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Development of the Scale for Determining the Level of Autonomic Personality in Athletes

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ABSTRACT

Purpose: This study aims to develop a valid and reliable scale for assessing the level of autonomic personality in athletes. Autonomic personality refers to an individual's independence, self-control, and ability to protect personal rights. Despite its relevance to athletic performance, no specific measurement tool currently exists for athletes.

Method: This validity and reliability study employed a quantitative survey design. A 17-item question pool was created based on a literature review and evaluated by three experts for content and face validity. Following a pilot test, the main survey was administered to 164 amateur athletes from sports clubs in the Beylikdüzü district of Istanbul, selected through purposive and theoretical sampling. Data were analyzed using SPSS and AMOS. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to determine the factor structure and construct validity, while Cronbach's alpha was used to assess internal reliability.

Results: EFA revealed a four-factor structure explaining 80.70% of the total variance. CFA confirmed this structure with acceptable fit indices ($\chi^2/df = 2.33$, RMSEA = .090, CFI = .951, GFI = .927, NFI = .919). The final scale included 10 items across four dimensions: independence, leadership, social belonging, and self-control. Cronbach's alpha coefficients were .865, .858, .630, and .871 for the subdimensions, and .720 overall, indicating acceptable reliability.

Conclusion: The developed scale is a valid and reliable instrument for assessing autonomic personality in athletes. It provides a foundation for future research examining the relationships between autonomy, psychological factors, and athletic performance.

Keywords: athletes, autonomic personality, autonomy, success, scale development

ÖZET

Sporcularda Otonomik Kişilik Düzeyini Belirleme Ölçeğinin Geliştirilmesi

Amaç: Bu çalışma, sporcularda otonomik kişilik düzeyini değerlendirmek için geçerli ve güvenilir bir ölçek geliştirmeyi amaçlamaktadır. Otonomik kişilik, bireyin bağımsızlığını, öz

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denetimini ve kişisel haklarını koruma yeteneğini ifade eder. Atletik performans açısından önemi olmasına rağmen, sporcular için özel bir ölçüm aracı henüz bulunmamaktadır.

Yöntem: Bu geçerlilik ve güvenilirlik çalışmasında nicel tarama deseni kullanılmıştır. Literatür taraması temel alınarak 17 maddelik bir soru havuzu oluşturulmuş ve içerik ile yüzey geçerliliği açısından üç uzman tarafından değerlendirilmiştir. Pilot uygulamanın ardından, ana anket İstanbul Beylikdüzü ilçesindeki spor kulüplerinden seçilen 164 amatör sporcuya uygulanmıştır. Veriler SPSS ve AMOS programları ile analiz edilmiştir. Faktör yapısı ve yapı geçerliliğini belirlemek için Açımlayıcı Faktör Analizi (AFA) ve Doğrulayıcı Faktör Analizi (DFA) yapılmış, iç tutarlılığı değerlendirmek için Cronbach alfa katsayısı kullanılmıştır.

Bulgular: AFA, toplam varyansın %80,70'ini açıklayan dört faktörlü bir yapı ortaya çıkarmıştır. DFA, bu yapıyı kabul edilebilir uyum indeksleriyle doğrulamıştır (χ^2/df = 2,33, RMSEA = .090, CFI = .951, GFI = .927, NFI = .919). Nihai ölçek, bağımsızlık, liderlik, sosyal aidiyet ve öz denetim olmak üzere dört boyutta 10 madde içermektedir. Alt boyutlar için Cronbach alfa katsayıları sırasıyla.865, .858, .630 ve .871; genel ölçek için ise .720 olarak bulunmuş ve kabul edilebilir güvenilirlik göstermiştir.

Sonuç: Geliştirilen ölçek, sporcularda otonomik kişiliği değerlendirmek için geçerli ve güvenilir bir araçtır. Ayrıca otonomik kişilik, psikolojik faktörler ve atletik performans arasındaki ilişkileri inceleyecek gelecekteki araştırmalar için bir temel sağlamaktadır.

