



# Test–Retest Reliability of the Persian Version of the Self-Determination Student Scale in Adolescents with Autism Spectrum Disorder

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## Abstract

**Background:** Adolescents with Autism Spectrum Disorder (ASD) may experience difficulties in social participation, executive functioning, independence, and transition to adulthood. Self-determination is an important construct for supporting autonomy and goal-directed behavior; however, the test–retest reliability of the Persian Self-Determination Student Scale (SDSS) has not been examined in adolescents with ASD.

**Methods:** This methodological reliability study included 19 Persian-speaking adolescents aged 13–18 years with Level 1 ASD recruited by convenience sampling from three rehabilitation and occupational therapy centers in Tehran. Participants completed the revised 88-item Persian SDSS twice with a 14-day interval. Test–retest reliability was assessed using single-measures Intraclass Correlation Coefficient (ICC) based on a two-way mixed-effects absolute-agreement model.

**Results:** All participants completed both administrations, and no missing responses were recorded. Scores ranged from 37 to 126 at the first administration and from 38 to 124 at retest. Mean SDSS scores were  $101.26 \pm 23.00$  and  $100.84 \pm 22.87$ , respectively. The single-measures ICC was 0.998, with a 95% confidence interval of 0.996–1.000 ( $p < 0.001$ ).

**Conclusion:** The revised Persian SDSS showed preliminary evidence of excellent test–retest reliability over a 14-day interval in this small sample of Persian-speaking adolescents with Level 1 ASD. Further studies with larger and more diverse samples are needed to examine additional psychometric properties.

**Keywords:** Adolescent, Autism spectrum disorder, Occupational therapy, Psychometrics, Personal autonomy

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## Introduction

Adolescents with Autism Spectrum Disorder (ASD) experience difficulties such as limited social participation, lack of belonging, reduced quality of life, school failure, challenges transitioning to adulthood and independence, executive function difficulties, and problems entering the workforce (1-8).

Given these challenges, self-determination is an important developmental construct in this population. Self-determination is a combination of skills, knowledge, and beliefs that enable individuals to engage in goal-directed and self-regulated behavior. Understanding one's strengths and limitations, along with believing in oneself as capable and effective, is essential for self-determination. When individuals act according to these skills and attitudes, they gain greater control over their lives and are more likely to become successful adults in society (9).

Reliable assessment of self-determination is necessary for identifying strengths and needs, monitoring progress, and planning educational or therapeutic interventions. The Self-Determination Student Scale (SDSS), developed as part of the Self-Determination Assessment Battery, assesses cognitive and emotional aspects of self-determination (10).

Since its development, psychometric properties of the SDSS have been assessed in different cultures and populations. The SDSS has since been translated into Slovenian, Arabic, and Persian and the reported Cronbach's alphas were acceptable (0.90, 0.95, and 0.79, respectively) (11-13). However, the test-retest reliability of the Persian SDSS has not been examined in adolescents with ASD. This gap is important because adolescents with ASD may differ in self-reflection, item interpretation, and response consistency, which can influence the stability of self-report measures. Therefore, the present study aimed to examine the test-retest reliability of the Persian version of the SDSS in Persian-speaking adolescents with Level 1 ASD.

## Materials and Methods

### Study design

This methodological study evaluated the test-retest reliability of the Persian SDSS. The scale was administered to the same participants on two

occasions, 14 days apart, to assess the stability of scores over time.

### Participants and setting

Nineteen Persian-speaking adolescents aged 13–18 years with Level 1 ASD were recruited by convenience sampling from three rehabilitation and occupational therapy centers in Tehran. Therapists at each center identified adolescents who appeared to meet the eligibility criteria and informed their parents about the study. Interested adolescents and parents received information about the study purpose, voluntary participation, confidentiality, and the two assessment sessions. Written informed consent was obtained from both adolescents and their parents before data collection. Eligibility criteria included age between 13 and 18 years, documented diagnosis of Level 1 ASD, and ability to complete the Persian SDSS with clarification if needed. Level 1 ASD was determined based on documented clinical diagnosis by a child psychiatrist and available Gilliam Autism Rating Scale–Third Edition (GARS-3) assessment records. The research team did not independently reclassify ASD severity. Adolescents with documented comorbid psychiatric diagnoses or major medication changes during the test-retest interval were excluded. The absence of comorbid psychiatric diagnoses was determined from documented medical history available at the participating centers and parent report during recruitment. No standardized diagnostic interview was conducted by the research team to independently assess comorbidities. No formal priori sample-size calculation was conducted. The sample size was determined by the number of eligible and consenting adolescents available across the participating centers during the data collection period. Therefore, the findings should be interpreted as preliminary.

