Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en

Validation of Reynolds Intellectual Assessment Scales Second Edition in Normal and Gifted Children in Tehran

Behnoush Zeinalizadeh,[1] Gholamali Afrooz,[*2] Masoud Gholamali Lavasani[3]

Abstract

Introduction: Given that the second version of the Reynolds Cognitive Assessment Scales is an advantageous tool in terms of comprehensive assessment of cognitive dimensions, duration of performance, independence from visual-motor and reading speed, and easy performance conditions, the aim of this study was to validate the second version of the Reynolds Cognitive Assessment Scales in children in Tehran.

Research Method: This descriptive-correlational study involved a sample of 82 children aged 3 to 6 years from Tehran, selected using a convenience sampling method. The second version of the Reynolds Intellectual Assessment Scales was translated, adapted, and administered to the sample. The Stanford-Binet Intelligence Test was also concurrently administered to the sample. Following the administration, 30 participants who scored significantly above the mean on the Stanford-Binet were selected as a gifted group. Then the data were analyzed using Pearson correlation and independent t test.

Findings: Convergent validity was examined using Pearson's correlation coefficient, which revealed a high correlation between the two scales. To assess diagnostic validity, the mean scores of the normal and gifted groups were compared using an independent samples t-test. The results indicated significant differences between the normal and gifted groups on all subscales ('Guess what', 'Verbal Reasoning', 'Odd-item out', 'What is Missing', 'Verbal Memory' and 'Nonverbal Memory) except for Speeded Processing Index subscales ('Speeded Naming Task' and 'Speeded Picture Search').

Conclusion: The findings of this study suggest that this instrument is a suitable tool for assessing various dimensions of cognitive abilities.

Keywords: Intellectual Abilities, Reynolds Intellectual Assessment Scales, Validation

Received: 19/ August/ 2024 **Accepted: 10/ September/ 2024**

Citation: Zeinalizadeh B, Afrooz GH, Gholamali Lavasani M. Validation of Reynolds Intellectual Assessment Scales Second Edition in Normal and Gifted Children in Tehran, Family and health, 2024; 13(A): 148-162

[1]- Ph.D. Candidate in Psychology and Education of Exceptional Children, Science and Research Branch, Islamic Azad University, Tehran, Iran, b.zeinalizade@gmail.com

[2] - **(Corresponding author)**, Professor, Department of Psychology, University of Tehran, Tehran, Iran, Email: afrooz@ut.ac.ir Tel: (+98) 2188436666

[3] - Associate Professor, Department of Psychology, University of Tehran, Tehran, Iran. afrooz@ut.ac.ir

Introduction:

It is very important to measure the cognitive dimensions of children especially during the preschool period, because research has shown that the evaluation and development of cognitive and social skills in the preschool period predicts the success in school and the future life of children (1). Cognitive disorders can be diagnosed through cognitive assessment, and in the current era, which is associated with exceptional technological advances, early diagnosis of cognitive disorders has become a major issue in healthcare (2). On the other hand, cognitive assessment can help a lot in planning and understanding the learning needs of children (3) because if the cognitive abilities are not evaluated and the difference in the intelligence of people in a group under training increases uncontrollably, it will not be possible to identify their educational needs and provide comprehensive planning for their education (4). Recently, many tests have been developed to measure intelligence, but psychological diagnoses are made based on a small number of them (5) because most of the tools that have been developed for cognitive assessment are very costly and time-consuming (6).

The effectiveness of many intelligence and cognitive ability tests has been increasingly questioned. These doubts relate not only to the inherent characteristics of these tests but also to the process of translation, adaptation, and norm development in different cultures, and the impact of these cultural differences on test results (7). However, it is not clear exactly which test should be used to measure children's intelligence levels. The Intelligence tests are different in two ways: the underlying theory and how to administration them. Despite these differences, it is expected that the results of tests measuring the construct of intelligence should be comparable (8).

