



Translation and Validation of the 12-Item Grit Scale

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Abstract

Background: The main goal of this research was to translate and adapt the 12-item Grit Scale into the Urdu language. This self-report measure focuses on an individual's determination to achieve long-term goals, even in challenging circumstances. The study also aimed to address and reconcile cross-cultural factors during the translation and adaptation process. **Method:** The research study employed a survey research design as its foundation. The researchers employed a purposive sampling technique to gather data from 500 university students within the age range of 18 years to 30 years to confirm and validate the factors of the translated version of the scale. The original Grit Scale consisted of 12 questions, which measured two aspects of grit: the constancy of interest and the persistence of effort. During the translation process, two bilingual researchers used the committee approach to ensure precise and linguistically identical translations. All the required analyses were conducted using SPSS (Version 26) and AMOS (Version 10). **Main Findings:** The study revealed noteworthy positive correlations (ranging from .80 to .87) between the Grit scores obtained in Urdu and those obtained in the English version. The scale demonstrated satisfactory alpha reliability, with a coefficient of 0.78. The final twelve items of the Urdu version of the scale were validated through Confirmatory Factor Analysis. **Conclusion:** The cross-cultural utility of the Pakistani adaptation of the 12-item Grit scale has been substantiated through an examination of its psychometric properties in a sample of university students. The findings validate the cross-cultural efficacy of the Urdu version of the 12-item Grit scale, aligning with the broader aim of enhancing the cross-cultural appropriateness of psychological assessments.

Key Words: Grit, psychological assessment, psychometric properties, translation & Validation



Introduction

Grit is a positive non-cognitive trait (Tugabirwe & Rukundo, 2023; Jehanghir & Akbar, 2022; Surahman & Iswinarti, 2021) that describes an individual's tenacity, enthusiasm, and resilience in the face of adversity (Duckworth et al., 2007). This attribute demonstrates a steadfast dedication to accomplishing long-term objectives and retaining concentrated resolve throughout time (Clark & Malecki, 2019; Morton & Paul, 2019; Berk, 2018). It demonstrates an individual's capacity to sustain effort and interest over extended periods (Morel et al., 2021). It is worth noting that grit remains unchanged by external factors like the difficulty of a task, achieving success, or immediate rewards (Duckworth et al., 2007). Grit is a hierarchical dispositional characteristic (Singh & Chukkali, 2021), and is made up of two key components: persistence of effort and constancy of interest (Duckworth et al., 2007). The former requires persevering in the face of adversity to achieve difficult goals, while the latter emphasizes a prolonged and passionate concentration on goals throughout time (Clark & Malecki, 2019).

Psychologists emphasize the need for persistence, or "grit," in attaining tough, long-term objectives (Biggs et al., 2023). Grit is separated from conventional ideas like as willpower and continence by a distinct epistemic component (Datu, 2021). Quitting is often motivated by a lack of trust in the ability of continued effort to result in success. Successful displays of grit often include "epistemic resilience" when confronted with failures that seem successful is unattainable (Datu et al., 2017; Morton & Paul, 2019). It is argued that resilient reasoning may be epistemically reasonable to some extent, depending on the severity of material shortage or oppression in the agent's situation (Morton & Paul, 2019). The unique quality of grit sets it apart, showcasing its resilience in the face of external challenges (Cheng et al., 2023; Boyle, 2021).

Grit is a complex concept that includes the qualities of determination and steadfastness in pursuing goals (Fernández-Martín et al., 2020). Duckworth and Quinn, (2009) found a strong connection between these two aspects of grit, although the effects may differ. For instance, the degree to which one's interests remain constant is closely linked to changes in professional paths, but the level of persistence in one's efforts might serve as a predictor of students' grade point averages (Duckworth et al., 2009), sense of belonging, academic adjustment (Bowman et al., 2015), and emotional and behavioral engagement of students (Datu et al., 2016). These investigations highlight the importance of perseverance by showcasing the strong connections between different aspects of perseverance and indicators of achievement (Beri & Sharma, 2019).

According to Carl Rogers' Organismic Valuing Theory of Growth, a person becomes fully functioning by combining goal orientation, emotional intelligence, and interpersonal skills (Vainio & Daukantaitė, 2016). This means that growing self-awareness in the pursuit of objectives is consistent with the idea of grit (Kannangara et al., 2018). The natural inclination of humans towards personal growth suggests that achieving goals that align with one's values can greatly improve one's overall well-being and happiness. This reinforces the idea that determination demonstrated through persistence and passion, is crucial for personal growth and fulfillment (Ain et al., 2021). Individuals characterized by their elevated levels of perseverance tend to devote significant exertion, sustaining this dedication for prolonged periods (Kosterlitz, 2015). Furthermore, they exhibit a heightened degree of involvement, a heightened concentration, and an unshakeable will to persist, exhibiting resilience in the face of obstacles or difficulties. Their unwavering dedication



and persistent endeavor lead to an exceptional aptitude for navigating and surmounting hurdles, showcasing a deep capacity for pursuing long-term goals. (Bazelais et al., 2016).

