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Measuring Role Ambiguity in Sport: An Investigation of the Role Ambiguity's Hierarchical Model in the Tunisian Sports Team

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Abstract

This study validated a Tunisian version of the longue version of the Role and Ambiguity Scales. A sample of 463 volunteer athletes (17.11 ± 2.83 years) participated in this research to establish the psychometric properties of the RAS-T. Three competing models for the organization of the role ambiguity dimensions were examined. A confirmatory factor analysis supports the factor structure of the original version. Correlations between the role ambiguity scale with task cohesion provided some indication of predictive validity. Theoretical and cultural implications were advanced, and results supported a hierarchical organization of role ambiguity on four correlated first-order factor structure in Tunisian culture.

Keywords

Role's Ambiguity, Validation, Sports Team, Tunisian Culture

1. Background

In a sports context, when a team develops, a unique group structure emerges which includes relation and interaction between players. From a psychological perspective, the development of a group involves the emergence and stabilization of group dynamics, including the differentiation of role among members. Indeed, the role is one of the fundamental elements of this group structure in achieving collective tasks, allowing high differentiation of role, and distributing expertise among team members. The "role" is defined in the sports context as a pattern of behaviors that are expected from players (Bosselut, 2009). However,

role is often related to the concept of role Ambiguity, which can disrupt team harmony and hinder individual and collective achievements. In relation with the role in sport team, role ambiguity refers to a situation where there is confusion or uncertainty about what a person is expected to do in their job (Bosselut et al., 2012). Given the significance of role ambiguity in sport, the purpose of this study is to investigate the hierarchical model of Role Ambiguity's (RAS-T) applicability within the Tunisian sports team. Understanding the dynamics of role ambiguity within a culturally specific context is crucial for effective team performance and player satisfaction. By examining the role ambiguity experienced by Tunisian athletes, this research aims to shed light on the unique challenges and opportunities they face, ultimately contributing to the development of strategies that can enhance team cohesion and overall success. Given that cultural factors shape the perception and interpretation of roles and expectations, it is imperative to explore the applicability of established models such as RAS-T in the Tunisian context.

2. Theoretical Framework

Role's ambiguity in sport is a concept created by Beauchamp and his collaborators. They developed the hierarchical model of roles ambiguity in sport based on the work and theories of Kahn et al. (1964). The study of Beauchamp et al. (2002) present role ambiguity in sport as a multidimensional concept composed by four dimensions: the lack of clarity of responsibilities, behaviors, performance evaluation, and consequences. These dimensions can manifest in different game situations (attack and defense role). At this level, measuring role ambiguity is crucial as it provides insights into the challenges faced by athletes and teams. Based on their conceptualization, Beauchamp et al. (2002) developed a questionnaire to measure role ambiguity within English-speaking sports teams. They created different items to assess the perceived degree of ambiguity in each dimension for athletes. The questionnaire, called the Role Ambiguity Scale (RAS), consists of 40 items and measures four dimensions in offensive and defensive contexts. The construct validity of the tool was confirmed through two factor analyses conducted on young male rugby players. Subsequent studies have shown the scales to have good internal consistency (Beauchamp et al., 2005; Eys et al., 2003, 2006). This tool has been extensively employed in numerous studies to explain individual and group-level variances in role efficacy (Beauchamp et al., 2005), relationship between role ambiguity and variables, such as player satisfaction, leadership (Beauchamp et al., 2005), cohesion (Bosselut et al., 2012), and intra-team communication (Cunningham & Eys, 2007). Despite this fact, Leo et al. (2017) affirms that there are few studies that have corroborated the validity and reliability of the RAS. Moreover, Bosselut et al. (2010) found sane divergence in his study's results which suggest a need for further examination of the validity of the role ambiguity construct.

The structure of the Role Ambiguity Framework and a validation of the RAS was examined in French culture (Bosselut et al., 2010), in the Greek sportive

population (Theodorakis et al., 2010) and finally in Spanish context (Leo et al., 2017). The results of these studies confirm that the RAS is a valid and reliable instrument for measuring role ambiguity. Despite this conclusion, Bosselut et al. (2010) considered high correlations among the four dimensions of role ambiguity, leading to questions about whether these factors correspond conceptually. Moreover, Bosselut et al. (2010) explain that the study by Beauchamp et al. (2002) conducted confirmatory factor analyses for offense and defense, but their conceptual model suggests that there are four dimensions of role ambiguity that load into a second-order factor. It is unclear whether these four dimensions reflect distinct types of a single construct.

In French context, Bosselut et al. (2010) examine the discriminant validity of the four factors' hierarchical model (Beauchamp et al., 2002) and three first-order factors (Eys et al., 2003). Authors develop of two French versions of the Role Ambiguity Scale, a long-form (EAR-34) and a short-form (EAR-17). They have eliminated the negative items for the short and long versions. Researchers estimate that negative items increase the variability of responses, making it difficult for participants to understand, and this can affect the reliability and validity of survey results. On the other hand, the study found that role ambiguity can be hierarchically organized into three first-order factors (Eys et al., 2003), namely task ambiguity, role evaluation, and role consequences. These three factors load on a second-order factor, which is role ambiguity.