One of the new tools developed to measure intellectual ability is the Reynolds Intellectual Assessment Scales Second Edition., which can measure the concept of general intelligence as well as fluid and crystallized intelligence. Unlike other intelligence scales, such as Wechsler or Stanford Binet, the administration of the subscales of this tool requires much less time. While it also provides reliable and valid intelligence scores (6).

Because nowadays psychological evaluations have become increasingly multidimensional and measure different dimensions for differential diagnosis, spending less time on assessment allows professionals to use a variety of other assessment tools to obtain more diagnostic information. Because this information is important for integrating assessment and diagnosis, some experts use short forms or brief intelligence tests to minimize the evaluation time (9). This is while some short intelligence tests are even longer than the Reynolds scale and provide less valid scores. Although the administration and scoring of the Reynolds Intellectual Assessment Scales Second Edition is quick, it is very effective and gives a complete assessment of intelligence, and it is not a short and brief form of an intelligence scale. Therefore, it can be very useful for the diagnosis and assessment of intelligence (10).

It seems that this scale has the least dependence on motor coordination skills, while most of the intelligence tests that are used today are strongly dependent on visual-motor coordination and

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en
Family and health

movement speed (11). Another important character of this scale is the elimination of dependence on reading in the measurement of intelligence. Because if the questions are such that the person's performance is dependent on reading ability, the measurement of intelligence may be affected by the level of learning in reading. It is true that intelligence cannot be measured completely independently of previous knowledge. However, the combination of intelligence assessment with assignments that require reading makes these tests inappropriate for people with reading disabilities (12).

For these reasons, Reynolds Intellectual Assessment Scales Second Edition is useful for diagnostic purposes and educational replacement in preschool and school-aged children, and in addition in addition, it can diagnose certain disorders, including cognitive disorders, learning disorders, memory disorders, dementia, and damage to the central nervous system (10, 13-19).

In the development of Reynolds Intellectual Assessment Scales, years of research on psychological and assessment topics were conducted, and it is recognized worldwide as a practical tool for assessment. the alignment of this scale with other intelligence measurement tools has been studied and validated multiple times (6) For example in the study of Reynolds and Kamphaus (10) the convergent validity of the scale was estimated through the correlation coefficient between the Reynolds scale and the Wechsler 4 IQ scales, and the correlation coefficients for children in a sample group of 92 people, for adults in a sample group of 72 people and for preschool in a sample group of 28 people All were significant, which indicated the convergent validity of the scale. To examine the diagnostic validity, the second version of the Reynolds Intellectual Assessment Scales was administered to 12 clinical groups. In each of these groups, an initial diagnosis had already been made, and the test developers did not undertake any further diagnostic procedures, accepting the previous diagnoses. The groups studied included stroke, dementia, hearing impairment, intellectual disability, and giftedness. When comparing the three groups of stroke, dementia, and hearing impairment to the average population, the results showed that individuals in all three groups scored significantly lower than the population average on both the indexes and subscales of the second version of the Reynolds Intellectual Assessment Scales. When comparing individuals with intellectual disability and giftedness to normal individuals, the same result was obtained: on both the indexes and subscales, the scores of individuals with intellectual disability were significantly lower than the population average, and the scores of gifted individuals were significantly higher than the population average.

Hangmann, Lemola, and Grob (8) in their research conducted five intelligence scales: The Reynolds Intellectual Assessment Scales, the Intelligence and Development Scales, the Snijders-Oomen Nonverbal Intelligence Test, the Wechsler Intelligence Scale for Children – Fourth Edition, and the Culture Fair Intelligence Test Scale 2 on children. The scores of these scales showed a high correlation and the mean scores had little difference. Miles, Fulbrook, and Mainwaring-Mägi (20) in their evaluation rated this scale as good in terms of content validity and sufficient in terms of construct and criterion validity. Gliniak (21), in a study comparing the scores of the Reynolds Intellectual Assessment Scales with the fourth edition of the Wechsler Intelligence

