Instruments

The Multidimensional Sportspersonship Orientations Scale-MSOS (Vallerand et al., 1997) assesses athletes' orientation when it comes to issues related to sports. The scale consists of 25 items, which are divided into five subscales: a) Respect for social conventions in sport (RCS – items 1, 6, 11, 16 and 21); b) Respect for rules and judges (RRJ – items 2, 7, 12, 17 and 22); c) Respect for the commitment towards sports participation (RCP – items 3, 8, 13, 18 and 23); d) Respect for the opponent (RPO – items 4, 9, 14, 19 and 24); e) Negative approach towards sports practice (ABN – items 5, 10, 15, 20 and 25)**1**. The answers are given on a five-point Likert-type scale, on a continuum from *Very unlikely* (1) to *Very likely* (5). The score of each subscale is calculated from the average of the sum of the items that compose it.

Procedures

The Human Research Ethics Committee of the Cesumar University Center – UniCesumar approved the study (Opinion no. 1,009,268). Four sworn translators participated in the translation process of the Multidimensional Sportspersonship

1 The acronyms for the subscales come from their Portuguese version (RCS = Respeito por convenções sociais no esporte; RRJ = Respeito pelas regras e juízes; RCP = Respeito pelo comprometimento direcionado à participação esportiva; POR = Respeito pelo adversário; ABN = Abordagem negativa direcionada à prática esportiva.

Orientations Scale-MSOS into Portuguese. Three specialists in Sport Psychology (evaluating judges) composed the cross-cultural adaptation committee, none of whom were authors of the study.

We also used the Likert-type language clarity and practical relevance scale (in five points), which the evaluating judges answered to verify the evidence based on the content of the scale items. These scales make it possible to investigate the consistency of the judgment of the evaluating judges' opinions about aspects concerning the questions of the instrument, starting from *little relevance/clarity* to *high relevance/clarity*. After completing the content validation process, we carried out a pilot study with a group of 20 athletes, selected by convenience and stratified by gender, to evaluate the questions of the instrument regarding the language and the form of the presented content (Marôco, 2010).

Data Analysis

The descriptive data are represented by mean and standard deviation. We conducted all analyses using the R language and software environment for visualization and statistical analysis, version 3.6.

For the assessment of the evidence based on the internal structure of the scale, we conducted a confirmatory factor analysis (CFA), which is considered to be a statistical technique used to assess the adequacy of a measurement model derived from previous empirical and/or theoretical research (Kline, 2012).

We tested the adequacy of the CFA model using commonly accepted indices, to assess the model fit (Kline, 2012). We used the weighted least square mean and variance adjusted method (WLSMV), which produces more accurate factor loading and robust standard error estimates. Moreover, we used the following fit indices to test the model fit: Chi-square (X^2 and *p*-value), Root-Mean-Square Error of Approximation (*RMSEA* < 0.08, CI = 95%), Tucker-Lewis Index (*TLI* > 0.95), and Comparative Fit Index (*CFI* > 0.95).

To analyze the reliability of the items, Cronbach's Alpha, Omega, and Composite Reliability were tested for the Brazilian version of the Multidimensional Sportspersonship Orientations Scale, considering coefficients above 0.70 as acceptable (DeVellis, 2003; Marôco, 2010). We analyzed the evaluation of evidence based on other variables by correlating the dimensions of the MSOS with the dimensions of the Prosocial and Antisocial Behaviors in Sport Scale (Oliveira, 2015), intending to create convergent evidence. Positive correlations (moderate to strong) between the MSOS and prosocial behaviors are expected, since they were previously reported in the literature (Oliveira, 2015), supporting our hypothesis.

Therefore, we hypothesize that behaviors aimed at respect for sports issues are correlated positively with prosocial behaviors and in a negative way with antisocial behaviors. Such hypotheses are based on the premise that these two behaviors potentially affect others, in the sense that this influence may collaborate (prosocial) or jeopardize (antisocial) the parties involved (Kavussanu & Boardley, 2009).