### Instrument

The Self-Determination Student Scale (SDSS) is a self-report measure developed as part of the Self-Determination Assessment Battery to assess cognitive and emotional aspects of self-determination. In the present study, the revised Persian version of the SDSS was used, excluding items 1, 17, 28, and 87, as recommended in the Persian psychometric study.

Therefore, the administered version included 88 items. The SDSS contains two-option items: “That’s not me” and “That’s me.” According to the scoring key of the Self-Determination Assessment Battery, each item has a keyed response. If the participant selects the keyed response, the item receives the score assigned to that response: 1 point for “That’s not me” or 2 points for “That’s me.” If the participant does not select the keyed response, the item receives 0 points. Therefore, because keyed responses may receive either 1 or 2 points depending on the item, the total score is not limited to the number of items, and scores above 88 are possible. Higher total scores indicate higher self-determination.

### Procedure

The SDSS was administered twice with a 14-day interval. Both administrations were conducted in quiet and controlled rooms at the participating centers. Participants were allowed to ask for clarification when needed; however, clarification was limited to explaining item wording, and no answers were suggested by the researchers or parents. All 19 participants completed both administrations, and no participant dropped out between test and retest. Data completeness was checked before analysis. No missing item responses were found, and all 19 participants were included in the ICC analysis.

### Statistical analysis

Data were analyzed using SPSS version 26.0. Descriptive statistics, including mean, standard deviation, minimum, and maximum, were used to summarize SDSS scores across the two administrations. Test–retest reliability was evaluated using the Intraclass Correlation Coefficient (ICC),

because the SDSS produces quantitative total scores and the aim was to estimate agreement between two administrations of the same instrument. A two-way mixed-effects model with absolute agreement for single measures was used. Single-measures ICC was reported to reflect reliability at the individual participant level. ICC values above 0.90 were interpreted as excellent reliability (14).

### Ethical considerations

Ethical approval was obtained from the Ethics Committee of Iran University of Medical Sciences (IR.IUMS.REC.1401.478). Written informed consent was obtained from adolescents and their parents before participation. This study was a methodological reliability study and did not involve intervention allocation; therefore, clinical trial registration was not applicable.

### Results

Nineteen eligible adolescents were enrolled in the study. All participants completed both the first and second administrations of the SDSS; therefore, no attrition occurred between test and retest. No missing item responses were recorded, and all 19 participants were included in the final ICC analysis. Participant characteristics are presented in table 1. All participants were Persian-speaking adolescents with Level 1 ASD recruited from three rehabilitation and occupational therapy centers in Tehran.

Descriptive statistics for SDSS scores across the two administrations are shown in table 2. The first administration produced scores ranging from 37 to 126, while the second administration produced scores ranging from 38 to 124. The mean total scores were very similar across the two administrations, indicating

**Table 1.** Participants characteristics

| Variable                                      | Participants, n=19 |
|-----------------------------------------------|--------------------|
| Age (yr), mean±SD                             | 15.47±1.78         |
| Age range (yr)                                | 13-18              |
| Sex                                           | Male: 19(100%)     |
| Autism Spectrum Disorder (ASD) Severity Level | Level 1: 19(100%)  |
| Completed test and retest                     | 19(100%)           |

**Table 2.** Descriptive statistics of self-determination scores across two measurement occasions

| Variable                        | N  | Minimum | Maximum | Mean   | Standard deviation |
|---------------------------------|----|---------|---------|--------|--------------------|
| First self-determination score  | 19 | 37      | 126     | 101.26 | 23.00              |
| Second self-determination score | 19 | 38      | 124     | 100.84 | 22.87              |

**Table 3.** Intraclass correlation coefficient results for test-retest reliability

| Index           | ICC   | 95% CI lower | 95% CI upper | Fisher's F | DF <sup>1</sup> | DF <sup>2</sup> | p-value |
|-----------------|-------|--------------|--------------|------------|-----------------|-----------------|---------|
| Single measures | 0.998 | 0.996        | 1.000        | 1537.4     | 18              | 18              | <0.001  |

no major group-level shift between test and retest. However, individual-level stability was evaluated using ICC rather than descriptive statistics alone.