Scales in referral samples, compared the scores of these two scales. The aim of this comparison was to see if these two scales measure the same abilities and if they can be used interchangeably. After examining the research results, he concluded that there was a significant correlation between the pairs of similar combinations. Correlations ranged from 0.60 (memory combinations) to 0.78 (IQ combinations). However, the correlation of memory indexes showed a significant difference in this index between the two scales, which probably indicates that they measure a different type of memory. The results of this study indicated that examiners can predict the examinee's performance on one of these tools based on the other tool. That is, these two scales measure similar abilities. Nelson and Canivez (22), in a clinical sample (175 individuals with a diagnosis of learning disability, 152 individuals with a diagnosis of ADHD, 65 individuals with comorbidity of these two disorders, 60 individuals with other diagnoses such as mood and anxiety disorders, and 33 individuals without a clinical diagnosis) examined the convergent validity by correlating this scale with other intelligence scales, including the Peabody Picture Vocabulary Test-Fourth Edition (PPVT-IV) and three subscales of the Woodcock-Johnson Tests of Cognitive Abilities-Third Edition (WJ-III COG). The results confirmed the convergent validity of the verbal IQ index but not the nonverbal IQ index.

Spoci (9) examined the convergent validity of the Reynolds Intellectual Assessment Scales Second Edition through correlation coefficients with the Second Edition of the Wechsler Abbreviated Scale of Intelligence. In his research, convergent validity was confirmed for both composite scores and verbal and nonverbal estimates. Farmer and Kim (23) reported similar validity results between the WISC-V and the Reynolds Intellectual Assessment Scales Second Edition. Gygi, Hagmann, Schweizer, and Grob (24) conducted a longitudinal study on the predictive validity of four intelligence tools regarding student progress. The four intelligence scales were: The Reynolds Intellectual Assessment Scales, the Intelligence and Development Scales, the Snijders-Oomen Nonverbal Intelligence Test, and the Wechsler Intelligence Scale for Children – Fourth Edition. In this study, the Cronbach's alpha coefficients obtained for the four scales indicated acceptable reliability. This study was conducted in two stages and using all four assessment tools, and after 3 years, students' academic progress scores were collected. The results showed that all four scales were predictors of students' GPA. Hashemi, Kamkari and Shokrzadeh (25) showed that the Reynolds Intellectual Assessment Scales Second Edition has good internal consistency and, due to its high criterion validity with the Stanford-Binet this scale can be used. Kiomarsy, Sharifidaramadi and Kamkari (18) showed that this tool, with eight subscales (4 main subscales and 4 non-main subscales) with five IQ indexes and eight standard scores, has the necessary validity and reliability and is a powerful and reliable tool for screening, identification, and research purposes.

Given the above, the Reynolds Intellectual Assessment Scales Second Edition is advantageous in terms of comprehensive assessment of intellectual dimensions, duration of administration, independence from visual-motor speed and reading, and easy administration conditions, and seems to be very useful and applicable for assessing the intellectual abilities of children. Therefore,

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en
Family and health

considering that the features of this scale have been rarely studied in Iran, the purpose of this study is to investigate the validity of the Reynolds Intellectual Assessment Scales Second Edition in Iranian culture.

Research Methods:

This study employed a descriptive-correlational design. The population of this study comprised all 3 to 6 year-old children in Tehran. A convenience sample of 82 typically developing children (43 boys and 39 girls) was selected from four kindergartens and preschools located in the north, south, east, and west regions of Tehran. The Reynolds Intellectual Assessment Scales Second Edition and the revised Tehran-Stanford-Binet Intelligence Test were administered to these 82 children. Inclusion criteria for this study were an age range of 3 to 6 years, the absence of physical and psychological problems, and parental consent. Exclusion criteria included child non-cooperation, parental dissatisfaction, or withdrawal. Of these children, 23 were 3 years old, 15 were 4 years old, 25 were 5 years old, and 19 were 6 years old. Additionally, a sample of 30 gifted children (11 boys and 19 girls) was selected through screening using the revised Tehran-Stanford-Binet Intelligence Test, and the Reynolds Intellectual Assessment Scales Second Edition were also administered to them. In the gifted group, 5 children were 3 years old, 6 were 4 years old, 9 were 5 years old, and 10 were 6 years old. Tools:

The Reynolds Intellectual Assessment Scales, Second Edition: developed by Reynolds and Kamphaus in 2015, is designed to measure five key intellectual abilities: general intelligence, verbal intelligence, nonverbal intelligence, composite memory, and processing speed. These five constructs are measured through eight subscales and two composite indexes. Two subscales, 'Guess what' (GWH) and 'Verbal Reasoning' (VRZ), contribute to the Nonverbal Intelligence Index (NIX). Similarly, 'Odd-item out' (OIO) and 'What is missing' (WHM) subscales measure Verbal Intelligence (VIX). The Composite Memory Index (CMX) is comprised of 'Verbal Memory' (VRM) and 'Nonverbal Memory' (NVM) subscales. The Speeded Processing Index (SPI) includes 'Speeded Naming Task' (SNT) and 'Speeded Picture Search' (SPS) subscales. In this scale, the two subscales contributing to the Verbal Intelligence Index (VIX) and the two subscales contributing to the Nonverbal Intelligence Index (NIX) are the primary components of the Composite Intelligence Index (CIX). The overall intelligence score is derived from the combination of these two indexes. In essence, the speed of processing and memory indexes are not factored into the overall intelligence score.

The theoretical foundation of this version is the Cattell-Horn-Carroll (CHC) theory, which posits a hierarchical structure of intelligence comprising three strata, and is designed for individuals aged 3 to 94. The administration time for the four subscales that measure general intelligence, when conducted by a trained examiner, is approximately 20 to 25 minutes. The composite memory index, which includes two supplementary memory subscales, takes about 10 to 15 minutes to administer, as does the speed processing index with its two subscales. Scoring is as follows: the 'Guess What' and 'Verbal Reasoning' subscales are scored dichotomously (0 or 1); the 'Odd-item

out', 'What is Missing', and 'Nonverbal Memory' subscales are scored on a three-point scale (0, 1, or 2); and the 'Verbal Memory' and 'Speeded Naming Task' subscales are scored based on the number of correct response.

Reynolds and Kamphaus (12) assessed the reliability and validity of this scale and its subscales. Cronbach's alpha coefficients were consistently above 0.80 across all age groups, indicating high internal consistency. Test-retest reliability coefficients, calculated over a 7 to 43-day interval, were also above 0.70 for both subscales and composite indexes. Convergent validity was established through correlations with the Wechsler scales, showing moderate to high correlations for most indexes across different age groups. These findings suggest that the Reynolds scales measures similar constructs as the Wechsler scales.

The Revised Tehran-Stanford-Binet Intelligence Scale: The 2009 revision of the Tehran-Stanford-Binet Intelligence Scale includes two main domains: Verbal and Nonverbal. Each domain further comprises five subtests: Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Processing, and Working Memory. Additionally, this instrument can provide eight IQ scores, including Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Processing, Working Memory, Verbal IQ, Nonverbal IQ, and Full Scale IQ.

The reliability of the Stanford-Binet Intelligence Scale, emphasizing internal consistency, ranges from 0.95 to 0.98 for the full-scale IQ, from 0.90 to 0.92 for each of the five factors, and from 0.84 to 0.89 for each of the ten subscales. Additionally, inter-rater reliability and test-retest reliability studies support the scale's reliability, as all values exceed 0.75. In other words, within the context of the Stanford-Binet scale's reliability, using the split-half method and the Spearman-Brown correction formula, the reliability coefficient for the full scale score is 0.98, nonverbal IQ is 0.95, verbal IQ is 0.96, and for the abridged test battery is 0.91. These findings consistently indicate the high reliability of this scale. Cronbach's alpha values above 0.90 indicate a desirable psychometric property of high internal consistency for this test.