RESULTS

Evidence Based on the Test Content

We found that all dimensions of the MSOS presented evidence of content validity coefficient (CVC) above 0.80 concerning the clarity of the language and the practical relevance, except for the "Negative approach towards sport" dimension, which presented a CVC of 0.66 for practical relevance, indicating that this dimension does not have satisfactory practical relevance. Despite the changes recommended by the evaluating judges regarding the number of scale dimensions, we tested different models to find the model with the best fit, since we found inconsistencies in the content analysis.

Evidence Based on the Response Process

The descriptive analysis revealed that the athletes resort to the five existing possibilities of response for each of the 25 items of the MSOS (Figure 1). Response averages are between 2.28 (*SD* = 1.3) and 4.56 (*SD* = 0.8), respectively, in items 10 ("I criticize what the coach tells me to do") and 18 ("It is important to me, to be present at all practices"), which received the highest frequency of responses, as shown in Figure 1.

Evidence Based on the Scale's Internal Structure

We performed a network analysis with two versions of the scale, with 25 and 20 items (Figure 2). The analysis of the correlation network of the version with the 25 items (Figure A) showed that items 5, 15, and 20 did not correlate with the other items of the scale, which indicates the weakness of the dimension to which the items belong (negative dimension). In Figure B, with 20 items, we tested the correlation of the items without the items of the negative dimension. However, we observed that item 14 relates to only one item on the scale, in addition to a lack of clarity of clusters, which would indicate the formation of latent variables. Notably, all items of the negative dimension (Figure A – 25 items), in addition to items 1, 4, 8, and 14 (Figure B – 20 items), showed correlations below 0.50, indicating problematic items.

