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The Turkish adaptation of Athletic Coping Skills Inventory-28 (ACSI-28): the validity and reliability study

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This study was summarized from Volkan Özcan's Doctoral Thesis.

Abstract

It is the aim of this study is to test the validity and reliability of the Turkish version of Athletic Coping Skills Inventory-28 (ACSI-28) developed by Smith et al. (28). Back-translation technique was employed during the process of Turkish translation of ACSI-28. The scale is 28 items instrument which have seven subscales, namely coping with adversity, concentration, coachability, confidence and achievement motivation, goal setting/mental preparation, peaking under pressure, and freedom from worry. Respondents of the ACSI-28 indicate the extent to which they agree with each statement on a four-point Likert scale, ranging from 0 (Almost never) to 3 (Almost always). Items number 9 and 12 have been removed from the scale, which are not meaningful t value according to the analyze. With the remaining 26 items, the analyzes were repeated. After review, all the items were maintain in place. In order to test the inventory's reliability, its Cronbach's Alpha scores was calculated and found for each subscales coping with adversity .66, concentration .68, coachability .71, confidence and achievement motivation .65, goal setting/mental preparation .70, peaking under pressure .80, and freedom from worry .62. The scale is shown to be valid and reliable.

Keywords: Athletic Coping Skills Inventory-28, sport-psychological skill, talent identification.

INTRODUCTION

Skill selection is described as selecting the best individual or group, appropriate for sports branch and completed duties prepared for a certain target with showing the best performance. In order to name selected children as skillful and to be successful in the future, they should have some skills (physical, psychological, psychomotor) or combination of such skills. These skills might not be understood with naked eye during competition or while playing games, therefore scientific measurement methods are required (21).

Sportive performance show differences at the rate of compatibility between cohesive variables, such as physical, morphological, environmental, psychomotor and psychological skills (2). In compliance with the aim of assessments, being used during selection of skills, it is highlighted that there should be physical, psychological and psychomotor assessments in order to estimate whether it is for determining the athlete's instant performance or future possible performance (1). When various social environments, where child and young athletes are available, are considered, and when they are assessed in connection with results of sports psychology, it is mentioned that their trainers, teachers, family members and peers might have different impact on them (23). Burton & Raedeke (3) underline that mental factors (target aiming, imagination, self-talking, relaxation and being energetic) and mental skills (motivation, power management, attention, stress management and self-confidence) should be separated from each other and mental factors might be used for improvement of mental skills of the athlete. According to Gee et al. (12), whereas "sportive psychological skills" are shown as the combination of required skills in order to present high performance by children and youth, lack of one or more of such skills might negatively affect the performance. As a result of detailed literature research of Williams & Krane (32), some psychological skills and mental skills, required to be had in order to enable athletes to exhibit high performance at elite level; are listed as self-stimulation of person, high self-confidence, better

concentration and focusing, having self-controlled attitude, positive imagination and self-talking, high determination and devotion.

Coping with difficulties is deemed as a contextual mediator between person and environment. It is mentioned that there is a relation between person's perceived stresses and coping skills as a result of various studies, implemented related with psychology, physiology and behaviors (22). Furthermore, it is showing the level of targets, determined in connection with having coping with difficulties skill, mood of the person, motivation status and efforts (9). It is set forth that determination of psychological skills in connection with sports, is an important factor for determining where person's performance shall stand (27,14), and it is mentioned that in addition to the mental preparation, coping with anxiety, confidence, concentration and motivation like psychological skills, target aiming, relaxation, imagination in mind, self-talking like techniques might positively contribute to the performance improvement (31). Personal notification inventory is used as the most common method for assessing the psychologies of athletes. Sports psychology determined the compatibility degrees of athletes to elite level training programs by means of various inventories (25), and estimates their impairment statuses (17,19), and determines which athlete is the best for a position in team sports (8), and helps to athletes for performance improvement (5,6), and studies why athletes leave sports during their early ages (13).

In this respect, aim of the study is to adapt "ACSI-28", which was developed on 1995 and of which validity and reliability were tested and accepted on different samples by various researchers, into Turkish language.

MATERIAL & METHOD

This study is implemented on 318 students (165 girls, 153 boys, X_{age} = 12.16, Ss = 1.33 years), who are continuing to Ankara Hacıbayram Junior High School during 2015-2016 academic year and selected via random sampling method, from 5th, 6th, 7th and 8th grades. Test was repeated with 56 participants 2 weeks later in order to apply test-retest technique.