The validity of the Stanford-Binet Intelligence Scale has been examined in three areas: content validity, criterion-related validity, and construct validity. Content validity was assessed through expert judgment, convergence of primary constructs, and empirical item analysis, with all evidence supporting the scale's content validity. Construct validity was investigated through confirmatory factor analysis in the verbal and nonverbal domains, with extensive studies and data fit confirmed using LISREL 8.50. The most important criterion for criterion-related validity was the Wechsler Intelligence Scale for Children, and the correlation between the two scales has been confirmed (26).

Findings:

To examine the validity of the Reynolds Intellectual Assessment Scales Second Edition, two types of validity were calculated: convergent and diagnostic validity. To obtain the convergent validity coefficients, the correlations between the subscales of the second edition of the Reynolds

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en

Intellectual Assessment Scales and the subtests of the latest version of the Tehran-Stanford-Binet Intelligence Test, as well as the overall score of this test, were calculated. The results are presented in Table 1.

Table 1. Results of Convergent Validity

Correlation coefficients between the Reynolds Intellectual Assessment Scales and the Tehran-Stanford-Binet Intelligence Test

subscales	Fluid reasoning	Knowledge	Quantitative reasoning	Visual-spatial processing	Working memory	Total
Guess What	0.306**	0.400**	0.366**	0.362**	0.404**	0.625**
Verbal reasoning	0.398**	0.401**	0.338**	0.338**	0.360**	0.602**
Odd-item out	0.293**	0.391**	0.300**	0.300**	0.420**	0.605**
What is Missing	0/261**	0.376**	0.336**	0.282**	0.310**	0.528**
Verbal memory	0.202	0.232*	0.325**	0.302**	0.526**	0.252**
Nonverbal memory	0.273*	0.296**	0.302**	0.390**	0.415**	0.591**
Speeded Naming Task	0.252*	0.220*	0.325**	0.529**	0.446**	0.608**
Speeded Picture Search	-0.257*	-0.206	-0.275*	-0.246*	-0.255*	-0.416**

As shown in the table, the correlations between the subscales of the two tests are mostly moderate and significant. The "Guess what" subscale has the highest correlations with "Knowledge" and "Working Memory" (0.400 and 0.404, respectively). "Verbal Reasoning" has the highest correlations with "Knowledge" and "Fluid Reasoning" (0.401 and 0.398, respectively). "Odd-item out "has the highest correlations with "Knowledge" and "Working Memory" (0.420 and 0.391, respectively)."What is missing" has the highest correlations with "Knowledge" and "Quantitative Reasoning" (0.526 and 0.415, respectively). "Verbal Memory" and "Nonverbal Memory" have the highest correlations with "Working Memory" (0.526 and 0.398, respectively). "Speeded Naming Task" has the highest correlation with "Visual-Spatial Processing" (0.529), and "Speeded Picture Search "has the highest correlation with "Quantitative Reasoning" (-0.275). The correlations of the total score of the Tehran-Stanford-Binet Intelligence Test with the subscales "Guess What", "Verbal Reasoning", "Odd-item out", " What is Missing ", "Verbal Memory", "Nonverbal Memory", " Speeded Naming Task" and "Speeded Picture Search" are 0.652, 0.605, 0.602, 0.528, 0.525, 0.591, 0.608, and -0.416, respectively, and are all significant at the $p < .01$ level, indicating the convergent validity of this scale.

To examine the diagnostic validity, an independent samples t-test was employed to compare the performance of the normal and the gifted group on each subtest. For this research, 30 individuals from the normal group were randomly selected and compared to the gifted individuals who had

previously been identified using the Stanford-Binet Intelligence Test. The results of the independent samples t-test are presented in the following tables.