Anahtar Kelimeler: sporcular, otonomik kişilik, özerklik, başarı, ölçek geliştirme

INTRODUCTİON

Personality encompasses a person's unique personal characteristics, as well as spiritual and mental qualities (Ay et al., 2022). It refers to the unique characteristics that distinguish a living being from others and make it an "individual" (Polatcı & Sobacı, 2014). Personality has also been defined as the integrity formed by the person's innate genetic characteristics and social influences from the environment. The ways an individual reacts to and interacts with other living beings express one's personality (Can et al., 2015). Based on these definitions, autonomous personality is defined as an individual's ability to protect their independence and personal rights (Büyükbasmacı & Tazegül, 2016). It involves thinking and deciding freely, acting on those decisions, and maintaining independence (Dikmetaş & Dikmetaş, 2013). An individual's independence and ability to protect personal rights is called an autonomic personality. Individuals with a high autonomic personality level are satisfied with directing their own behaviour, reaching the goals they set, controlling the environment, and being successful (Bagby et al., 2001; Beck, 1983; Kaya et al., 2006). These individuals never enjoy

being controlled by others, attach great importance to their independence, and are fond of success (Polatçı et al., 2020; Uğurlu & Pako, 2016). People with autonomic traits value individual superiority and effectiveness (Kolts et al., 2004; Serinkan & Barutçu, 2006). Those with high autonomic personality levels prioritize personal success over human relationships (Sato & Gonzalez, 2009). Meanwhile, their compassion and sincerity toward other people are relatively lower (Karimi & Besharat, 2010).

Autonomic personality traits pertain to an individual's power and ability to think and decide freely, put one's decisions into action clearly, and act freely and independently. Professionals with autonomic personality traits have the behaviours of making decisions and acting freely in their decisions (Babadağ, 2001; Cihangiroğlu et al., 2015). People with autonomic personality traits enjoy managing their own plans and fulfilling the tasks that are important to them and thus realize their personal satisfaction (Gürşen Otacıoğlu, 2008; Özdemir, 2015). They are also more prone to individual and independent work (Barutçu & Öktem, 2003; Hithit & Şimşek, 2021). Autonomic personality—in other words, autonomy—means that the person has the ability to make independent decisions, the authority to act in line with these decisions, and the freedom to take actions according to the professional knowledge structure (Erikmen & Vatan, 2019). A person with a high autonomic personality level enjoys the process of making free decisions to live with dignity in privacy and independence (Twomey, 2015).

At work, employees with autonomic personality traits have a character structure that is more suitable for working in independent and individual jobs (Serinkan & Barutçu 2006). They have a colder and more reserved attitude and are more defensive and confrontational because they focus on success and have self-control (Lynch et al., 2003). Beck (1983) divided employees into two groups according to their orientation toward social relationships or achievement; socially oriented people held a sociotropic personality, whereas achievement-oriented people held an autonomic personality. Notably, employees with an autonomic personality are reported to be less likely to be depressed because they are less dependent on other people (Gündüz & Akıl, 2018). They fulfill their profession with enthusiasm and tend not to change their profession at any period of their lives. They are characterized as having personal responsibility, self-control, and critical thinking (Adams & Miller, 2001; Kelleci & Gölbaşı, 2004). This situation is no different when considered in relation to athletes. An autonomous personality can instill behaviors such as a drive for success and personal responsibility in athletes. Prioritizing achievement over social relationships can create

challenges for athletes. A highly autonomous personality may lead to excessive independence, causing athletes to disregard coaches or sports managers. The strong desire to protect and enhance personal rights—an autonomic personality trait—may turn into a tendency to infringe on others' rights. Making decisions without consulting others can also lead to social difficulties. In general, both high and low autonomic personality levels may present challenges for athletes.