Before ICC calculation, the dataset was checked for missing responses, scoring inconsistencies, and data-entry errors. The mean difference between the second and first administrations was 0.42 points, showing minimal average change across the 14-day interval. As shown in table 3, the single-measures ICC was 0.998, with a 95% confidence interval of 0.996–1.000. This result indicates excellent test–retest reliability of the Persian SDSS in the present sample.

## Discussion

This study examined the test–retest reliability of the Persian version of the SDSS in Persian-speaking adolescents with Level 1 ASD. The findings showed excellent temporal stability over a 14-day interval, with a single-measures ICC of 0.998. This result suggests that, in the present sample, SDSS total scores remained highly consistent when the scale was administered twice under similar conditions.

The high ICC observed in this study should be interpreted carefully. The dataset was checked for missing responses, scoring inconsistencies, and data-entry errors before analysis. The very small mean difference between the first and second administrations suggests minimal average change across the test–retest interval. However, the exceptionally high ICC may also reflect the relatively wide between-participant variability compared with small within-participant changes. Therefore, this result should be viewed as preliminary evidence of temporal stability rather than proof of broad psychometric adequacy.

The findings are consistent with previous

psychometric work suggesting acceptable reliability of the SDSS in other populations and cultural adaptations(11,13,15-19). The Persian SDSS had previously been evaluated in adolescents with emotional–behavioral symptoms, but its test–retest reliability had not been examined in adolescents with ASD. The present study adds initial evidence for the stability of the revised Persian SDSS in this specific population. Reliable repeated assessment may be useful when researchers or clinicians need to monitor self-determination scores over time, but only within the limits of the evidence provided here.

Several limitations should be considered. First, the sample size was small, and participants were recruited by convenience sampling from three centers in Tehran, which limits generalizability. Second, only adolescents with Level 1 ASD were included; therefore, the findings may not apply to adolescents with Level 2 or Level 3 ASD. Third, comorbid psychiatric diagnoses were excluded based on documented medical history and parent report rather than standardized diagnostic interviews, so undetected anxiety, ADHD, depression, intellectual disability, language disorder, or learning disorder may have been present. Fourth, the SDSS is a self-report measure, and responses may have been influenced by self-reflection difficulties, item interpretation, recall, or response bias. Finally, this study examined only test–retest reliability. Other psychometric properties, including internal consistency, construct validity, concurrent validity, responsiveness, and measurement error, should be examined in future studies.

Beyond its psychometric significance, the reliability of the Persian SDSS has practical implications. Recent research emphasizes that assessing self-determination

provides a foundation for improving functional and developmental outcomes in autistic youth (20). Higher levels of self-determination have been associated with improved transition readiness, increased participation in community and school activities, and better quality of life (21,22). In this context, a reliable assessment tool enables clinicians and educators to identify strengths and needs more accurately and to design occupation-based and person-centered interventions that target meaningful life goals.

Overall, the findings provide preliminary evidence that the revised Persian SDSS has excellent test-retest reliability in a small sample of Persian-speaking adolescents with Level 1 ASD. Larger studies with more diverse samples are needed before broader clinical, educational, or research use can be recommended.

## Conclusion

This study provides preliminary evidence of excellent test-retest reliability of the revised Persian SDSS over a 14-day interval in a small sample of Persian-speaking

adolescents with Level 1 ASD. The findings support the temporal stability of SDSS scores in this specific sample, but they should not be generalized to all adolescents with ASD. Further studies with larger and more diverse samples, including adolescents with different ASD severity levels, are needed to examine additional psychometric properties such as internal consistency, construct validity, concurrent validity, responsiveness, and measurement error.

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## Conflict of Interest

There was no conflict of interest in this manuscript.