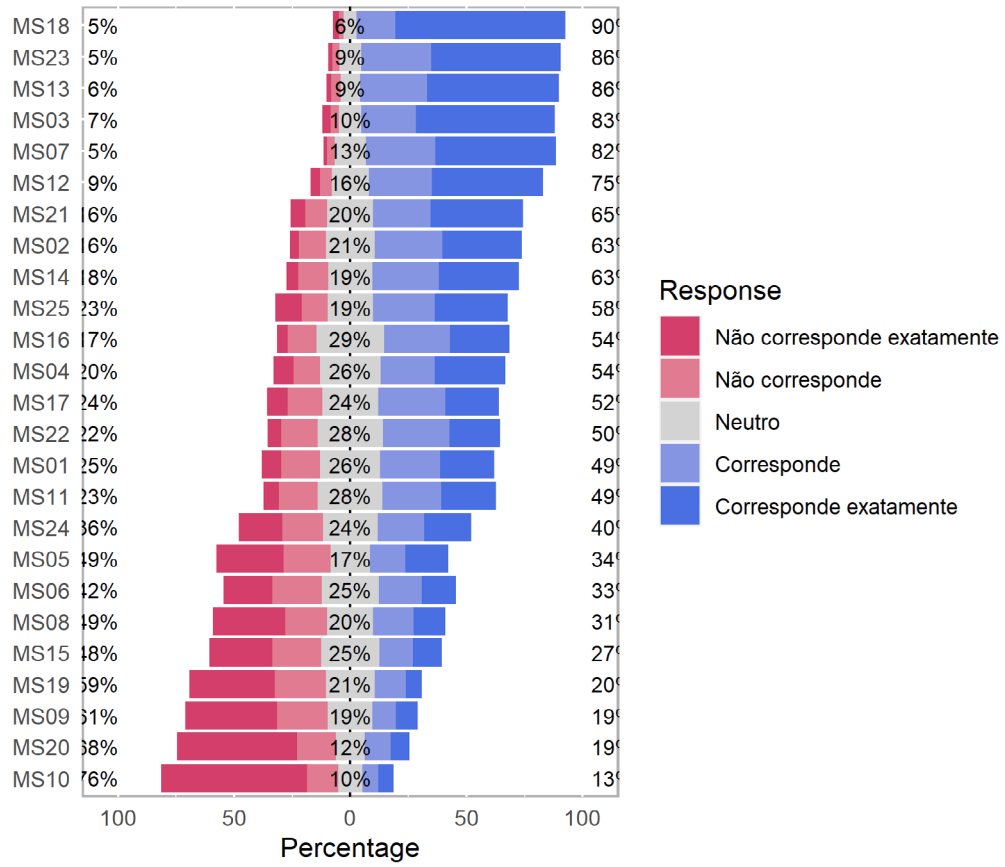

Figure 1. Representation of the Response Frequency of the Items of the MSOS

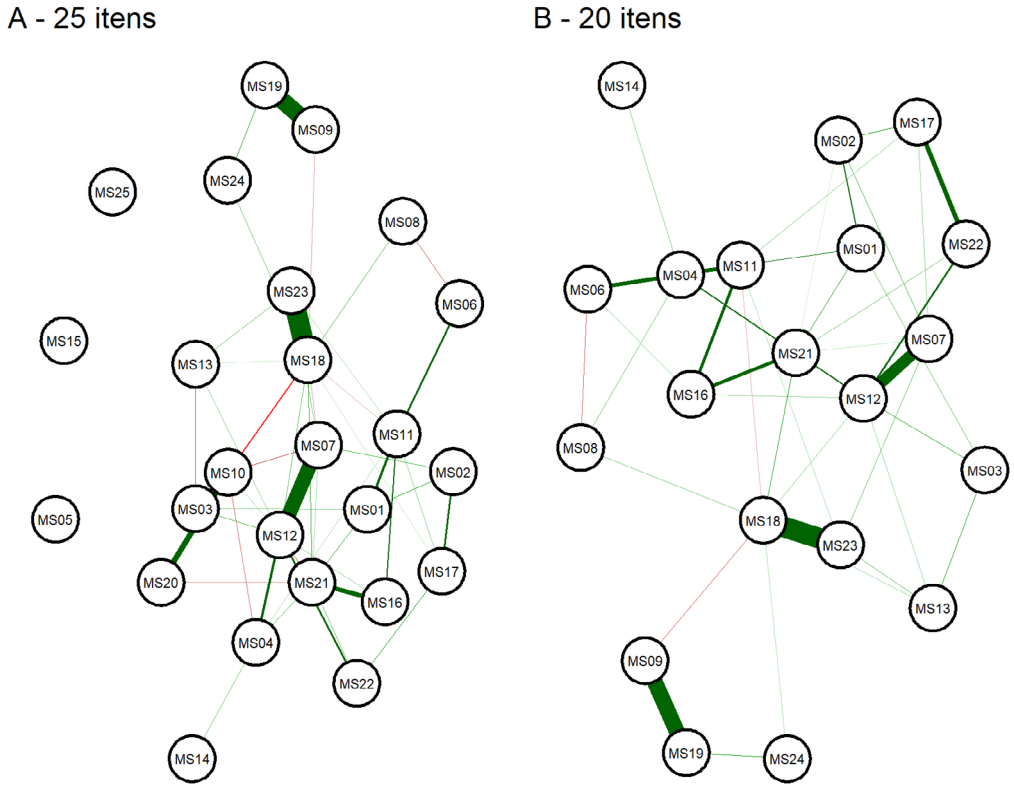

Figure 2. Correlation of the Items of the MSOS Scale with 25 and 20 items, Represented Using a Network

Based on the exploratory analysis through the networks, we tested the models presented in the literature (with five and four dimensions). Thereby, Table 1 presents the adjustment indices of the confirmatory factor analysis of the Brazilian version of the Multidimensional Sportspersonship Orientations Scale. We observed that the model (M1) indicated poor adjustment of the tested parameters, in the same way as the model with four factors and 20 items (M2). Thus, we tested a model with four factors and 16 items (M3), indicating acceptable adjustments. The criterion for removing the items from M3 (1, 4, 8, and 14, in addition to the items of the negative dimension) was based on the low correlation between the items (Figure 1) and the low factor loading of the items in their dimension (< 0.50) (Hair et al., 2009).