With respect to gender, researchers have found that women with very low levels of autonomic personality traits are unable to make even simple decisions, such as feeding their children alone. The children of these women may be malnourished and, as a result, deficiencies and delays in anthropometric measurements may occur (Namoro & Roushdy, 2009; Ross-Suits, 2010). Meanwhile, women with high autonomous personality levels have been found to have high levels of participation in their children's nutrition and decision-making processes and to be more active in child rearing (Carlson et al., 2015; Dancer & Rammohan, 2009). Therefore, research has highlighted the importance of adequate levels of autonomic personality. However, although the concept of autonomous personality has been examined in various fields in the existing literature, systematic measurement tools are limited in the context of sports science. Previous studies have generally focused on the relationship between autonomous personality and individual success, and the psychological characteristics specific to athletes and their effects on performance have not been sufficiently addressed. This gap highlights the need for a unique measurement tool that will evaluate athletes' independent decision-making, individual goal setting, and performance management processes. Accordingly, a scale has been developed to measure athletes' levels of autonomous personality. The proposed scale is expected to measure athletes' levels of autonomous personality, and the findings are expected to contribute to improving their performance. This study is a scale development study that aims to measure athletes' levels of autonomous personality. It is thought that athletes who can balance their desire to act autonomously and succeed will be in a healthier emotional state. In this context, the aim of the study is to develop a valid and reliable scale that can measure levels of autonomous personality that athletes and sports psychologists can benefit from.

METHODS

We conducted this validity and reliability study using a questionnaire survey. In the scale development phase, we conducted a literature review on autonomic personality. The

literature review focused on autonomic personality behaviours in athletes. We then formulated a question pool with a total of 17 items.

In this process, the literature review covered theoretical models related to autonomy (such as cognitive-behavioral approaches, personality-oriented models, and self-regulation frameworks) as well as empirical studies examining autonomy-related characteristics in both general populations and athlete groups. Core dimensions highlighted in the literature—such as independent decision-making, self-direction, achievement orientation, and perceived control over one's environment—were evaluated as fundamental components of autonomic personality and served as the theoretical basis for item generation. During the item development stage, existing scales related to autonomy, self-determination, and achievement orientation were examined to identify conceptual overlaps and themes that support content validity. Based on these theoretical and empirical foundations, all items in the 17-item pool were developed to reflect the key characteristics associated with autonomic personality in athletes.

Population-Sample (Research Group)

The population of this study consisted of the amateur athletes of Beylikdüzü District in Istanbul. The sample consisted of athletes from the Beylikgücüspor, Beylikdüzü Yakupluspor, and Beylikdüzü Demirspor clubs. We used purposive sampling in this quantitative study. Purposive sampling is when the researcher, based on their knowledge and predictions about the population, works on a subset or a few subjects that they believe can represent the population (Ural & Kılıç, 2011).

Our participants consisted of 164 athletes, including 70 athletes from Beylikgücüspor (U14/B, U15/A, U16/B, U17/A, U18/A teams), 56 athletes from Beylikdüzü Yakupluspor (U14/A, U15/A, U16/A, U17/A teams), and 38 athletes from Beylikdüzü Demirspor (U15/A, U18/B, and some athletes from the senior category teams). Two coaches administered the questionnaires to the athletes of the three sports clubs before training. We assumed that the participants responded to all questions with sincerity and sincerity. The questions prepared for the solution of the hypotheses were established before the main study.

In the content and appearance validity phase, we obtained the opinions of three experts, namely, two academicians from the psychosocial fields in sport and one linguist. We used Lawshe's (1975) Content Validity Ratio (CVR) technique to evaluate the items. We presented a specification table to the experts. Through the form, the experts confirmed that the 17 questions we had formulated were appropriate. The experts did not have any requests for

changing or removing questions. We then conducted a pilot study that used the 17-item questionnaire on 12 athletes. The athletes reported no difficulties in understanding the items on the scale. Thus, the scale was confirmed to have content and appearance validity.