In Greek sportive population, Theodorakis et al. (2010) examines three hierarchical models: a single-factor model, the original model four-factor by Beauchamp et al. (2002), and Eys et al. (2003) model. Their results indicated, contrary to the study by Bosselut et al. (2010), that negative items should be avoided. Moreover, the authors note that a single factor score cannot effectively characterize the variation in responses to the RAS. The study found also that the hierarchical model of Eys et al. (2003) had an acceptable data fit. However, the multidimensional model (Beauchamp et al., 2002) had better statistical indicators and should be selected as the best representation of role ambiguity. On the other hand, Leo et al. (2017) adopted RAS and their hierarchical model in Spanish male and female professional players. The study presented the Spanish RAS as a questionnaire with good internal consistency, discriminant, and concurrent validity. The authors found that role ambiguity is made with one second-order global factor and three first-order factors (scope-behavior, evaluation, and consequences) in accordance with Eys et al. (2003) and Bosselut et al. (2010).

Considering previous studies (Bosselut et al., 2010; Leo et al., 2017; Theodorakis et al., 2010), the same limitation concerning the trans-cultural validation of the long version of the RAS and its hierarchical model seems evident because of the contradictions in the results of a different culture (English, French, Spanish, and Greek). The present study solved some of these limitations. Therefore, we propose to validate this scale in a Tunisian context through the translation into classic Arabic, especially since previous studies make it possible (Boughattas & Kredis, 2016, 2017; Morin et al., 2018; Foued et al., 2018). Moreover, the appli-

cability of the factor structure to Tunisian culture is important to investigate for several reasons. Firstly, cultural factors play a significant role in shaping individuals' perceptions, beliefs, and behaviors. Given that the Tunisian sports team operates within a distinct cultural context, it is crucial to understand how cultural factors may influence the experience and interpretation of role ambiguity. Secondly, understanding the applicability of the factor structure to Tunisian culture, can help coaches to have a better support for their athletes and create an environment conducive to optimal performance and well-being. Finally, investigating the factor structure's applicability to Tunisian culture contributes to the broader theoretical understanding of role ambiguity. It allows for cross-cultural comparisons and insights, potentially adding to the existing body of knowledge on role ambiguity's impact on team dynamics and individual performance across various cultural contexts. For this objective, the psychometric propriety of the construct may be better understood by investigating various factorial models by examining the behavior of different items within their respective factors and within the role ambiguity factor as the global factor. We analyze three first-order CFA models: first one, with role ambiguity as one global first-order CFA factor (Beauchamp et al., 2002; Leo et al., 2017), second one, with the dimensions of the RAS as four correlated first-order CFA factors (Beauchamp et al., 2002; Bosselut et al., 2010; Theodorakis et al., 2010), and the third one, with three correlated first-order CFA factors (i.e., role behaviors; i.e., evaluation; i.e., consequences) and the scope of responsibilities in second-order manifestations (as validated by Bosselut et al., 2010; Eys et al., 2003; Leo et al., 2017). It is also interesting to note that there are two versions of the RAS: the original version in English (40 items), which is translated to Spanish and Greek, and the French version (34 items). Contrary to the study by Bosselut et al. (2010; French version), we choose to conserve negative items and to use the full original English version with 40 items (longue form), measuring role ambiguity in offensive and defensive contexts. Concerning the predictive validity, most of the studies suggest an association between some consequences of role ambiguity, such as role satisfaction, role conflict, and cohesion (Eys & Carron, 2001) as an indicator of a valid measure of role ambiguity. Bosselut et al. (2010) and Leo et al. (2017) found that players' perceptions of task cohesion decreased as their role (i.e., the scope of responsibilities) became more ambiguous. The first objective of this paper was to adapt and validate the Role Ambiguity Scale to the Tunisian sports teams. The second objective was the assessment of the different hierarchical structures of Role Ambiguity in a Tunisian sports context.

3. Methods

3.1. Participants

A total of 505 athletes participated in the study, but 42 had incomplete questionnaires and were excluded from the analysis. Consequently, the data of 463 participants were assessed: 67% were males and 33% were females, aged from 16

to 28 (17.11 ± 2.83 years). Participants play various team sports: basketball (60), rugby (24), football (250), handball (39), futsal (12), and volleyball (78). They have an overage of experience in the sport of 6.58 ± 3.09 in their teams.

3.2. Instruments

The role ambiguity scale (*RAS*)

In this study, role ambiguity was measured using Beauchamp et al. (2002) scale (RAS). As we cited in the introductory part, the RAS is a multidimensional scale used to gather data on how athletes understand their role within their team and how it impacts their performance. The scale consists of a series of statements that athletes respond to on a Likert scale, ranging from strongly agree to strongly disagree. The responses are then considered to give an overall score for each individual or team, indicating the level of role ambiguity. This tool involves four dimensions: Scope of Responsibilities (I am aware of the various responsibilities that make up my role), Role Behaviors (i.e., it is clear what behaviors I should perform to fulfill my role), Role Evaluation (I understand how my role is evaluated), and Role Consequences (i.e. I know what will happen if I do not perform my role responsibilities). There are five items per dimension and per context (defensive and offensive) with a total of 40 items. The scale consists also of a series of statements that athletes respond to on a Likert scale, ranging from (1) strongly disagree to (9) strongly agree. The responses are then analyzed to give an overall score for each individual or team, indicating the level of role ambiguity. An increase in scores indicates greater clarity in the role, as well as less ambiguity in the role.