## References

1. Tomfohrde O, Hudock RL, Kremer KB, Fatiha N, Weiler L. Fostering social connectedness among adolescents and adults with autism: A qualitative analysis. *Psychology in the Schools* 2023 Jan;60(1):23-39.
2. Liu TL, Wang PW, Hsiao RC, Ni HC, Liang SH, Lin CF, et al. Multiple types of harassment victimization in adolescents with autism spectrum disorder: Related factors and effects on mental health problems. *J Formos Med Assoc* 2022 Nov;121(11):2161-2171.
3. Skaletski EC, Bradley L, Taylor D, Travers BG, Bishop L. Quality-of-Life Discrepancies Among Autistic Adolescents and Adults: A Rapid Review. *Am J Occup Ther*. 2021 May 1;75(3):7503180090p1-<https://pubmed.ncbi.nlm.nih.gov/34781339/>
4. Askari S, Anaby D, Bergthorson M, Majnemer A, Elsabbagh M, Zwaigenbaum L. Participation of children and youth with autism spectrum disorder: A scoping review. *Review Journal of Autism and Developmental Disorders* 2015 Mar;2(1):103-14.
5. Crane L, Davies J, Fritz A, O'brien S, Worsley A, Remington A. Autistic young people's experiences of transitioning to adulthood following the Children and Families Act 2014. *British Educational Research Journal* 2022 Feb;48(1):22-48.
6. Roux AM, Chvasta K, McLean KJ, Carey M, Perez Liz G, Tomczuk L, Lopez K, Assing-Murray E, Shattuck PT, Shea LL. Challenges and Opportunities in Transitioning Autistic Individuals Into Adulthood. *Pediatrics* 2024 Nov 1;154(5):e2024067195.
7. Ferrazzi G, Marchi M, Giuberti V, Politi V, Pingani L, Ferrari S, et al. Life project: a scoping review of assessment tools for persons with autism spectrum disorder. *Ann Ist Super Sanita* 2025 Jan-Mar;61(1):30-41.
8. Meltzer L, editor. Executive function in education: From theory to practice. Guilford Publications; 2018 Feb 19.

9. Field S, Martin J, Miller R, Ward M, Wehmeyer M. A Practical Guide for Teaching Self-Determination. Council for Exceptional Children, CEC Publications, 1920 Association Dr., Dept. K0032, Reston, VA 20191-1589 (Stock# P5231, \$39.95, nonmembers; \$27.50 CEC members); 1998.
10. Hoffman A, Field S, Sawilowsky S. Self-determination assessment battery. user's guide. Center for Self-Determination and Transition: Promoting Resiliency and Well-being Throughout the Lifespan College of Education, Wayne State University [Internet]. 2004.
11. Licardo M, Krajnc MS. Structural differences in the self-determination of upper secondary students with and without disabilities in vocational education. *Revija za elementarno izobraževanje* 2016 Jun 1;9(3):35-52.
12. Alamri MA. Reliability And Validity Of An Arabic Version Of The Self-Determination Assessment – Internet (sda-I): Wayne State University.; 2017.
13. Abbasi M, Shehni Yailagh M. The effect of teaching self-determination skills on optimistic explanatory style and academic identity of primary male students with learning disabilities. *Iranian Journal of Psychiatric Nursing* 2017 Dec 10;5(5):1-8.
14. Vogt WP. Dictionary of Statistics & Methodology: A Nontechnical Guide for the Social Sciences: Sage Publications; 2005.
15. Sarver MD. A study of the relationship between personal and environmental factors bearing on self-determination and the academic success of university students with learning disabilities: University of Florida; 2000.
16. Holt K. Reliability and validity of the Self-determination student scale with an adjudicated incarcerated delinquent population[PhD. dissertation]. Michigan: Wayne State University; 2006.
17. Humphrey N, Symes W. Perceptions of social support and experience of bullying among pupils with autistic spectrum disorders in mainstream secondary schools. *European Journal of Special Needs Education* 2010 Feb 1;25(1):77-91.
18. Hojati Abed E, Shafaroudi N, Akbarfahimi M, Zareiyan A, Parand A, Karamali Esmaili S. [Persian Translation and Psychometric Properties Assessment of Self-Determination Student Scale for Adolescents]. *Arch Rehabil* 2020;20(4):350-9. Persian.
19. Serafica J, Muria N, DelosAngeles R, Jaravata VJ, Silva VJ. Self-Determination and Academic Persistence among Alternative Learning System Students: Implications for Program Enrichment. *Psychology and Education: A Multidisciplinary Journal* 2024;20(10):1-.
20. Chou YC, Wehmeyer ML, Shogren KA, Palmer SB. Autonomy and self-determination for students with autism spectrum disorder: An international review of interventions and outcomes. *J Autism Dev Disord* 2017;47(12):3860–73.
21. Carter EW, Lane KL, Pierson MR, Stang KK. Promoting self-determination for transition-age youth: Views of high school general and special educators. *Exceptional Children* 2008 Oct;75(1):55-70.
22. Shogren KA, Wehmeyer ML, Palmer SB, Rifenbark GG, Little TD. Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education* 2015 Feb;48(4):256-67.