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Original article

VALIDATION OF GRIT SCALE IN THE ARABIAN CONTEXT FOR EGYPTIAN PLAYERS

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Abstract

Purpose. The scientific community has focused on what they call “grit”. For this reason, the purpose of this study is to validate the short version of grit scale in the Arabian context for Egyptian players (Grit-s).

Methods. 155 Egyptian athletes participated in this study. Ages ranged from 20 to 28 years, of which 97 were males ($M = 22.91$; $SD \pm 4.5$ years) and 58 females ($M = 23.58$; $SD \pm 4.1$ years). 51.4% from individual sports (athletics, swimming, table tennis, fencing) and 48.6% from group sports (soccer, handball, basketball, hockey). They all participated voluntarily.

Results. Statistical analyses showed that: validated the Grit Scale in Egyptian cultural contexts

Conclusions. The present study allows Arabic-speaking sports science researchers to have, with confidence, a questionnaire that allows analyzing the perseverance and passion of individuals in achieving their objectives and promoting research in this area. For coaches, instructors and technicians, an instrument is offered, simple and easy to apply, with all the necessary and demandable measurement qualities, which can provide them with very valuable information about the persevering or gritty personality of their trainees.

Key words: GRIT, consistency of interest, perseverance of effort.

Introduction

Psychology is an important science for both sports training and athletic competitions, as it is interested in researching mental issues related to sports activity in its various fields and levels, as well as examining the characteristics and mental features of the personality that constitute the self-basis of sports activity with a view to developing this type of human activity and trying to find scientific solutions to various of its applied problems.

The nature of high levels of sport requires the individual athlete to use his physical, skill, planning and psychological capabilities in an integrated way to try to achieve the best possible level.

The methods of physical, skillful, and planning preparation and its principles have converged to a great degree in recent years, so the need for more attention to psychology has emerged.

Sports excellence depends on the extent to which players benefit from their psychological capabilities in a manner that is no less than the use of their physical capabilities. Psychological abilities help individuals to mobilize their abilities and physical energies to achieve maximum and best athletic performance.

There are feats that go down in history for

their special relevance. Many examples of an athlete who has achieved exceptional achievements after having suffered injuries and difficulties that any other athlete would have led to consider abandonment. Both in their behavior and in their statements, these athletes have made it clear that passion, commitment, and grit are keys to overcoming difficulties and achieving the goals that were set. (M. I. Barriopedro, et al. 2018).

Studies on human performance have been considering in a special way how non-cognitive variables influence such performance (L.M. Hough, 1992). Research is showing that relationships between these types of variables and academic work or sports performance (M. Richardson, et al. 2012; S. B. Robbins, et al. 2004). Variables such as passion (A. Lisbona, et al. 2017; R. J. Vallerand, 2012), emotional intelligence (V. García, et al. 2013), self-control (A. Duckworth, & J. J. Gross, 2014) or commitment (T. K. Scanlan, et al. 1993) have been proposed as variables to consider.

In 2007 (A. Duckworth, et al.) proposed a non-cognitive notion that he considered had the potential to predict performance and which it named Grit.

This personal characteristic would explain why some individuals show special behavior and are able to increase their performance despite all the adversities they may encounter. (F. T. Schmidt,

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et al. 2017) indicated that concept would refer to the effort expended by an individual to persist in the effort to achieve a goal in life, and to the consistency in the interests that an individual has when he tries to reach them.

(A. Duckworth, et al. 2007) showing that Grit means having enough endurance, it is living life as a marathon and not as a speed race. In his own words, it means "working intensely in the face of challenges, maintaining effort and interest throughout the years despite adversity, error, and plateaus in progress".

There is numerous anecdotal evidence, as well as biographical information of great variables characterized by having achieved great achievements (F. Galton, 1892) showing that the effort, personal investment, commitment, full dedication and effort sustained for years, they are essential elements when it comes to explaining their success in different fields of action (business, military, sports, medicine, science, etc.).

Ericsson's studies of deliberate practice and intense training abound in this direction (A. Duckworth, et al. 2007; K. A. Ericsson, et al. 1993), since for this researcher being able to spend thousands of hours working, or training, in achieving challenges and objectives, means having the Grit necessary to not give up and persist despite difficulties. It is for this reason that it is beginning to be asked if only talent and intelligence by themselves should be considered the only causes of academic, scientific, business or sports success (J. H. Van Rossum, & F. Gagné, 2005).

(A. Duckworth, et al. 2007) developed a self-report scale made up of 12 items in which both dimensions were present and which they called the Grit-12 Scale. These variables were specified in two dimensions: Perseverance in effort and Consistency in interests.