Instrument

By means of scale, developed by Smith et al. (28), it was aimed to measure psychological coping skills of athletes with difficulties. ACSI-28 inventory has nature of personal assessment form, developed via implementing clarifying and verifying factor analyses. Structure of the scale is composed of 28 articles and 7 factors (goal settings/mental preparation, concentration, freedom from worry, coping with adversity, peaking under pressure, confidence and achievement motivation). On the scale, which is developed on four-point Likert type form, participants were requested to determine how frequently they are experiencing the things, they faced (Almost never = 0, Sometimes = 1, Frequently = 2, Nearly always = 3). Alpha internal consistency coefficient of 7 sub-factors of the ACSI-28 was varying between .62 (concentration) and .78 (high performance under stress). Alpha confidence coefficient, referred for overall scale, was mentioned as .86.

Procedure

In order to implement Turkish translation of Inventory for Coping Skills with Sportive Difficulties, Ronald E. Smith was contacted via e-mail, and required permissions were obtained. It is very essential to have expressions compatible with the translating language and culture during scale adaptation studies from foreign languages. In this respect, as per Savasır (26), during the stage of translation of scale into Turkish language, translators should know target and source languages very well, and they should be familiar with the scale related issue and they should be experienced in both cultures. During the stage of translating into Turkish language, back-translation technique was applied. Translation process of Scale into Turkish language is composed of two stages. First of all, inventory was first translated from English into Turkish and from Turkish into English by two professionals, who are working in the English linguistics area, separately. In addition to this, original form of the scale and translated form from Turkish into English were inspected by an academician, whose mother tongue is English and who is an expert in his/her area, and a feedback is received. Then these translations were compared by an academician, who is a researcher and expert in his area, and the translations, which are thought to be described the above mentioned article best. During the second stage, form of inventory, which is translated into Turkish, was applied to 40 students from junior high school in order to test its clarity, and clarity of the language was tested. As a result of received feedbacks, required amendments were made and scale was finalized.

Data Analysis

Data were collected via the Athletic Coping Skills Inventory for the purpose of adaptation by the

researcher. Original of the scale was developed by Smith et al. (27). Overall number of participants is 318. It was inspected by first degree verifying factor analysis (DFA) whether structure of scale, composed of 7 factors and 28 articles and previously developed, was verified or not. Verifying factor analysis (DFA) aims to assess at what degree a factorial model, composed of various observable variables (secret variables) complies with the real data. The model, to be inspected, can describe a structure, which was determined by using the data of an empirical study or built on the basis of a certain theorem (29). Various number of compatibility indexes are being used on DFA in order to assess the validity of the model. The most frequently used ones among these are (7,29); Chi-Square Goodness (χ^2), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI). If the values, observed on the scale model, are within X2 / d < 3; 0 < RMSEA < 0.05; 0.97 ≤ NNFI ≤ 1; 0.97 ≤ CFI ≤ 1; 0.95 ≤ GFI ≤ 1 and 0.95 ≤ NFI ≤ 1 ranges, this show perfect compatibility; if within 4 < X2 / d < 5; 0,05 < RMSEA < 0.08; 0.95 ≤ NNFI ≤ 0.97; 0.95 ≤ CFI ≤ 0.97; 0.90 ≤ GFI ≤ 0.95 and 0.90 ≤ NFI ≤ 0.95 ranges, this show acceptable compatibility (18, 29). Besides, in order to determine the reliability of the scale, in connection with Cronbach alpha internal consistency, reliability coefficient and test-retest reliability coefficients were calculated.

RESULTS

Validity

First-degree verifying factor analysis is applied for determining the validity of scale structure during analysis of data.

Factor Structure of the Athletic Coping Skills Inventory-28

In this section, DFA is applied in order to assess whether structure of scale, composed of 28 articles of seven aspects, was verified or not. During the first applied DFA, articles with t values, which are not statistically significant, were inspected. According to the implemented study, 9th and 12th articles with insignificant values were excluded from the scale. Analyses were repeated with remaining 26 articles. After re-inspection, all articles protected their places in the scale. Path diagram is given on Figure 1. Model's compatibility indexes are found as χ^2 = 924.74, X^2/sd = 3.33, RMSEA = 0.076, CFI = 0.89, IFI = 0.90, NFI = 0.89 and NNFI = 0.90. When coefficients, showing the relation between factors and observed variables of the model showing the factorial structure of this scale, were inspected, it was concluded that all coefficients were at sufficient level. When compatibility coefficients, calculated via DFA, were considered, it was decided that previously determined structure of the scale complies in general with collected data.

Regression values of the items and t values are listed in Table 1.

When Table 1 is inspected, it was determined that obtained regression coefficients and "t" values are significant (> 1.96) and model was verified. When article overall correlation values of the articles, referred on the scale, were studied, it can be seen that the structure, aimed to be measured via each article, was compatible with the structure, aimed to be measured on the scale (r > 0,30), and internal validity was maintained.