3.3. Cohesion (QAG-t)

For this study, we used the Tunisian version of the Group Environment Questionnaire (Carron et al., 1985) developed by Boughattas & Kredis (2016) to measure cohesion. A total of 18 items are included in the GEQ, which are subdivided into four subscales: the ATG-S and GI-T contain five ich ones, while the ATG-T and GI-S contain four ich ones. Using the ATG-S, participants indicate how they feel about their interpersonal attraction to social interactions in a group, whereas using the ATG-T, they indicate how they feel about their personal involvement related to group objectives and productivity. Participants should report their responses to rate each item on a nine-point Likert scale (1 = strongly disagree, 9 = strongly agree). For negatively worded items, reverse scoring was used, and ratings were summed for each subscale, with higher scores indicating greater cohesion.

3.4. Data Collection and Procedure

Based on Vallerand and Halliwell (1983) protocol, a primary version of the RAS in the classic Arabic language was performed using the technic of back-translation. Initially, two bilingual sports psychologists translated the questionnaire (RAS)

with assistance from an English professor. Then a back translation into English was conducted on the preliminary Arabic version, to be crossed with the original version. Once the Arabic version was revised to find possible linguistic differences between its original version, a 40-item scale was obtained. The concurrent validity of the translated version of the Roles Ambiguity Scale (RAS-T) was assessed through an examination of transcultural equivalence with 20 bilingual Tunisian students in a physical activity college. This involved analyzing the correlations and mean value comparisons across the four dimensions of role ambiguity as measured by both the English and Arabic versions. The results show strong and highly significant correlations between the English and Arabic versions of the RAS-T (values range from 0.73 to 0.90). These findings confirm the robust concurrent validity of the Arabic version of the scale and the applicability across diverse groups or contexts.

Then we contacted different sports Tunisian sports teams to have their approval for this study. The American Psychological Association ethics guidelines concerning the participants' consent, confidentiality, and anonymity of responses were observed for all participants. Moreover, they were informed that their participation was voluntary, and their responses would be treated confidentially. A protocol for data collection was established to ensure similar conditions for all teams. The test was accomplished during the second half of the sports season. In this period, teams had enough time to form a group and social link between athletes and define the role of each one in the game strategy. We needed 20 min for each team: first we had instructions concerning how to fill in the questionnaires. Then participants completed the RAS-T in the presence of the coach.

3.5. Data Analysis

Data analysis was conducted using SPSS (22), and Amos (6.0) for confirmatory factor (CFA). Our analyses involved descriptive statistics, correlation, exploratory factor analysis, and internal consistency. Scored, means, and standard deviations were calculated for each item and each subscale of the RAS-T. We used the Kolmogorov-Smirnov test to assess the normality of the distribution of our sample of 463 participants. The results of the test indicated that the sample data was normally distributed ($p > 0.05$). This suggests that the assumptions of normality were met for our statistical analyses.

The internal consistency for the RAS-T and its subscales was measured via Cronbach's alpha with a recommended value of ≥0.7 (Holmbeck & Devine, 2009). To examine the different model structures of the RAS-T, a confirmatory factor analysis (CFA) was conducted with maximum likelihood estimation. The models' fit was tested by the chi-square (X^2) statistic (Morin et al., 2016). The acceptance of model fits was based on the following norms: the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the standardized root mean residual (SRMR), the root means square error of approximation (RMSEA), the Expected

Cross Validation Index (ECVI) (Morin et al., 2016). Values ranging between .90 and 0.95 for the CFI and TLI are considered adequate and excellent (Morin et al., 2016), while values ranging between 0.08 and 0.06 for the RMSEA would indicate a reasonable fit model. A lower ECVI value indicates a better fitting model, meaning that the model performs well in predicting new data and has good generalizability. We also analyze the Goodness-of-Fit Index (GFI). This index measures the proportion of variance in the data that is accounted for by the model, with values closer to 1 indicating a better fit. Standardized loadings > 0.40 and were statistically significant at $p \leq 0.001$ were considered for interpretation (Morin et al., 2016). Concerning the predictive validity, the relationship between role ambiguity and task cohesion was examined based on correlation and regression analysis.

4. Result

4.1. Descriptive Statistics and Internal Consistency

Mean responses for all four sub-scales were relatively high on the 9-point scale (ranging from 6.50 to 7.67), which means greater role clarity. More analytically, the mean score for scope of consequence for not fulfilling responsibilities in an offensive context was highest, 7.67 (SD = 1.31), and the lowest scores were noted with "Behavioral Responsibilities" M= 6.50 (SD = 1.29).

The reliability of the four subscales was assessed using Cronbach's alpha, as shown in **Table 1**. The calculated alpha values were found to be high for all subscales, ranging between 0.79 and 0.86. These values indicate good internal consistency within each subscale. Cronbach's alpha is widely used as a measure of reliability, with values above 0.70 generally considered acceptable (Nunnally, 1978). Given that all of our subscales obtained alpha values well above this threshold, we can have confidence in the reliability of our measures.

4.2. Factorial Structure Analysis

This study aimed to examine the adjustment of data related to Tunisian sports teams and compare three hierarchical models: first one (C1), with role ambiguity as one global first-order CFA factor, second one (C2), the four subscales of the RAS as first-order four-factor model (Beauchamp et al., 2002), and the third one (C3), with three correlated first-order CFA factors (i.e., role behaviors; i.e., evaluation; i.e., consequences) and the scope of responsibilities in second-order manifestations (Bosselut et al., 2010; Eys et al., 2003). This study aimed to examine the adjustment of data related to Tunisian sports teams and compare three hierarchical models. Statistic tests were conducted in two contexts (offensive and defensive) to determine which structure had the best index fit in the Tunisian context. **Table 2** presents the results of different CFAs.