Still, M3 presented $X^2(98) = 265.29$ ($p < 0.001$), which suggests poor adjustment. However, we observed acceptable fit indices using the *RMSEA* = 0.05 [CI 0.04 – 0.06]. Regarding the incremental measurement indices, the *TLI* (0.911) reached recommended values (< 0.90), supporting the acceptance of the modified model with 16 items. In addition, parsimonious measurement values, such as the standardized chi-square ($X^2/df = 2.70$) and the *CFI* (0.928) proved to be adequate for the recommended levels (between 1.0 and 3.0 and > 0. 90, respectively), thus suggesting a good adjustment of M3 for Brazilian athletes.

For this purpose, we opted to test three other models, based on the same number of items of M1, M2, and M3, but we tested them in a unifactorial way, to try to find better parameter adjustments. However, we observed in Table 2 that none of the unifactorial models reached values that are adequate to the literature (Hair et al., 2009).

The MSOS reliability is presented in Table 3. We chose to present the reliability of all the models that we tested: the original model with five factors and 25 items; the model with four factors, as already reported in the literature in other adaptations (Lemyre et al., 2002; Sezen-Balcikanli, 2010), in which the "Negative approach towards sport" dimension was removed, with 20 items, was removed; and the model with four factors, without the items that showed low intra-item correlation (model with 16 items). We observed that Model 3 (four factors and 16 items) presented values that are acceptable in the literature (> 0.70) for the values of Alpha and Omega, except for the "Respect and concern for the opponent" dimension, which, despite having presented coefficients of alpha and omega < 0.70 (0.63 and 0.54, respectively), it showed a composite reliability of 0.74, as recommended by the literature (Hair et al., 2009).

Table 1
CFA Adjustment Indexes of the Brazilian Version of the Multidimensional Sportspersonship Orientations Scale. Comparison Between the Five-Factor Model (M1), the Four-Factor Model (M2), and the Modified Four-Factor Model (M3)

Comparison between the MSOS models	Five-factor model M1 (25 items)	Four-factor model M2 (20 items)	Modified four-factor model M3 (16 items)
X^2	788,313	536,931	265,293
df	265	164	98
p-value	0.001	0.001	0.001
X^2/df	2.97	3.26	2.70
RMSEA [C.I. 90%]	0.05 [0.05 – 0.06]	0.06 [0.05 – 0.07]	0.05 [0.04 – 0.06]
TLI	0.840	0.873	0.911
CFI	0.859	0.891	0.928

Note. X^2 = Chi-Square; df = degrees of freedom; X^2/df = Normalized chi-square; RMSEA = Root-Mean-Square Error of Approximation.

Table 2
CFA Adjustment Indexes of the Brazilian Version of the Multidimensional Sportspersonship Orientations Scale. Comparison Between the One-Dimensional Models with 25, 20, and 16 items

Comparison between the MSOS models	One-Dimensional (25 items)	One-Dimensional (20 items)	One-Dimensional (16 items)
X^2	1366,696	994,866	764,865
df	275	170	104
p-value	< 0.001	< 0.001	< 0.001
X^2/df	4.97	5.85	7.35
RMSEA [CI 90%]	0.08 [0.07 – 0.08]	0.09 [0.08 – 0.09]	0.10 [0.09 – 0.11]
TLI	0.679	0.730	0.670
CFI	0.706	0.758	0.714