Empirical data emphasizes the importance of grit in predicting lifetime accomplishment as studies have found positive associations between grit and educational attainment, college retention, academic performance, and job success (Schimschal et al., 2021). Having a strong sense of determination is closely tied to enhancing personal fulfillment and serves as a reliable predictor of enduring accomplishments in various aspects of life (Kumari et al., 2022). Duckworth et al. (2007) suggest that using a combined score of both grit subscales is a more powerful measure, as it has stronger predictive capabilities compared to evaluating individual factors separately. This recommendation highlights the importance of combining persistent effort and unwavering interests to truly embody grit and accurately predict achievement and engagement outcomes.

The Grit Scale, created by Angela Duckworth and Christopher Peterson, is a popular instrument used to evaluate an individual's tenacity and enthusiasm in the pursuit of long-term objectives. Initially comprising 12 questions, this psychometric tool has achieved extensive acknowledgment and utilization in several research and therapeutic environments. Scholars have recognized the significance of cross-cultural research and the need for dependable tools in various language and cultural settings. As a result, they have taken on the task of translating and verifying the 12-item Grit Scale. The translation and validation procedure guarantees the suitability and dependability of the instrument in different cultural and linguistic contexts, enabling a more thorough comprehension of grit across worldwide populations.

The objective of this research is to enhance the existing literature by conducting a thorough translation and validation of the 12-item Grit Scale in the Urdu language. The process of adapting the scale encompasses more than just translating it linguistically. It also entails assessing its psychometric qualities, including reliability and validity, about the unique cultural and linguistic intricacies of the Pakistani community. It is essential to comprehend the psychometric characteristics of the translated 12-item Grit Scale in Urdu to enable cross-cultural comparisons and enhance the usefulness of the instrument in various research and practical contexts.

Objectives

1. Translate the 12-item Grit Scale from English to Urdu.
2. Validate the final Urdu-translated version using Cronbach's alpha and Confirmatory Factor Analysis (CFA).

Method

The 12-item Grit scale was chosen for the current study and its translation into Urdu with the added goal of assessing the scale's cross-linguistic validity. To evaluate the validity and reliability of the scales used in the present investigation, a pretesting procedure on a small sample of participants was used in an initial pilot test. The study's main phase then started, using Confirmatory Factor Analysis (CFA) to ensure the accuracy of the translated scale.

Forward Translation

The process of translation was commenced by obtaining consent from the original author of the 12-item Grit Scale, securing permission for its utilization in the study. A specialized group of experts was carefully selected, including two MPhil students from both the English and Urdu language departments, along with an additional MPhil student from the



psychology department. This expert panel was assembled to undertake the translation of the Grit Scale from its original English version to Urdu. Following the committee approach, a master panel comprising five Ph.D. holders in Clinical Psychology was established with the specific aim of finalizing the Urdu translation of the scale. The expert panel systematically reviewed provided insightful comments, and collaborated with committee members to make necessary revisions to the translated version of the scales. The initial Urdu version was meticulously crafted based on relevant source materials, and subsequently, a draft for the reverse translation process was thoughtfully developed.

Backward Translation

The reverse translation procedure involves the participation of two panels of specialists. The first panel of five multilingual Ph.D. holders consisted of two specialists from the Department of Psychology and the Department of English, together with one expert from the Urdu department. None of the panel members were acquainted with the original prototype of the scale, and their assignment was to convert the scale from its Urdu form back into English. The second panel, consisting of five Ph.D. professionals in Clinical Psychology, used a committee method to complete the English interpretation. The process included comparing the first rendition with the initial translated version, and the adjustments proposed by the panel were integrated. The Urdu version of the 12-item Grit Scale was modified based on the input received from the panel, using the most suitable interpretations.

Sample

A sample of 40 university students, aged 18 to 30 years, was chosen for the cross-language validation of the 12-item Grit Scale. The participants were evenly divided into two separate groups: Group 1, which received the original English version scales, and Group 2, which received the translated Urdu version scales. After a 15-day interval, the scales were redistributed, but with some modifications. Group 1 was partitioned into two subgroups, labeled 1a and 1b, while Group 2 was split into two subgroups, labeled 2a and 2b. Subgroups 1a and 2a underwent the English version, whereas subgroups 1b and 2b received the Urdu version. The measure was assessed across both Urdu and English languages using statistical analysis, namely Pearson correlation.