Data Analysis

We used SPSS and AMOS programs to analyse the data obtained. We first conducted exploratory factor analysis. We used the Kaiser–Meyer–Olkin (KMO) test to measure the existence of relations between variables, which is a prerequisite for exploratory factor analysis (Tabachnick & Fidel, 2014). Given the possibility of the scale having more than one factor, we performed varimax vertical rotation. In removing scale items, we sought a minimum difference of .10 for overlapping items that loaded on two or more factors. Items M6 and M9 did not meet this condition and were removed from the scale. Subsequently, the factor structure was established. Thus, two items were excluded from the scale and the exploratory factor analysis was finalized. The KMO value of the scale was determined as .695 and the P value, as .000. As a result of the exploratory factor analysis, 15 items were retained from the 17-item question pool and five factors emerged.

Next, we conducted confirmatory factor analysis of the described factor structure of the scale. In confirmatory factor analysis, we sought a difference of at least 0.45 in the factor loading value to decide whether to remove an item from the scale (Büyüköztürk, 2009). Items M4, M7, M11, M12, and M13 were thus removed from the scale and appropriate goodness of fit values were obtained for the scale. As a result of the confirmatory factor analysis, our scale for determining the level of autonomic personality in athletes consisted of four factors and 10 items.

Given the change in the factor structure, we conducted another round of exploratory factor analysis. The items that were removed in the confirmatory factor analysis (items M4, M7, M11, M12, M13) were excluded from the scale in the second round of exploratory factor analysis. This time, the factor structure we obtained in the confirmatory factor analysis was confirmed without any change.

Finally, we conducted Cronbach's alpha reliability tests. For the four-factor structure, we derived the following Cronbach's alpha values: independence (.865), leadership (.858), social belonging (.630), and self-control (.871). The overall Cronbach's alpha value of the scale was .720. Cronbach's alpha reliability coefficients higher than 0.60 were interpreted as quite reliable (Kayış, 2009; Eski & Yıldıran, 2020). At the end of the study, hypothesis H1

was accepted the validity and reliability values of the scale for determining the level of autonomic personality in athletes indicated that the scale was suitable.

RESULTS

Table 1. KMO and Barletts Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,695
Bartlett's Test of Sphericity	Approx. Chi-Square	1033,674
	df	105
	Sig.	,000

Table 1 shows the KMO value of the scale for determining the level of autonomic personality in athletes (0.695>0.60). The KMO value was greater than .60 and the Bartlett sphericity test was statistically significant at 99% confidence level (p <0.01). We deemed the sample size adequate for factor analysis.

Table 2. Eigenvalues of Exploratory Factor Analysis

Factors	Total	% of Variance	Cumulative %
1. factor	2,782	18,546	18,546
2. factor	2,529	16,858	35,404
3. factor	2,042	13,612	49,016
4. factor	1,831	12,204	61,220
5. factor	1,326	8,838	70,059

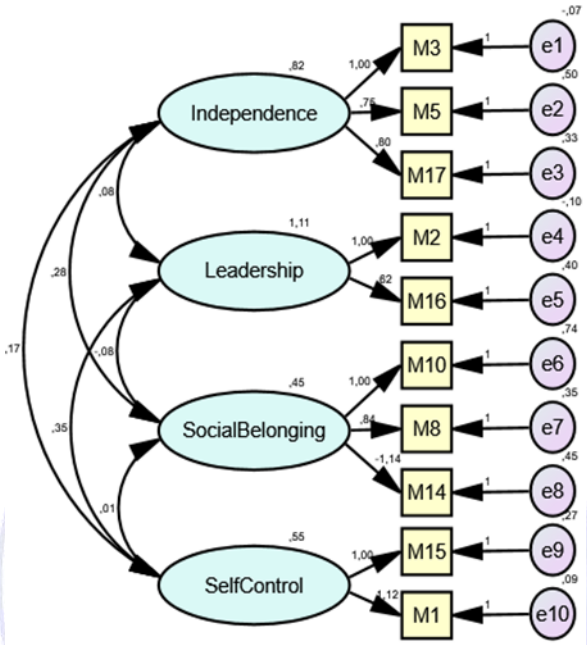
In the exploratory factor analysis, we analysed the reliability levels of the factors and found that the first factor alone explained 18.54% of the scale with an eigenvalue of 2.782. Table 2 shows the eigenvalues and variance values of the scale's factors.