Table 3
Reliability of the Tested Models for the MSOS Scale

MSOS	RCS	RRJ	RCP	RPO	NEG
Five-factor model – 25 items					
Cronbach's Alpha	0.71	0.77	0.66	0.64	0.33
Omega 6	0.69	0.73	0.64	0.61	0.33
Composite reliability	0.84	0.82	0.82	0.74	0.89
Four-factor model – 20 items					
Cronbach's Alpha	0.71	0.77	0.66	0.64	
Omega 6	0.69	0.73	0.64	0.61	
Composite reliability	0.84	0.82	0.83	0.74	
Modified four-factor model – 16 items					
Cronbach's Alpha	0.71	0.77	0.72	0.63	
Omega 6	0.65	0.73	0.67	0.54	
Composite reliability	0.82	0.83	0.88	0.72	
One-dimensional model	(25 items)	(20 items)	(16 items)		
Cronbach's Alpha	0.80	0.83	0.80		
Omega 6	0.85	0.86	0.84		
Composite reliability	0.88	0.91	0.92		

Note. RSC = Respect for social conventions in sport; RRJ = Respect for rules and judges; RCP = Respect for the commitment towards sports participation; RPO = Respect for the opponent; NEG = Negative.

Figure 3 represents the estimates of the confirmatory factor analysis of Model 3, which also describes the relationship between the dimensions and the indicators in the solution found for the validation data of the MSOS. In the analysis of the standard solution (or the parameters estimated after CFA), the factorial saturations (λ) showed moderate values, ranging from 0.44 to 0.63, and the Confidence Interval (95% CI) indicated stability in the load estimation and consequent fit of the model to the data. Most of the items of the MSOS showed factor loading with significant values in the hypothesized latent factors.

Thus, we corrected the numbering and grouping of the items by the four dimensions to complete the process of the MSOS validation with 16 items: Respect for social

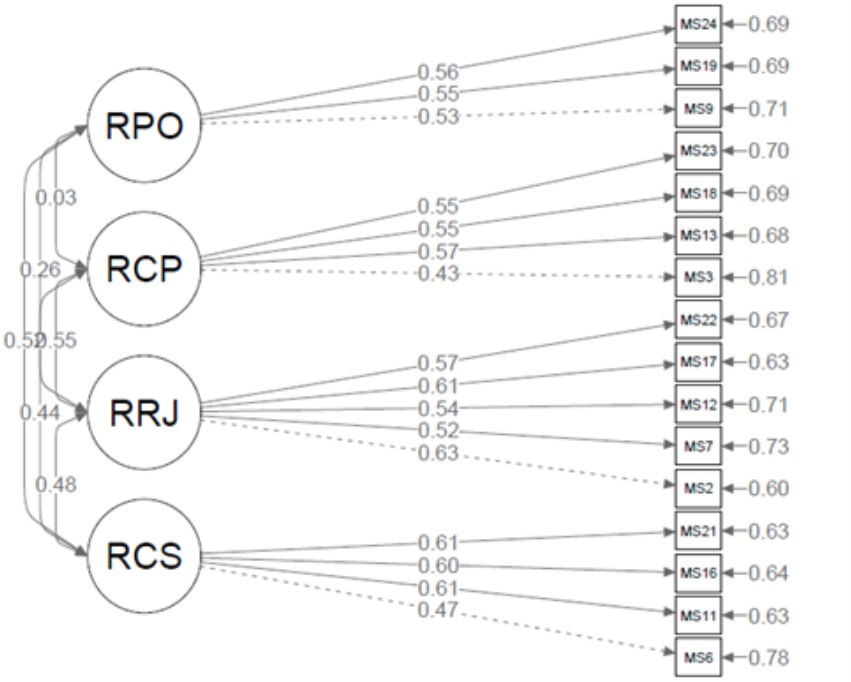

Figure 3. Diagram of the Confirmatory Factor Analysis and Factor Loadings of the Multidimensional Sportspersonship Orientations Scale
Note. Numbers above the items indicate the factor loadings, whereas numbers below the items indicate the errors.

conventions (RCS – items 6, 11, 16, and 21); Respect for rules and judges (RRJ – items 2, 7, 12, 17 and 22); Respect for the commitment towards sports participation (RCP – items 3, 13, 18 and 23); and Respect and concern for the opponent (RPO – items 9, 19 and 24).