To validate the translated scale, Confirmatory Factor Analysis (CFA) was conducted on a final sample of 500 university students from different private and public institutions in Lahore. The sample size was considered adequate and representative, as determined by Kline's (2011) data-gathering approach, which used a purposive sampling technique. Model fit indicators were used in the confirmatory factor analysis (CFA) to assess the validity of the model. Additionally, a path model was constructed, where each item accounted for certain levels of variation and provided estimates of impact sizes. The data analysis was performed using SPSS (Version-26) and AMOS (Version-10).

Instrument

The measurement of grit was conducted using a 12-item scale devised by Duckworth, Peterson, Matthews, and Kelly in 2007. The participants provided ratings on the 12 items using a 5-point Likert scale, with 1 indicating "Not like me at all" and 5 indicating "Very much like me". The items were created to evaluate two separate factors: "Consistency of Interests" and "Perseverance of Effort", each consisting of six items. The purpose of this classification of elements into two variables was to accurately represent the subtle aspects



of grit, differentiating between the tenacity of interests and the continuous exertion towards achieving long-term objectives.

Procedure

The data for this study were collected through purposive sampling from a cohort of regular university students. The participants were selected from a diverse range of private and public universities in Lahore. Participants were provided with a comprehensive explanation of the study's objective before their voluntary participation. Confidentiality was guaranteed, and all people provided written consent. Subsequently, the participants were provided with questionnaires and actively urged to carefully peruse and fully grasp the regulations before accurately submitting their responses. After collecting the data, the dataset underwent a comprehensive cleaning process before being examined using statistical analysis.

Results

Table 1: *Cross-Language Validation and Test-Retest Reliability of the 12-item Grit scale (N = 40)*

Groups	N	1 st Administration	2 nd Administration	r
I	10	Urdu	English	.80*
II	10	Urdu	Urdu	.84*
III	10	English	Urdu	.83*
IV	10	English	English	.86*

* $p < .01$

The above table shows the correlations between results obtained in the first and subsequent administrations of a test under different linguistic settings for four groups of participants. The results show the correlation between the 12-item Grit scale in the English version was significantly positively correlated ($p < .001$). The correlation value ranges from 0.84 to 0.86. The high correlation coefficients show a consistent performance across the many language changes in the test sessions.

Table 2: *Descriptive Statistics, Reliability, and Estimates of the 12-item Grit Scale (N = 500)*

Items	Estimates	SE	CR	p	Label	M	SD	Range	α
Grit 5	.86	.01	37.94	***	par_1	5.40	2.04	1-5	.78
Grit 12	.84	.04	35.11	***	par_2	2.80	1.34	1-5	
Grit 1	.55	.08	15.01	***	par_3	2.72	1.01	1-5	
Grit 4	.43	.02	10.75	***	par_4	3.09	1.68	1-5	
Grit 8	.39	.02	9.62	***	par_5	3.60	1.97	1-5	
Grit 2	.41	.02	10.16	***	par_6	5.75	1.51	1-5	
Grit 7	.40	.02	9.79	***	par_7	5.57	1.85	1-5	
Grit 10	.52	.01	13.62	***	par_8	2.92	2.08	1-5	
Grit 3	.43	.01	10.68	***	par_9	2.60	1.69	1-5	
Grit 6	.53	.02	13.99	***	par_10	2.71	1.08	1-5	
Grit 11	.49	.01	12.83	***	par_11	2.85	1.10	1-5	
Grit 9	.68	.07	20.43	***	par_12	2.04	.81	1-5	