Consistency of interests would refer to the tendency not to change interests habitually or frequently, while perseverance in effort would indicate the tendency to work hard even in the most difficult situations for a long time despite inconveniences and difficulties. These authors analyzed the incremental validity of the Grit as opposed to intelligence in places such as the West Point North American Military Academy, the National Spelling Bee, and the average rating at the Ivy League institution, finding that those participants who scored Higher on the scale had a tendency to work harder and longer than their less gritty peers, and that this dimension could be the cause of their performance differences, and even in the face of error. In 2009 Duckworth and Quinn reviewed the scale initially proposed and found that the elimination of some of its items (two of each dimension) significantly improved the strength of

their model, establishing the scale as the GRIT-S Scale reduced version of 8 items, composed by two dimensions and a higher factor called Grit.

To date this scale has been validated in some European countries (K. Rimfeld, et al. 2016; F. T. Schmidt, et al. 2017), there being no validation study published in the Spanish context, hence the importance of the present study for the Psychology of the Sport and Sports Sciences given the existence of numerous instruments that have not been subjected to the necessary and corresponding cultural validation and adaptation.

Indeed, for about a decade, the scientific community has focused on what they call "grit". For this reason, the purpose of this study is to validate the of the short version of grit scale in the Arabian context for Egyptian players (Grit-s).

Methods

155 Egyptian athletes participated in this study. Ages ranged from 20 to 28 years, of which 97 were males ($M = 22.91$; $SD \pm 4.5$ years) and 58 females ($M = 23.58$; $SD \pm 4.1$ years). 51.4% from individual sports (athletics, swimming, table tennis, fencing) and 48.6% from group sports (soccer, handball, basketball, hockey). They all participated voluntarily.

Instrument

Grit-Original Scale (Grit-O)

To carry out this validation, the participants voluntarily completed the original 12-item Grit scale (Grit-O) (A. Duckworth, et al. 2007) translated into Arabic. For the translation of the questionnaire, the recommendations for the adaptation of the tests from one culture to another were considered. A bilingual translator, with knowledge of the specific contents of this work and the principles of test construction, translated all the items for the English version of the Grit-O. A second bilingual translator were translated the Arabic version back into English. Finally, two researchers who are experts in the field compared this translation with the original questionnaire in English. Finally, the translators and researcher agreed on a final version.

The Grit-O questionnaire was made up of two factors: consistency (consisting of items 2, 3, 5, 7, 8, and 11) and perseverance (consisting of items 1, 4, 6, 9, 10, and 12).

(A. Duckworth, & P. D. Quinn, 2009) proposed a reduced version of this questionnaire called Grit-S, in which they eliminated items 3 and 11 of the consistency dimension and items 1 and 10 of the perseverance dimensions. The response format of the original instrument was kept being 5 = Very like to me 1 = Not at all like me.

All participants were invited to collaborate in the study explaining the purpose of the study. All signed a consent sheet with which to start the

questionnaire booklet. They completed, without time limit, a booklet that included the Grit-O scale translated into Arabic. Each item on the scale was answered using a Likert format with 5 alternatives: a) Very like to me, b) Quite like to me, c) A little like me, d) Not very like to me and e) Not at all like to me. These response options were rated from 1 to 5, respectively, for items 2, 3, 5, 7, 8, and 11, and with scores of 5 to 1 for the rest of the items. A subsample of

Statistical analysis

The factorial structure proposed by (A. Duckworth, et al. 2007) for both the original version (Grit-O) and its reduced version (Grit-S) proposed by (A. Duckworth, & P. D. Quinn, 2009), were subjected to confirmatory factor analyzes using the Maximum Likelihood method to estimate the parameters, after checking that both the Asymmetry and the Pointing indices of the items did not present high values (Asymmetry less than 2 in absolute value; Pointing less than 7 in absolute value). The following indices were used to assess the goodness of fit of the data to the proposed model: Root of the Root Mean Square Error of Approach (RMSEA) and its 90% confidence interval, Bentler's Comparative Fit Index (CFI), Goodness Index of Adjustment (GFI) and the relative value of Chi Square (χ^2 / gl).

In the literature, RMSEA values $\leq .05$ are considered as indicators of a good fit or an acceptable fit, specifically; CFI values $\geq .90$ and

GFI values $\geq .95$ have been accepted as indicators of a good fit; Finally, relative Chi Square values between 2 and 5 are considered as indicators of acceptable fit. Multigroup AFCs were performed to check if the factor structure was equal in men and women. Factorial invariance was evaluated progressively (B. M. Byrne, 2008): configural invariance (the pattern of factor loads is the same); metric or weak invariance (in addition to the load pattern, the factor weights are equal); scalar or strong invariance (in addition to the metric invariance assumes that the intercepts are equal) and strict invariance (in addition to the scalar invariance assumes equal variances for the errors).