Reliability

Internal consistency coefficient, Cronbach alpha was calculated during determination of reliability of the scale. Alpha value of the first sub-dimension (Coping with adversity) was determined as 0.66; alpha value of the second sub-dimension (Concentration) was determined as 0.68, alpha value of the third sub-dimension (Coachability) was determined as 0.71, alpha value of the fourth sub-dimension (Confidence and achievement motivation) was determined as 0.65, alpha value of the fifth sub-dimension (Goal settings / Mental preparation) was determined as 0.70, alpha value of the sixth sub-dimension (Peaking under pressure) was determined as 0.80 and alpha value of the seventh sub-dimension (Freedom from worry) was determined as 0.62. Tezbasaran (30) is mentioning that a reliability coefficient, which might be deemed as enough on likert type scale, should be close to 1 as much as possible. According to these results, it can be said that measurement media, used for research, has high level of reliability.

In order to statistically test consistency in terms of time in connection with the clarity, measured by Turkish form of Athletic Coping Skills Inventory, 56 students from junior high school were applied test-retest method in two weeks. By means of this reliability method, consistency of the measurement media within a certain period of time was tested (11). Pearson correlation coefficients between total points of 7 factors from first and second application were calculated for test-retest reliability coefficient. Test-retest reliability coefficient of first factor was found as

0.72, test-retest reliability coefficient for second factor was found as 0.71, test-retest reliability coefficient for third factor was found as 0.62, test-retest reliability coefficient for fourth factor was found as 0.81, test-retest reliability coefficient for fifth factor was found as 0.83, test-retest reliability coefficient for sixth factor was found as 0.79 and test-retest reliability coefficient for seventh factor was found as 0.83. High correlation values are showing that test-retest reliability coefficient is high.

DISCUSSION

In this study, processes, such as translation of articles from English into target language, Turkish under the adaptation work of Athletic Coping Skills Inventory into Turkish Language, maintaining linguistic and conceptual article equivalency and calculation of validity and reliability of obtained Turkish form, were implemented.