The analysis shows a very satisfactory participant/variable ratio for all CFA models in both contexts (offensive and defensive). Furthermore, the correlations between the various subscales in the analysis were all significant, greater than

Table 1. Internal consistency of the Ras-T.

	M	SD	α	Defensive				Offensive			
				1	2	3	4	5	6	7	8
Offensif											
1. Scope of Responsibilities	6.50	1.29	0.80	-----	0.32	0.41	0.43				
2. Behavioral Responsibilities	6.50	1.29	0.79	0.32	---	0.40	0.39				
3. Evaluation of Performance	7.04	1.06	0.80	0.41	0.40	---	0.40				
4. Consequence for not Fulfilling Responsibilities	7.67	0.94	0.82	0.43	0.39	0.40	----				
Defensive											
1. Scope of Responsibilities	6.97	1.15	0.84					---	0.32	0.45	0.32
2. Behavioral Responsibilities	6.77	1.03	0.82					0.31	---	0.34	0.51
3. Evaluation of Performance	7.11	0.89	0.086					0.45	0.51	---	0.43
4. Consequence for not Fulfilling Responsibilities	7.33	0.89	0.85					0.32	0.51	0.43	---

Table 2. Goodness-of-fit statistics and information criteria of the estimated models.

Context	Model	N	df	X^2/df	CFI	GFI	TLI	SRMR	RMSEA	ECVI
Offensive	1	463	168	371.271	0.911	0.868	0.900	0.05	0.052	1.818
	2	463	168	260.226	0.959	0.895	0.953	0.04	0.050	1.508
	3	463	168	363.224	0.915	0.869	0.904	0.06	0.051	1.936
Defensive	1	463	166	492.749	0.91	0.820	0.90	0.05	0.045	1.818
	2	463	166	526.290	0.92	0.805	0.92	0.06	0.047	1.837
	3	463	166	588.491	0.95	0.841	0.92	0.05	0.044	1.852

X^2 = chi-square; df = degrees of freedom; CFI = Comparative Fit Index; GFI = Goodness-of-Fit Index; SRMR = Standardized Root Mean Squared Residuals; RMSEA = Root Mean Square Error of Approximation (90% confidence interval); ECVI = Expected Cross Validation Index.

0.30. This suggests that the data follows a normal distribution and demonstrates that there are meaningful relationships between the variables. Additionally, the loading of all variables in the factor analysis was found to be superior to 0.40. This indicates that all items of the RAS-T (presumably a measurement tool used in the analysis) are acceptable and contribute significantly to their respective factors.

Based on the results of the factor analysis, a good fit of the data in the Tunisian context was observed. For example, in the defensive context using model C1, the Comparative Fit Index (CFI) was found to be 0.91 and the Tucker-Lewis Index (TLI) was 0.90, indicating a reasonably good fit of the model. The Root Mean Square Error of Approximation (RMSEA) was 0.045, which suggests a relatively good fit of the model to the data. The Standardized Root Mean Squared Residuals (SRMR) was found to be 0.05, indicating a reasonably low level of dis-

crepancy between the observed and model-implied covariance matrices.

The results of this study highlight two important findings. Firstly, all three models of the RAS (role ambiguity scale) tested in the Tunisian context demonstrated a good fit with the data. Specifically, model C1, in the offensive context, showed a Comparative Fit Index (CFI) of 0.91, a Tucker-Lewis Index (TLI) of 0.90, a Root Mean Square Error of Approximation (RMSEA) of 0.05, and a Standardized Root Mean Squared Residual (SRMR) of 0.04, indicating reasonable agreement between the model and the data. However, C2 showed a slightly lower fit compared to C1 and C3.

Secondly, the results indicate that the models obtained a better fit in the offensive context compared to the defensive context. In the offensive context, C1 with a CFI of 0.91, TLI of 0.90, RMSEA of 0.05, and SRMR of 0.05, along with C3 with a CFI of 0.91, TLI of 0.90, RMSEA of 0.051, and SRMR of 0.06, exhibited better fit indices compared to C2 with a CFI of 0.95, TLI of 0.95, RMSEA of 0.050, and SRMR of 0.04.

However, in both offensive and defensive contexts, a closer examination of the results suggests that the C2 model, which involved the four subscales of the RAS as a first-order four-factor model, demonstrated an excellent fit. It obtained a CFI of 0.92, TLI of 0.92, RMSEA of 0.047, and SRMR of 0.06 in the offensive context, and a CFI of 0.95, TLI of 0.92, RMSEA of 0.044, and SRMR of 0.05 in the defensive context. These results indicate a robust and superior fit for the C2 model compared to the other models tested.

4.3. Predictive Validity

In this part, the objective was to evaluate the effectiveness of Tunisian questionnaires in measuring role ambiguity. We investigated the ability of RAS-T to predict a related factor (task cohesion), which was identified in a previous study by Bosselut et al. (2010). The results of the correlation analysis are presented in **Table 3**. No significant correlation score was found between different dimensions of role ambiguity and GI-S (group integration-social), and ATG-S (group-social task).

The correlation between three dimensions of role ambiguity (Evaluation of Performance, Scope of Responsibilities, and Consequence for not Fulfilling Responsibilities) and GI-T (group integration task) was found ($p < 0.01$), as for ATG-T (group task cohesion). For "Behavioral Responsibilities", no correlation was found with all cohesion subscales, except the GI-T (group integration task).