Evidence Based on the Relationship with Other Variables

The "Respect for the opponent" dimension of the MSOS showed a moderately strong positive correlation with prosocial behavior towards the opponent (r = 0.61). The "Respect for rules and judges" dimension showed a moderate and weak negative correlation with antisocial behavior toward teammates (r = -0.52) and opponents (r = -0.39) (Figure 4). It is important to highlight that all dimensions of the MSOS, which reflect respect for sport-related issues, showed negative, albeit weak, correlations with antisocial behaviors, be it towards teammates or opponents. Based on these findings, the ability of the instrument to behave as expected concerning the theoretical concept is confirmed.

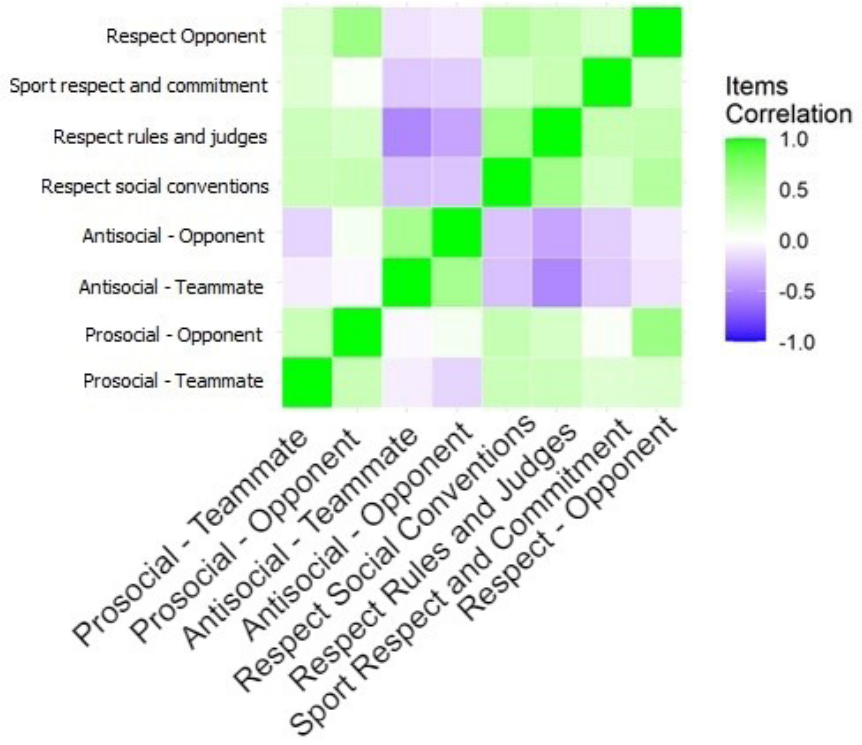

Figure 4. Evidence Based on the Relationship with Other Variables

DISCUSSION

This study aimed to evaluate the psychometric properties of the MSOS for Brazilian athletes. This is the first study to carry out a cross-cultural validation of the MSOS scale for the Brazilian sports context, showing evidence of the psychometric properties of this scale with a sample of young athletes. In general, the Brazilian version of the MSOS presented acceptable psychometric properties, demonstrating evidence of content validity, internal validity, and related to other variables.

The MSOS scale in Brazilian athletes showed acceptable values for the model with 16 items. These results are similar to the ones found in the Spanish version of Physical Education (Burgueño et al., 2018), which presented 17 items divided into four factors. The overall reliability scores for each factor met the internal consistency criteria found in the literature, being greater than 0.70 (Blunch, 2008; Hair et al., 2005), except for the "respect for the opponent" factor (α = 0, 63). This low reported value finds support in the literature, in studies by Lemyre et al. (2002) with young athletes and by Miller et al. (2004), who also found values of α < 0.70 (α = 0.68 and α = 0.67) for this dimension.