Since the difference between the Chi-square tests is very restrictive, the Akaike Information Criterion (AIC) and the comparison of the CFI values were also used to compare the fit of the models. If the difference between the CFI values of two models nested is greater than .01 in favor of the least restrictive model, the model with more restrictions should be rejected (G. W. Chenung & R.B. Rensvold, 2002). The reliability of the scales was evaluated by means of the α coefficient and the homogeneity of the items based on the correlation between the item and the total score of the scale once the item was eliminated. The analyzes were carried out using the PASW 20.0 program and the AMOS 21.0 program. All statistical analyses calculated by the SPSS. 19 statistical packages.

Results

Table 1. Age and experience age of the sample (Mean \pm SD)

Group	N	Age [years]	experience age [years]
Male	97	22.91 \pm 4.5	7 \pm 3.9
Female	58	23.58 \pm 4.1	6 \pm 3.1

Table 1 shows the Age and experience age of the sample. There were no significant differences observed in the Age and experience age for the subjects.

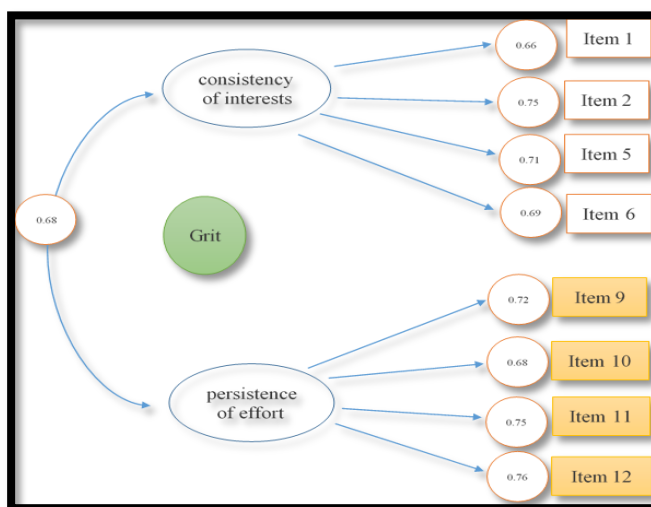


Figure 1. Confirmatory factor analysis of the (Grit-S Scale)

Discussion

The aims of the current study were to validate the Grit Scale (comparing its long and short versions) for the Egyptian players in the Arabian context.

About Grit, it is important to consider that several studies have validated the Grit Scale in different cultural contexts; however, until now, the scale had not been validated to the Arabian context. In the present study, the results confirmed by the two-factor structure of the scale (consistency of interest and perseverance of effort), and they show the adequacy of the data for the long version with 12 items and the short version with 8 items. Comparison of the two versions recommends the use of the shorter version (A. Rial, et al. 2006). These results are constant with (A. Duckworth, & P. D. Quinn, 2009), who obtained better fit indexes for the short version than for the long one. According to (M. María, et al. 2019) several studies have found better indices for the grit structure with two related factors in both long and short versions.

Some limitations of the present study should be highlighted as the sample is preferably made up of people related to the field of sport.

Although the Grit-S questionnaire shows more adequate psychometric properties than the original version, the Grit-O, it is necessary to continue studying the measurement of this construct in order to obtain an instrument that allows comparing the scores of groups of participants with different characteristics.

Lastly, it should be noted that the meta-analysis carried out by (M. Credé, et al. 2017) has highlighted some aspects of this construct, and of their research, that need greater attention, such as the area in which it is applied, the level of Participants' expertise or even the definition of the construct itself that presents similarities with other existing constructs such as the self-discipline that (P.T. Costa, & R. R. McCrae, 1992) define as the ability to start and finish tasks despite boredom or distractions, in an effortful way and conscientious. For (M. Credé, et al. 2017), the notion of grit is intuitively appealing when viewed as a predictor of

Duckworth A. L., & Quinn, P. D. 2009, Development and validation of the short grit scale (grit-s). *Journal of personality assessment*, 91(2), 166-174.

Duckworth A. L.; Peterson, C.; Matthews, M. D., & Kelly, D. R., 2007, Grit: Perseverance and passion for long-term goals. *Journal of personality and social psychology*, 92(6), 1087-1101.

Duckworth A., & Groos, J. J., 2014, Self-Control and Grit: Related but Separable

performance, but the data does not so strongly support this predictive ability.

Conclusion

The present study allows Arabic-speaking sports science researchers to have, with confidence, a questionnaire that allows analyzing the perseverance and passion of individuals in achieving their objectives and promoting research in this area. For coaches, instructors and technicians, an instrument is offered, simple and easy to apply, with all the necessary and demandable measurement qualities, which can provide them with very valuable information about the persevering or gritty personality of their trainees.

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