Table 3. Exploratory Factor Analysis Factor Loadings of Items

Factor	İtems	Questions	Load Value
1. Factor	M3	The other person should show behavior that shows me my limits, even to me.	,902
(Independence)	M5	All human beings should live with autonomous emotions.	,797
	M17	I do not like to have my performance checked by others. No one should evaluate me.	,789
	M4	If a person takes decisions freely without consulting anyone, he will be very successful.	-,563
2. Factor	M2	When I fail, I hold myself accountable.	,866
	M16	I usually have a say in the environments I am in.	,855
(Leadership)	M7	I never prioritize the ideas and wishes of others.	,681
	M11	I have rules that I have to follow during the day.	,459
3. Factor	M10	I defend the rights of people who cannot defend their rights, even if I get hurt as a result.	,852
(Social	M8	I tend to constantly increase my rights.	,766
Belonging)	M14	I have goals to serve all of humanity.	-,667
4. Factor	M15	There is no person I would not fight for my personal rights.	,912
	M1	I am very careful about managing myself. I prepare tomorrow's to-do list today.	,875
(Self-Control)			
5. Factor	M12	Even first-degree relatives who are not consistent with my values have no place in my life.	,801
(Ego)	M13	Acting independently in social life is a behavior that I care a lot about.	,655

Table 3 shows the names of the factors that were named after the items collected under the factors were examined. In our analysis of the exploratory factor analysis data of the scale for determining the level of autonomic personality in athletes, we observed that the factor load values of the items were between 0.45 and 0.90. These values are deemed acceptable factor load limits.

Figure 1. Confirmatory Factor Analysis Path Diagram



M7, M11, M12, and M13 were removed because they demonstrated low factor loadings and high modification indices, indicating cross-loadings and local misfit. These items negatively affected the model's overall goodness-of-fit values and reduced the internal consistency of their respective subdimensions. In line with these psychometric indicators, excluding these items improved both the model fit and the reliability indices. The related items were removed from the scale. Figure 1 shows a diagram of the final confirmatory factor analysis paths. The goodness of fit values are given in Table 4, which indicated acceptable, good, and excellent fit according to existing fit criteria values.

Table 4. Confirmatory Factor Analysis Goodness of Fit Values

X^2/sd	p	RMSEA	CFI	GFI	NFI
2.335	0,000	0,090	0,951	0,927	0,919

In the confirmatory factor analysis applied to confirm the factor structure described in the exploratory factor analysis of the scale for determining the level of autonomic personality in athletes, we found that the factor loading values of items M7, M11, M12, and M13 were not appropriate and disrupted the scale fit values. The related items were removed from the

scale. Figure 1 shows a diagram of the final confirmatory factor analysis paths. The goodness of fit values are given in Table 4, which indicated acceptable, good, and excellent fit according to existing fit criteria values.

Table 5. Repeated KMO and Barletts Test and Exploratory Factor Analysis Results

Sub-Dimensions	**İtem No**	**Factors**			
		1.	**2.**	**3.**	**4.**
İndependence	M3	,915			
İndependence	M5	,862			
İndependence	M17	,826			
Social Belonging	M10		,834		
Social Belonging	M8		,824		
Social Belonging	M14		-,709		
Leadership	M16			,922	
Leadership	M2			,893	
Self-Control	M1				,920
Self-Control	M15				,903
	Explained Variance (%)	24,04	20,16	18,48	18,02
	Eigenvalue	2,405	2,017	1,848	1,803
	KMO:0,655; X^2 =815,342; Bartlett's (p)=0,000<0.01				

Table 5 shows the results of the repeated KMO and Bartlett's tests and exploratory factor analysis. The KMO value was greater than .60 and the Bartlett's test of sphericity was statistically significant at 99% confidence level (p <0.01). The repeated exploratory factor analysis determined that the 10-item scale had a four-factor structure and the total variance explained was 80.701%. The results coincided with those of the confirmatory factor analysis.