In this study, the model with 25 items did not show a good fit, and items 5, 10, 15, 20, and 25 were removed from the negative dimension that refers to the behavior of the

athlete who seeks victory at all costs. In this sense, these results are already reported in the literature in research with young Norwegian (Lemyre et al., 2002), Taiwanese (Lu & Hsu, 2015), and Greek (Pavlopoulou et al., 2003) athletes. These studies also identified unsatisfactory indices and the authors opted to remove this factor. Vallerand et al. (1997) point out that the low internal consistency value of the items in this dimension may be due to the lack of reliability of the subscale. Moreover, the 20-item structure also presented adjustment problems, so that, after the exploratory analysis, we removed four more items (1, 4, 8, and 14), resulting in a final instrument structure of 16 items.

The external validity demonstrated a positive correlation between the MSOS and the Prosocial and Antisocial Behaviors in Sport Scale (Oliveira, 2015), indicating that both instruments measure similar theoretical concepts regarding the behaviors of athletes related to the opponent and teammates, expanding the number of indicators related to the Multidimensional Sportspersonship Orientations Scale.

Although the results of the present study bring new evidence to the literature, we must point out some limitations. Even though the athletes who composed the sample represent different regions of Brazil, they were selected by convenience, and this is a limitation of the present study. Another limitation is related to the low internal consistency index of the "respect and concern for the opponent" dimension. Therefore, although the results of the model show acceptable values, we recommended caution in the application and interpretation of the results of this dimension.

The Multidimensional Sportspersonship Orientations Scale showed satisfactory results for evidence of content validity, internal consistency, and related to other variables, proving to be an instrument with good evidence of validity to measure sportspersonship orientation in the Brazilian culture. However, it is recommended that new studies evaluate the psychometric properties of the MSOS for other samples, to confirm the factorial structure found in our results.

As practical implications, our results shed light on a new scale that can provide relevant information to help Sport Psychology and Physical Education professionals understand the issue of moral conduct judgments of young Brazilian athletes, in addition to allowing the development of moral studies and interventions in the Brazilian sports context.

REFERENCES

Al-Yaaribi, A., Kavussanu, M., & Ring, C. (2018). The effects of prosocial and antisocial behaviors on emotion, attention, and performance during a competitive basketball task. *Journal of Sport and Exercise Psychology*, *40*(6), 303–311. https://doi.org/10.1111/sms.12068

Barkoukis, V., Lazuras, L., Tsorbatzoudis, H., & Rodafinos, A. (2013). Motivational and social cognitive predictors of doping intentions in elite sports: An integrated approach. *Scandinavian Journal of Medicine and Science in Sports*, *23*(5), 1–11. https://doi.org/10.1111/sms.12068

Blunch, N. J. (2008). *Introduction to structural equation modelling using SPSS and AMOS*. Sage Publications. https://doi.org/10.4135/9781446249345

Boardley, I. D., & Kavussanu, M. (2007). Development and validation of the moral disengagement in sport scale. *Journal of Sport and Exercise Psychology*, *29*(5), 608–628. https://doi.org/10.1123/jsep.29.5.608

Burgueño, R., Sánchez-Gallardo, I., & Medina-Casaubón, J. (2018). Adaptación de la multidimensional sportspersonship orientations scale al contexto español de la educación física [Adaptation of the Multidimensional Sportspersonship Orientations Scale to the Physical Education Spanish context]. *SPORT TK-Revista EuroAmericana de Ciencias Del Deporte*, *7*, 59–66. https://doi.org/10.6018/sportk.343251

Chantal, Y., Soubranne, R., & Brunel, P. C. (2009). Exploring the social image of anabolic steroids users through motivation, sportspersonship orientations and aggression. *Scandinavian Journal of Medicine and Science in Sports*, *19*(2), 228–234. https://doi.org/10.1080/03057240120111445

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2ª ed.). Sage Publications.

Guivernau, M., & Duda, J. L. (2002). Moral atmosphere and athletic aggressive tendencies in young soccer players. *Journal of Moral Education*, *31*(1), 67–85. https://doi.org/10.1080/03057240120111445

Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2005). *Multivariate data analysis*. Pearson Educational.