Regression analysis was performed with role ambiguity as the independent variable, and task cohesion subscale (ATG-T, GI-T) as the dependent variable (**Table 4**). The results showed that only consequence ($R^2 = 0.49$; $p < 0.01$) and evaluation scope ($R^2 = 0.22$; $p < 0.05$) predict significantly ATG-T. On the other hand, all role ambiguity dimensions predicted group integration task (GI-T). However, the scope of responsibility accounted for more other subscales of role ambiguity for substantial variance in GI-T dimension ($R^2 = 0.44$; $p < 0.01$).

Table 3. Correlation between the Ras-T subscales and cohesion.

Dimensions CEQS	Dimensions du QAG			
	ATG-S	ATG-T	GI-S	GI-T
Evaluation of Performance	0.053	0.148*	0.042	0.139*
Scope of Responsibilities	0.076	0.231**	0.006	0.210**
Behavioral Responsibilities	0.065	0.092	0.012	0.163*
Consequence for not Fulfilling Responsibilities	0.076	0.231**	0.006	0.210**

Table 4. Regression analysis between role ambiguity and task cohesion.

Variables dépendante	Independent variable	R^2	β	T	*P*
Model 1 ATG-T	Consequence	0.49	0.23	3.59	0.00**
	Responsibilities	0.07	0.08	1.24	0.21
	Behavioral	0.08	0.09	1.40	0.16
	Evaluation	0 .22	0.14	2.27	0.02*
Model 2 GI-T	Consequence	0.44	0.21	3.25	0.001**
	Responsibilities	0.21	0.16	2.23	0.02*
	Behavioral	0.27	0.16	2.51	0.01*
	Evaluation	0.19	0.13	2.13	0.034*

5. Discussion

This study aims to assess the multilevel structure of role ambiguity in Tunisians sports teams through the validation of the RAS (role ambiguity scales in sports) in the classic Arabic language. The first objective was to adapt and validate the Role Ambiguity Scale (RAS) specifically for use in Tunisian sports teams. This involved ensuring that the scale captures the unique aspects of role ambiguity within the context of Tunisian sports. The successful adaptation and validation of measurement instruments for a specific cultural context are crucial for obtaining accurate and meaningful results. It is well-established that cultural factors can influence individuals' perceptions and experiences of role ambiguity. Therefore, it was of utmost importance to ensure that the RAS captures the nuances and complexities of role ambiguity as it is experienced within Tunisian sports teams. Accordingly, the longue version of the RAS (40 items, Beauchamp et al., 2002) was translated from English to classic Arabic respecting the protocol supported by Vallerand and Halliwell (1983). Throughout the adaptation process, significant efforts were made to ensure the cultural and contextual appropriateness of the Role Ambiguity Scale for Tunisian sports teams. A rigorous translation procedure (inversed-translation) was undertaken to accurately capture the concepts and nuances of role ambiguity in the local language. Following the translation, concurrent validity was evaluated, and results show satisfactory conclusion. This pilot testing phase was essential in identifying any potential issues

or areas of confusion within the scale.

Moreover, the results of the validation process provide strong evidence for the adaptability and validity of the RAS in Tunisian sports teams. The psychometric properties of the scale were examined, including its reliability (Cronbach's alpha ranging between 0.79 and 0.86) and factor structure in adequation with other version of the RAS (Leo et al., 2017; Theodorakis et al., 2010). The Result shows good internal consistency within each subscal and a good fit of the data in the Tunisian context, as evidenced by the favorable fit indices, significant item correlations, and acceptable loadings for all variables. These findings support that the RAS-T (longue version, 40 items) is a valid and reliable measure of role ambiguity within Tunisian sports teams, capturing the multidimensionality of this construct effectively.

Regarding this result, a literature review has revealed that numerous validation studies have been conducted on the role Ambiguity Scale in sports. However, the findings have been inconsistent, which can be attributed to the specific context and population under investigation. For instance, Bosselut et al. (2010) conducted a study that demonstrated the validity and reliability of the French version of the role Ambiguity Scale in a sports context. The results indicated a commendable level of internal consistency reliability (Cronbach's alpha of 0.85) and moderate to high convergent validity with measures of athlete satisfaction with coaching and team performance. Nevertheless, Bosselut et al. (2010) made a significant contribution by adapting and validating two French versions of the Role Ambiguity Scale. The researchers developed both a long-form (EAR-34) and a short-form (EAR-17) version of the scale in French. To enhance the clarity and comprehension of the scale items, the researchers made a significant adjustment by removing the negative items from both the long and short versions. The elimination of negative items in the scale aimed to enhance clarity and improve the validity and reliability of the measurement. In the other side, Theodorakis et al. (2010) conducted a similar study with 40 items of the RAS, which provided evidence of the validity and reliability of the Greek version of the role Ambiguity Scale in the sports context. The results show a strong level of internal consistency reliability (Cronbach's alpha of 0.93) and convergent validity with measures of athlete satisfaction with coaching and team performance. These similarly positive findings were replicated in the Spanish sport c text as observed in Leo et al.'s (2017) study. This methodological adjustment underscores the importance of cultural and linguistic adaptation in measurement tools to ensure appropriate assessment and understanding of role ambiguity within specific contexts.