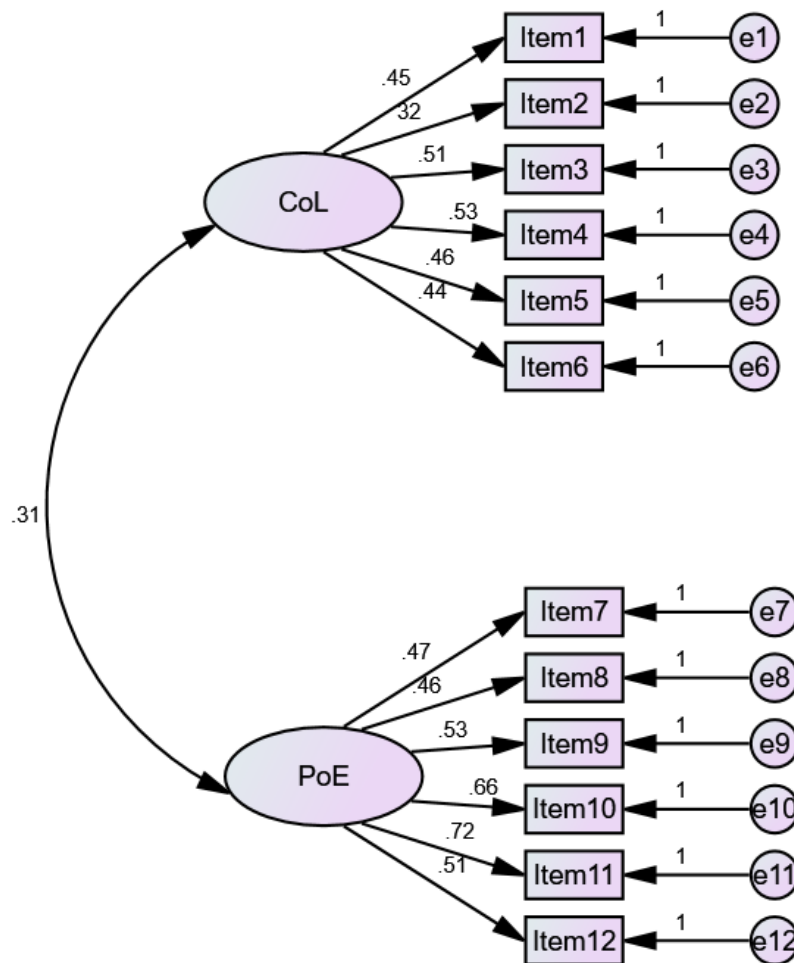


Note. SE = Standard Error, CR = Critical Ratio, p = Significant Level, M = Mean, SD = Standard Deviation, α = Alpha Reliability

*** $p < .001$

The table shows estimates and supporting information for each item on the translated version of the 12-item Grit scale in confirmatory factor analysis. The factor loadings indicate how much each item adds to the underlying construct of Grit. The statistical significance, mean, standard deviation, and range give useful information on the characteristics and efficacy of each item on the scale. The regression weights of all items were higher (i.e., $> .39$) and therefore are satisfactory items loading. The scale was also internally consistent with a satisfactory alpha reliability value (i.e., $> .70$).

Figure 1: Path Diagram of Confirmatory Factor Analysis



Path diagram of Confirmatory Factor Analysis (CFA) indicated that two factors were exhibited after the examination by using CFA analysis. The first factor, CoL contains six items with regression weights ranging from .32 to .53. The second factor, PoE also contains six items with regression weights ranging from .46 to .72. The correlation value between CoE and PoE was .31. All regression weights and correlation values were satisfactory.

Table 3: Construct Validity of the GRIT Scale

Items	r (GRIT Total Score)
1	.43**
2	.41**



3	.52**
4	.32**
5	.45**
6	.61**
7	.46**
8	.38**
9	.44**
10	.50**
11	.48**
12	.35**

** $p < .01$

The above table shows the construct validity of the GRIT Scale. Results show that all items were significantly correlated with the total score GRIT scale (range: 0.32 to .61; $p < .01$) and exhibited satisfactory construct validity for all items of the scale.

Table 4: Convergent, Divergent, and Discriminant Validity of the GRIT Scale

Scale/Subscales	r (GRIT Total Score)	CoE	PoE
Social Support	.33**	.40**	.36**
Friends Support	.28**	.25**	.27**
Family Support	.25**	.28**	.30**
Significant Others Support	.32**	.35**	.42**
Depression	-.45**	-.53**	-.61**
Academic Performance	.11	.09	.12

** $p < .01$

The above table shows the convergent, divergent, and discriminant validity of the GRIT Scale. Results show that social support and its subscales including friends support, family support, and significant others support were significantly positively correlated with the total score of the GRIT scale (range: 0.25 to .33; $p < .01$) and exhibited satisfactory convergent validity of the GRIT scale. The depression subscale of the Depression Anxiety Stress Scale was significantly negatively correlated with the total score of the GRIT scale (-.45; $p < .01$) and exhibited satisfactory divergent validity of the GRIT scale. Academic performance calculated by CGPA was not significantly correlated with the total score of the GRIT scale (-.11; $p > .05$) and exhibited discriminant validity of the GRIT scale with CGPA. The results were consistent with the meta-analytic findings of the study by Crede et al. (2016).