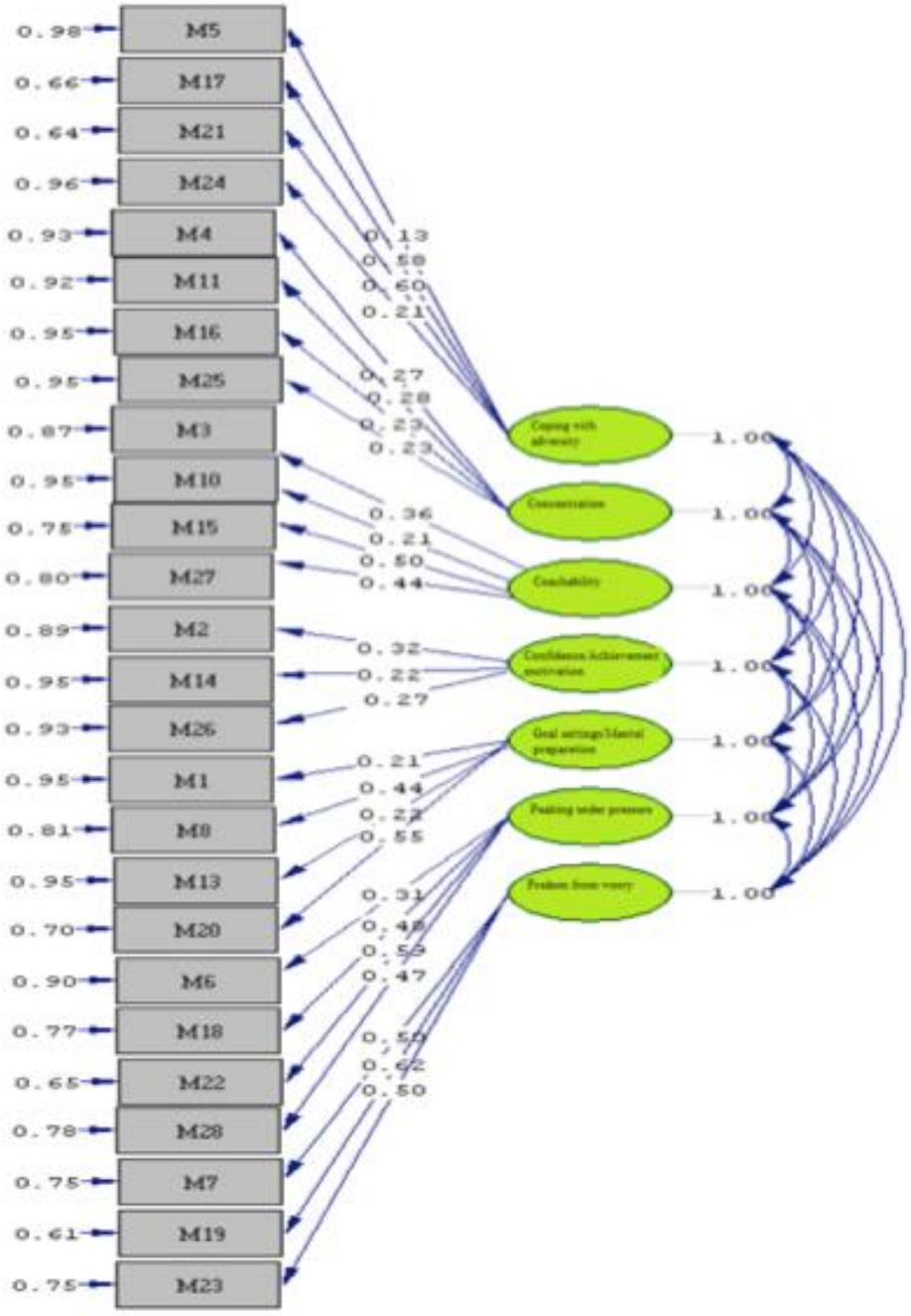

Figure 1. *Scale's path diagram.*

Table 1. Regression and T values of the scale.

Item	Regression Values	t values	Item Total Correlation	Item	Regression Values	t values	Item Total Correlation
M1	0.13	2.41	0.30	M16	0.22	3.25	0.34
M2	0.58	10.02	0.70	M17	0.27	3.58	0.39
M3	0.60	10.28	0.72	M18	0.21	3.79	0.33
M4	0.21	3.79	0.33	M19	0.44	7.29	0.56
M5	0.27	4.09	0.39	M20	0.22	3.89	0.34
M6	0.28	4.14	0.40	M21	0.55	8.67	0.67
M7	0.23	3.75	0.35	M22	0.31	5.89	0.43
M8	0.23	3.74	0.35	M23	0.48	8.85	0.60
M10	0.36	6.49	0.48	M24	0.59	10.84	0.71
M11	0.21	4.07	0.33	M25	0.47	8.67	0.59
M13	0.50	8.59	0.62	M26	0.50	8.84	0.62
M14	0.44	7.75	0.56	M27	0.62	10.97	0.74
M15	0.32	3.90	0.44	M28	0.50	8.81	0.62

In order to test reliability of the inventory, calculated Cronbach alpha internal consistency coefficients were found between 0.62 and 0.80, similar to the values, obtained by Smith et al. (27) for original inventory (between 0.62 and 0.78). It is assumed that the higher Cronbach Alpha coefficient of the scale, consistent the articles within the scale with each other and composed of articles, interpreting the factors of same feature (10). According to Özdamar (24), if Cronbach alpha internal consistency coefficient of scale is within $0.60 \leq \alpha < 0.80$ range, scale is deemed very reliable. In other words, this obtained high internal consistency coefficient points out that homogeneity of the Athletic Coping Skills Inventory is at sufficient level. Besides, when article sub-dimension overall correlations are inspected, it is seen that coefficients vary between 0.30 and 0.74. During interpretation of article overall point correlation, it is mentioned that individuals of articles with .30 and higher points are well distinctive (4). Kayıs (16), mentioned that on condition not to have minus sign of article sub-dimension overall correlation coefficient, it should be bigger than 0.25. When assessed in this respect, it is seen that obtained correlation coefficients are complying with the requested value.

As a result of previously performed validity and reliability study of Konter (20) on Athletic Coping Skills Inventory–28; it was determined that test-retest reliability was between 0.54 and 0.92, and as a result of factor and article analyses, best result was obtained via the structure, composed of 16 articles and 5 sub-factors, and reliability coefficients of the articles within the scale was determined to vary between 0.32 and 0.67 for first test and between 0.42 and 0.63 for retest. As a result, it was mentioned that a later validity and reliability study performance is required in order to use the scale on the soccer players.

During the first DFA, applied during current study, articles with t values, which are not statistically significant, were inspected. According to the implemented study, 9th and 12th articles with insignificant values were excluded from the scale. Analyses were repeated with remaining 26 articles, and structure of the scale, composed of 7 factors and 26 articles, protected their places in the scale. When the results obtained from analyses of data were inspected, it can be concluded that validity and reliability of Turkish version of the Athletic Coping Skills Inventory is at sufficient level and can be used in studies in connection with students, continuing to the junior high school.

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