The second objective of this study was to examine the structure of the Role Ambiguity Framework in Tunisian sports teams. This structure was adapted from Kahn et al. (1964) model by Beauchamp et al. (2002) and supports that the factor structure of the RAS in sports is unidimensional, indicating that the scale measures a single construct of role ambiguity.

However, some other studies (Beauchamp's et al., 2002; Bosselut et al., 2010; Eys et al., 2003; Leo et al., 2017; Theodorakis et al., 2010) using factor analysis, supported the existence of different hierarchical model of Role Ambiguity within Tunisian sports teams. Based on this conclusion, we analyze the adjustment of RAS-T data on various factorial structures in a defensive and offensive context, which combined traditional (CFA) with both the first- and second-order structures. Three first-order CFA models were tested: the first one, with role ambiguity as one global first-order CFA factor (Beauchamp et al., 2002; Leo et al., 2017), the second one, with the dimensions of the RAS as four correlated first-order CFA factors (Beauchamp et al., 2002; Bosselut et al., 2010; Theodorakis et al., 2010), and the third one, with three correlated first-order CFA factors (i.e., role behaviors, i.e.; evaluation; i.e., consequences) and the scope of responsibilities in second-order manifestations (as validated by Bosselut et al., 2010; Eys et al., 2003; Leo et al., 2017).

Overall, statistical analysis shows that the three models of the RAS-T present very satisfactory fit indices in the Tunisian context. However, our detailed results support that the second model (C2) demonstrates an excellent fit over other models in both contexts (offensive and defensive). In the literature, the factor structure of the RAS in sports is relatively unstable and unpredictable across different populations and contexts, with opposing results between different studies. In the French context (Bosselut et al., 2010) and Spanish context (Leo et al., 2017), researchers try to find the best solution for the questionnaire's factor structure. Both results suggest that the structure of the Role Ambiguity is composed of one second-order factor and three first-order factors: scope-behavior, evaluation, and consequences (C3). This finding was supported by Kim et al. (2021) study, which validates a short version of the RAS. By contrast, in Greek sports teams, Theodorakis et al. (2010) found, in accordance with our result, that the four-factor model with correlated latent factors of role ambiguity is the best structure of role ambiguity (C2). Other studies have reported comparable average results for athletes participating in different team sports (Beauchamp et al., 2002, 2005; Eys et al., 2003). In this sense, different studies in sports have produced different models of the structure of role ambiguity. Some studies suggest that role ambiguity in sports is best modeled as a four-dimensional construct with several dimensions (Beauchamp et al., 2002, 2005; Eys et al., 2003; Theodorakis et al., 2010). Other studies suggest that role ambiguity is best modeled as a three-dimensional construct, with role responsibilities as a predictor for another dimension Bosselut et al., 2010; Eys et al., 2003; Leo et al., 2017). In addition to these four models, a third model proposes a one-dimensional structure for role ambiguity, suggesting that athletes or team members can experience either high or low levels of role ambiguity independent of its specific dimensions (Beauchamp et al., 2002, 2005). We can explain this fact by the difference between the population uses for this study: difference in sports and differences in the percentage of gender and age interval. Also, every context, Tunisian, Greek, Span-

ish, or French, has its own social and sport propriety, which can influence the manifestation of role ambiguity, especially if we consider it to be a social and psychological phenomenon. Overall, it seems that the optimal model for the structure of role ambiguity in sports is still a matter of debate, and further research is needed to fully understand this construct.

Finally, the last step of the adaptation of the RAS-T (predictive validity) supports that Role ambiguity was related to the same related factors as cohesion or role satisfaction, role conflict, and motivation. In our study, we choose to examine the relation between role ambiguity and cohesion. Consistent with the findings of Bosselut et al. (2010, 2012), our results confirm that there is indeed a significant relationship between role ambiguity and cohesion. However, we observed slight differences regarding the specific form of ambiguity associated with group integration-task. The interpretation of this correlation and regression analyses implies that as role ambiguity increases, task cohesion tends to decrease. Our study's findings align with those of Eys and Carron (2001) and Bosselut et al. (2010) in terms of a positive relationship between role ambiguity and task cohesion. It is important also to note that Eys and Carron's (2001) study found that clearer perceptions of scope of responsibilities were linked to higher perceptions of group integration-task among English-speaking basketball players. For French context, athletes revealed that clearer perceptions of role evaluation were related to both dimensions of task cohesion. However, in Tunisian sport context, we found that both responsibility and evaluation scopes predict task cohesion more than other dimensions. The divergence in findings between our study and Bosselut et al. (2010), Eys and Carron (2001) may be attributed to differences in cultural contexts, sample characteristics, or other contextual factors specific to Tunisian sports teams. These disparities emphasize the importance of conducting research within diverse cultural contexts to develop a comprehensive understanding of role ambiguity's impact on cohesion.

Overall, this study contributes to the understanding of role ambiguity within a unique cultural context—Tunisian sports teams. By adapting and validating the RAS for use in this context, the study provides a valuable tool for researchers and practitioners to assess and address role ambiguity within Tunisian sports teams. Additionally, the examination of hierarchical structures provides insights into the organizational dynamics and complexities that may influence role ambiguity. These findings can inform interventions and strategies that aim to mitigate role ambiguity and enhance team effectiveness and performance in Tunisian sports. Our study supports the predictive validity of the adapted RAS-T by confirming the relationship between role ambiguity and cohesion, particularly task cohesion. Additionally, our unique findings regarding the predictive power of responsibility and evaluation scopes contribute to the understanding of how specific dimensions of role ambiguity influence task cohesion within the Tunisian sports team context. Further research can build upon these findings to explore additional factors impacting role ambiguity and its consequences within the Tunisian sports landscape.