Discussion

The research findings provide an extensive understanding of the psychometric properties and consistency of the 12-item Grit scale in several language versions. The scale's robust and trustworthy performance is reinforced by the significant and consistently positive correlation coefficients reported across multiple language versions, which further supports its usefulness in varied cultural and linguistic situations. The consistent assessment of grit highlights the Grit scale's ability to precisely capture the concept of grit, making it a flexible instrument for cross-cultural study and practical use.

The results of the Confirmatory Factor Analysis (CFA) indicate a two-factor structure, referred to as "CoI" and "PoE," with regression weights and an inter-factor correlation that are adequate. These findings are consistent with prior research that used the Grit scale (Duckworth et al., 2007). The results confirm that the fundamental



components of Consistency of Interests and Perseverance of Effort in the Grit scale are persistent and ordered. This suggests that the Grit scale remains structurally intact across multiple language versions.

The scale's internal consistency, shown by Cronbach's α above .70, reinforces its reliability in measuring the intended grit construct. The internal consistency coefficient is a metric that indicates the degree to which the items inside a scale effectively measure the same underlying concept. A Cronbach's α value over .70 is often regarded as satisfactory, indicating that the items on the Grit scale demonstrate internal consistency and together contribute to the assessment of grit. The results of this study have important significance for both academics and practitioners, highlighting the Grit scale's dependability and validity in measuring an individual's determination and enthusiasm for achieving long-term objectives in different cultural and language settings.

Consequently, the scale may be reliably used in cross-cultural research, enabling significant comparisons and providing insights into the universality of grit as a psychological concept. The study's findings emphasize the robustness and dependability of the Grit scale, as seen by the substantial regression weights ($> .39$) for all measures. The weights confirm the significant influence of each item on the underlying latent characteristics of grit. The results suggest that each item in the Grit scale is a reliable and strong indicator of the entire concept of grit, hence enhancing the scale's credibility.

The positive associations shown between the Grit scale and various forms of social support, including assistance from friends, family, and romantic partners, provide insight into the interpersonal aspects of grit. Individuals who demonstrate higher levels of perseverance and passion also report experiencing larger amounts of perceived social support. This aligns with the notion that individuals who possess grit, characterized by perseverance and a fervent dedication to long-term goals, may depend on supportive social networks to surmount challenges and sustain their endeavors (Duckworth et al., 2007). This finding emphasizes the correlation between persistence and social support, suggesting that these ideas may mutually reinforce one another.

Moreover, the noteworthy inverse association between the Grit scale and the depression subscale of the Depression Anxiety Stress Scale is striking. Therefore, an elevation in grit is associated with a reduction in feelings of depression. Duckworth et al. (2007) proposed that grit involves both perseverance and passion. Individuals with high levels of grit are more likely to approach problems with an optimistic and resilient mindset. The negative correlation between depressive symptoms and grit provides evidence for the idea that grit may function as a protective factor against psychological distress.

The findings of the current investigation align well with the meta-analytic discoveries of Crede et al. (2016), which further enhance our understanding of the psychometric characteristics of the Grit scale. The meta-analysis conducted by Crede et al. synthesized a diverse array of study findings. The consistent results of their study offer strong evidence supporting the reliability, validity, and cross-cultural relevance of the Grit scale. A noteworthy finding in the current research is the lack of a substantial correlation between the Grit scale and academic achievement, as measured by Cumulative Grade Point Average (CGPA). This finding aligns with other research that suggests grit may not have a strong connection to traditional measures of academic achievement, despite its correlation with certain positive outcomes (Eskreis-Winkler et al., 2014; Duckworth et al., 2007).



The absence of a significant correlation enhances the discriminant validity of the Grit scale, indicating that grit assesses a separate and autonomous concept from academic ability. While grit is associated with positive outcomes in various domains, its limited correlation with academic achievement suggests that it assesses a distinct aspect of a person's character. Understanding that grit encompasses more than just academic success allows for a thorough exploration of the various factors that influence students' educational journeys. This observation highlights the importance of adopting a holistic approach to student development, recognizing that qualities like determination play a role in long-lasting accomplishments that extend beyond traditional academic standards. Also, these findings enhance the continuous verification and comprehension of the Grit scale, elucidating its strong psychometric characteristics and its usefulness in many cultural and language contexts.

Conclusion

This research aligns with the broader goal of enhancing the cross-cultural applicability of psychological assessments, allowing for a more nuanced understanding of grit as a universal construct. The findings from this study hold implications for researchers, practitioners, and policymakers interested in measuring and fostering grit across diverse global contexts.

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