Table 6. Cronbach Alpha Reliability Values

Sub-Dimensions	**İndependence**	**Leadership**	**Social Belonging**	**Self Control**	**General**
Values	,865	,858	,630	,871	,720

As shown in Table 6, all items in the scale did not take a value below the expected value of 0.30 in their correlations with other items. The overall reliability of the scale was 0.720. The fact that the Cronbach's alpha reliability coefficients are higher than 0.60 indicated high reliability (Kayış, 2009).

Table 7. Scale for Determining the Level of Autonomic Personality in Athletes

Factor	Sequence	Questions	1	2	3	4	5
İndependence	**1**	The other person should show behavior that shows me my limits, even to me.					
İndependence	**2**	All human beings should live with autonomous emotions.					
İndependence	**3**	I do not like to have my performance checked by others. No one should evaluate me.					
Leadership	**4**	When I fail, I hold myself accountable.					
Leadership	**5**	I usually have a say in the environments I am in.					
Social Belonging	**6**	I defend the rights of people who cannot defend their rights, even if I get hurt as a result.					
Social Belonging	**7**	I tend to constantly increase my rights.					
Social Belonging	**8**	I have goals to serve all of humanity.					
Self-Control	**9**	There is no person I would not fight for my personal rights.					
Self-Control	**10**	I am very careful about managing myself. I prepare tomorrow's to-do list today.					

The final structure of the scale for determining the level of autonomic personality in athletes, with proven validity and reliability, is presented in Table 7. The scale was prepared using five-point Likert-type scoring. It had no reverse-structured items. The degree of agreement of the samples with the questions indicated that the higher the scores, the higher the autonomic personality structure.

DISCUSSİON and CONCLUSİON

A review of the literature reveals several existing scales related to autonomy. Beck et al. (1983) developed the Sociotropy-Autonomy Scale to measure sociotropic and autonomic personality traits without classification by domain. Evanthia et al. (2019) created the Development of a Scale to Measure Learner Autonomy of Distance Education Students, which assesses perceived autonomy among graduate students in distance education. Bekker and Van Assen (2006) developed the Short Form of Autonomy Scale, a psychometric tool commonly used in clinical settings. Sheldon and Deci (1993) introduced the Self-Determination Scale, which measures individuals' capacity for self-regulation and motivation outside of sports. Deci and Ryan (1985) developed the General Causality Orientations Scale to assess autonomous, controlled, and amotivational orientations. Deci and Ryan (2000) created The Basic Psychological Needs Scale, which evaluates satisfaction levels regarding autonomy, competence, and relatedness.

Despite these contributions, few scales specifically measure autonomic personality levels, and none assess autonomic personality in athletes. Given the unique factors

influencing athlete behaviour, such as performance demands, developing a specialized scale is necessary. Existing tools may not adequately capture autonomic personality levels in athletes, highlighting the need for a new measurement instrument. This scale aims to fill that gap by providing detailed insights into autonomic personality traits and behaviours in athletes. The development of this scale will contribute to sports psychology and sports sociology. As the first tool specifically designed to measure autonomic personality in athletes, it has the potential for global application. Its use may promote further research in sports psychology, advance the understanding of autonomic personality, and enhance awareness among athletes. Ultimately, it may lay the foundation for new psychological inquiries in the field.

The final version of the item pool was structured as a 5-point Likert-type scale and administered to athletes in the sample group. After data collection, Exploratory Factor Analysis (EFA) was conducted to determine the factor structure, Confirmatory Factor Analysis (CFA) to assess construct validity, and Cronbach's Alpha reliability analysis to evaluate internal reliability.