6. Conclusion and Future Research

This study provides RAS-T as a valid and reliable instrument to measure role ambiguity in Tunisian sports teams. Moreover, role ambiguity in sports is organized on various factorial structures in a defensive and offensive context, but the four correlated first-order CFA factors demonstrate an excellent fit more than other models in both contexts (offensive and defensive).

Despite this finding, it is necessary for researchers to develop specific hypotheses concerning various aspects of roles and their impact on athletes' performance, satisfaction, and overall well-being. It's also important to analyze the specific tasks and expectations associated with the roles assumed by athletes. This understanding helps in identifying potential sources of ambiguity and its impact on athletes' performance and psychological well-being.

Similarly, investigating role behaviors allows researchers to explore the behaviors or actions required of athletes in their roles. This examination can shed light on the alignment between perceived role expectations and actual behaviors, offering insights into the challenges and consequences of role ambiguity. Lastly, there is still ongoing research and discussion regarding the most optimal way to model role ambiguity in sports; more investigation should be conducted with longue and short versions of the RAS.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Supplementary Data

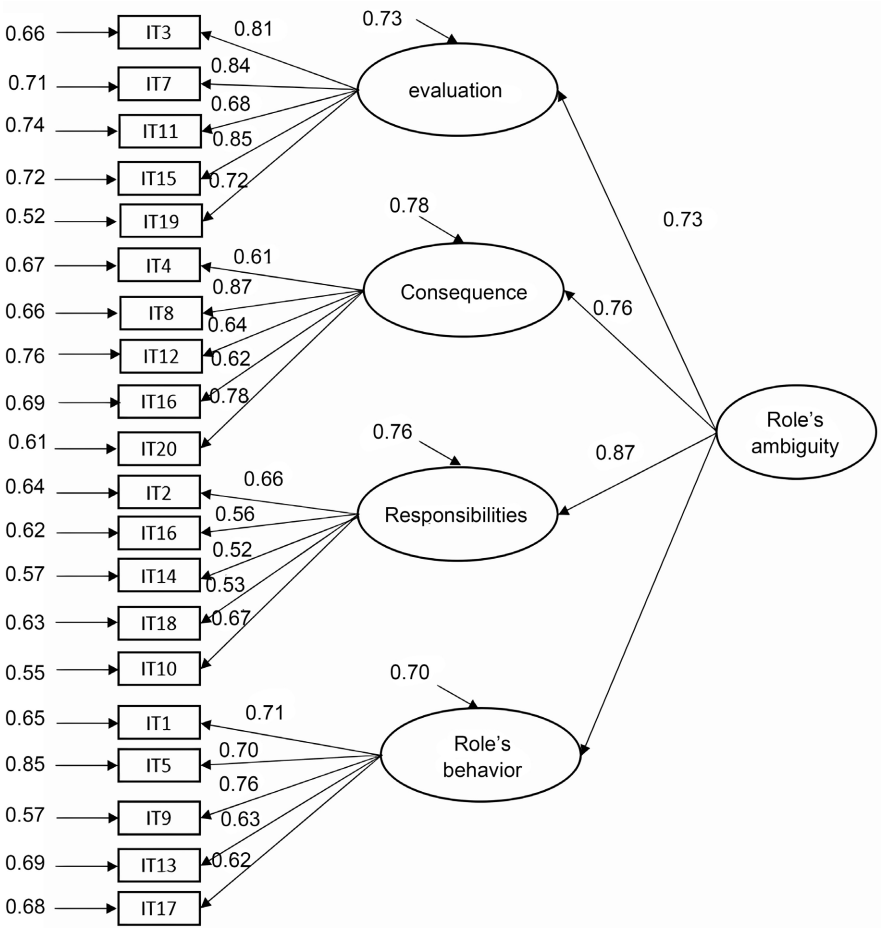

Figure S1. One global first-order CFA factor in offensive context.