Hair, J. F., Black W. C., Babin B. J, & Anderson R. E. (2009). *Multivariate data analysis* (7ª ed.). Pearson Prentice Hall.

Kavussanu, M., & Boardley, I. D. (2009). The prosocial and antisocial behavior in sport scale. *Journal of Sport and Exercise Psychology*, *31*(1), 97–117. https://doi.org/10.1123/jsep.31.1.97

Kavussanu, M., & Stanger, N. (2017). Moral behavior in sport. *Current Opinion in Psychology*, *16*, 185–192. https://doi.org/10.1016/j.copsyc.2017.05.010

Kline, R. B. (2012). *Principles and practice of structural equation modeling*. The Guilford Press.

Lemyre, P. N., Roberts, G. C., & Ommundsen, Y. (2002). Achievement goal orientations, perceived ability, and sportspersonship in youth soccer. *Journal of Applied Sport Psychology*, *14*(2), 120–136. https://doi.org/10.1080/10413200252907789

Lu, F. J.-H., & Hsu, Y. (2015). The interaction between paternalistic leadership and achievement goals in predicting athletes' sportspersonship. *Kinesiology*, *47*(1), 115–122.

Marôco, J. (2010). *Análise de equações estruturais: fundamentos teóricos, software e aplicações [Structural Equations Analysis: theoretical foundations, software and applications]*. Report Number.

Martín-Albo, L., Nuñes, L. J., Alonso, N., Navarro, J. G., & González, V. M. (2006). Validación de la versión española de la escala multidimensional de orientaciones a la deportividad [Validation of the Spanish version of the Multidimensional Sportspersonship Orientation Scale]. *Revista de Psicología Del Deporte*, *15*(1), 9–22.

Miller, B. W., Roberts, G. C., & Ommundsen, Y. (2004). Effect of motivational climate on sportspersonship among competitive youth male and female football players. *Scandinavian Journal of Medicine and Science in Sports*, *14*(3), 193–202. https://doi.org/10.1046/j.1600-0838.2003.00320.x

Oliveira, L. P. (2015). Luta por autonomia e liberdade moral: orientação esportiva como viabilizadora de metamorfoses emancipatórias [Struggle for autonomy and moral freedom: sports orientation as enabler of emancipatory metamorphoses] [Tese de Doutorado não publicada]. Pontifícia Universidade Católica de São Paulo. https://repositorio.pucsp.br/jspui/handle/handle/17120

Pavlopoulou, E., Goniadou, S., Zachariadis, P., & Tsormpatoudis, H. (2003). The role of motivation to sportspersonship in physical education and sport. *Hellenic Journal of Physical Education & Sport*, *48*(2), 65–72.

Proios, M., Doganis, G., & Proios, M. (2006). Form of athletic exercise, school environment, and sex in development of high school students' sportsmanship. *Perceptual and Motor Skills*, *103*(1), 99–106. https://doi.org/10.2466/pms.103.1.99-106

Sezen-Balcikanli, G. (2010). The Turkish adaptation of multidimensional sportspersonship orientation scale MSOS: A reliability and validity study. *Gazi Journal of Physical Education and Sports Science*, *15*(1), 1–10.

Shuge, Z. (2011). A study of sportsmanship and loyalty of athletic students and non-athletic students in Hong Kong Baptist University [Tese de Doutorado]. Baptist University.

Vallerand, R. J., Brière, N. M., Blanchard, C., & Provencher, P. (1997). Development and validation of the multidimensional sportspersonship orientations scale. *Journal of Sport & Exercise Psychology*, *19*, 197–206. https://doi.org/10.1123/jsep.19.2.197

Vallerand, R. J., Deshaies, P., Cuerrier, J. P., Brière, N. M., & Pelletier, L. G. (1996). Toward a multidimensional definition of sportsmanship. *Journal of Applied Sport Psychology*, *8*(1), 89–101. https://doi.org/10.1080/10413209608406310