As shown in Table 6, the Cronbach's alpha reliability test indicated that none of the scale items fell below the expected correlation value of 0.30 with other items. The overall reliability of the scale was determined to be 0.720. The reliability coefficients for the sub-dimensions were as follows: independence (0.865), leadership (0.858), social belonging (0.630), and self-control (0.871). Cronbach's alpha values above 0.60 are considered indicative of quite reliability (Kayış, 2009; Eski & Yıldıran, 2020). The null hypothesis (H_0) formulated at the beginning of the study was rejected, and the alternative hypothesis (H_1) was accepted. These findings confirmed the factor structure and overall reliability of the scale.

Conclusion and Recommendation

At the conclusion of the study, the Scale for Determining the Level of Autonomic Personality in Athletes was developed, consisting of four factors and ten items. The final version of the scale is presented in Table 7. Researchers may use the scale freely, provided it is properly cited.

Although the developed scale demonstrated satisfactory validity and reliability, several limitations should be considered when interpreting the findings. First, the study sample was limited to Beylikgücüspor, Beylikdüzü Yakupluspor, and Beylikdüzü Demirspor athletes owing to the temporal limitations of the study. Regarding the factor structure, the exploratory and confirmatory factor analyses initially included 17 items across multiple factors. However,

items M4, M6, M7, M9, M11, M12, and M13 were removed due to insufficient loadings or overlapping factor loadings, resulting in a final scale of 10 items across four factors. While this structure achieved acceptable goodness-of-fit indices, the exclusion of these items may have reduced the conceptual breadth of the scale. In summary, the developed scale represents a valuable tool for assessing autonomic personality in athletes, yet further research should aim to broaden the participant pool, improve sub-dimensions with lower reliability, and explore alternative assessment methods.

The analyses revealed two-item subscales within the scale's structure. In the literature, the use of two-item subscales is considered appropriate in short-form survey studies. This approach has been exemplified in various studies (Vaishnavi et al., 2007; Ni et al., 2015; Waddimba et al., 2022). In scale development studies, recommendations regarding the number of items per factor may vary depending on the research context and purpose. Marsh et al. (1998) emphasize that in theoretically well-defined constructs and in cases where the measured dimensions are narrow in scope, two-item factors can be statistically and theoretically justifiable. Similarly, Worthington and Whittaker (2006) note that in short-scale development studies, factors represented by two items may be acceptable when factor loadings are sufficiently high and the inter-item relationship is strong. In the present study, the resulting factor structure is consistent with the underlying theoretical framework, and the two-item factors adequately represent the constructs being measured.

A scale designed to assess autonomic personality levels in athletes can provide valuable insights for research. Once these levels are determined, correlation studies can explore their effects on various sociological and psychological factors. Additionally, the relationship between athletes' autonomic personality levels and other behaviours can be examined.

The present study developed a reliable and valid scale to determine the level of autonomic personality in athletes. Based on the findings, several recommendations can be made for both future research and practical applications.

Recommendations for Future Research

Future studies should aim to examine the validity and reliability of the scale across different athlete populations, including professional, elite, and female athletes. Longitudinal designs may be employed to explore whether autonomic personality traits change over time, particularly across different training or competition phases. Cross-cultural adaptation and

validation studies are also recommended to evaluate the applicability of the scale in different sports contexts and cultural settings. Furthermore, researchers may investigate the relationship between autonomic personality and other psychological constructs such as motivation, self-efficacy, resilience, and team cohesion. Qualitative research methods could also be utilized to gain deeper insights into how autonomy manifests in athletes' daily training routines and interpersonal relationships.

Recommendations for Practitioners

Sports psychologists, coaches, and sports administrators are encouraged to use the developed scale to better understand athletes' personality dynamics and levels of independence. Identifying athletes with excessively high or low autonomy levels can help practitioners design balanced psychological and behavioral interventions. Coaches may use these findings to improve communication strategies and leadership approaches that support autonomy while preserving team unity. Sports organizations may integrate the scale into talent identification, mentoring, and athlete development programs to foster greater self-control, leadership, and social belonging among athletes.

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