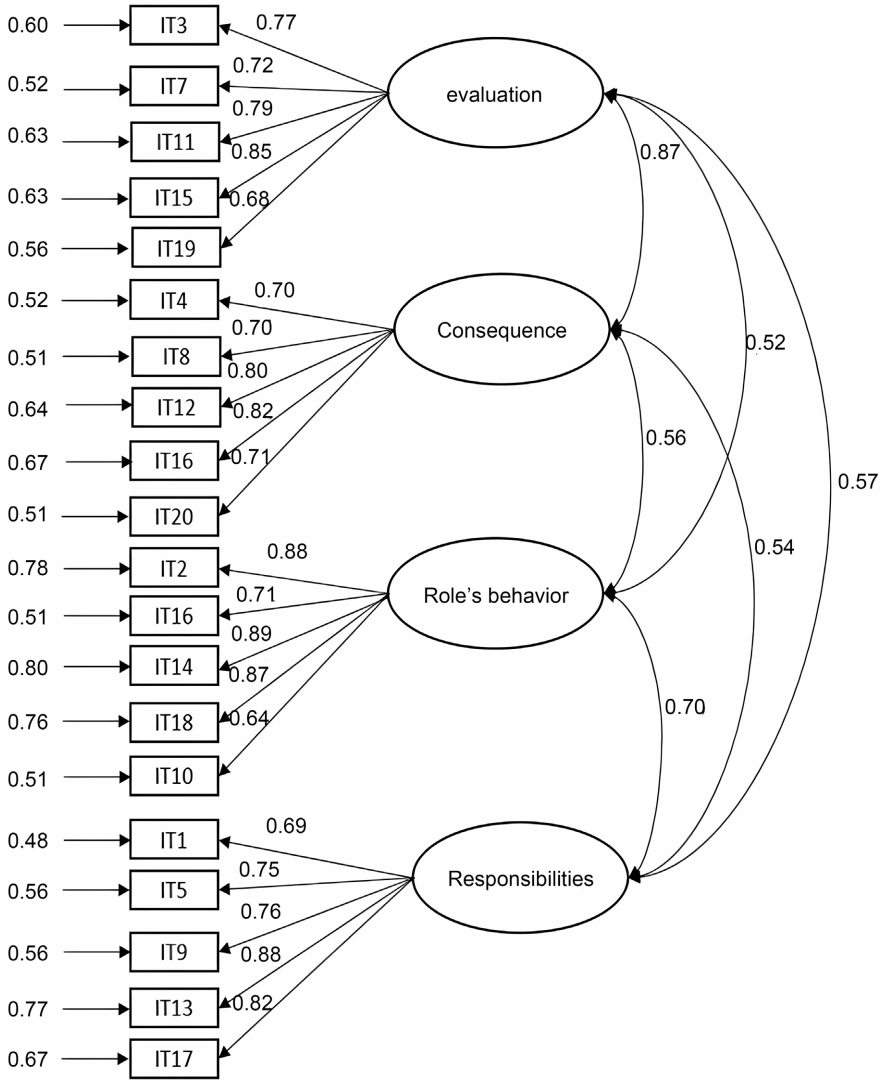

Figure S2. A first-order four factor model in defensive context.

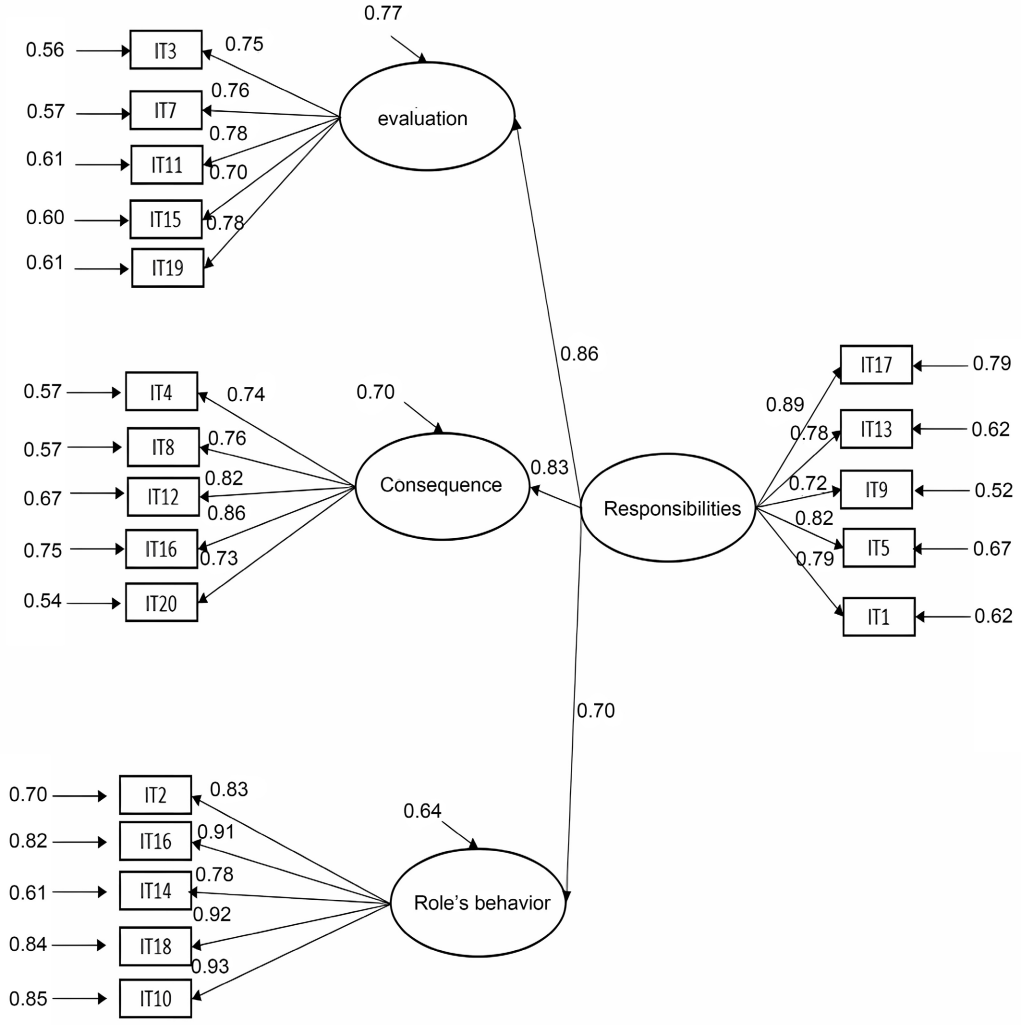

Figure S3. A first-order three factor model in offensive context.