Table 2. Comparison of Cognitive Abilities and Academic Achievement Between Normal and Gifted Students

	Normal		Gifted			
subscales	M	SD	M	SD	df	t
Guess What	16.43	9.94	25.63	7.24	58.00	4.09**
Verbal reasoning	8.30	4.30	14.63	3.52	58.00	3.70**
Odd-item out	40.33	23.49	60.46	18.38	58.00	6.22**
What is Missing	33.90	21.37	52.40	17.85	58.00	3.64**
Verbal memory	16.83	7.86	20.80	5.01	49.24	2.33*
Nonverbal memory	51.73	27.35	66.90	17.75	49.75	2.55*
Speeded Naming Task	68.00	32.53	80.60	19.46	47.40	1.82
Speeded Picture Search	137.66	89.45	119.37	36.66	39.97	-1.02

*p<۰/۰۵ **p<۰/۰۱

As seen in the table, the t-test was significant for all subscales except for the subscales of Speeded Processing Index, namely "'Speeded Naming Task" and "'Speeded Picture Search ". This indicates that the subscales "Guess what", "Verbal Reasoning", "Odd-item out ", "What is Missing", "Verbal Memory", and "Nonverbal Memory" were able to discriminate between the normal and gifted groups.

Discussion and conclusion:

The results of the convergent validity analysis indicated that the correlations between the subtests of the two scales were mostly moderate and significant. The "Guess what" subscale showed the highest correlations with "Knowledge" and "Working Memory". "Verbal Reasoning" had the highest correlations with "Knowledge" and "Fluid Reasoning". "Odd-item out "has the highest correlations with "Knowledge" and "Working Memory". "What is missing" has the highest correlations with "Knowledge" and "Quantitative Reasoning". "Verbal Memory" and "Nonverbal Memory" have the highest correlations with "Working Memory". "Speeded Naming Task" has the highest correlation with "Visual-Spatial Processing", and "Speeded Picture Search "has the highest correlation with "Quantitative Reasoning". The correlations of the total score of the Tehran-Stanford-Binet Intelligence Test with all the subscales were significant at the $p < .01$ level, indicating the convergent validity of the scale. The diagnostic validity analysis also revealed significant differences between the normal and gifted groups on all subtests except for the Speeded

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en
Family and health

Processing Index subscales: "'Speeded Naming Task" and "'Speeded Picture Search ". This indicates that the subscales "Guess what", "Verbal Reasoning", "Odd-item out ", "What is Missing", "Verbal Memory", and "Nonverbal Memory" were able to differentiate between the two groups.

These findings are consistent with the research of Reynolds and Kamphaus (10) who examined the convergent validity of the Reynolds scale by correlating it with the Wechsler scales in various groups. Their study found high and significant correlation coefficients, indicating the convergent validity of the scale. To examine the diagnostic validity, the second version of the Reynolds Intellectual Assessment Scales was used with 12 clinical groups, including stroke, dementia, hearing impairment, intellectual disability, and giftedness. The results showed that the mean scores of the clinical groups differed significantly from the mean score of the normal group, indicating the diagnostic validity of the scale. Hagmann, Lemola, and Grob (8) also conducted a study in which they administered five intelligence tests to children: The Reynolds Intellectual Assessment Scales, the Intelligence and Development Scales, the Snijders-Oomen Nonverbal Intelligence Test, the Wechsler Intelligence Scale for Children-Fourth Edition, and the Culture Fair Intelligence Test Scale 2. The scores from these scales showed high correlations and little mean difference, which is consistent with the findings of the present study.

Other research findings also align with the results of this study. For example, Miles, Fulbrook, and Mainwaring-Mägi (20) evaluated this scale and found it to have good content validity and adequate construct and criterion-related validity. Gliniak (21) compared the scores of the Reynolds Intellectual Assessment Scales with the Wechsler Intelligence Scale for Children-Fourth Edition and found significant correlations between similar subtests. The results of this study indicated that examiners could predict a test-taker's performance on one of these tools based on the other, suggesting that the two scales measure similar abilities. Nelson and Canivez (22), in a clinical sample, examined the convergent validity of the scale by correlating it with other intelligence scales, including the Peabody Picture Vocabulary Test-Fourth Edition (PPVT-IV) and three subtests of the Woodcock-Johnson Tests of Cognitive Abilities-Third Edition (WJ-IIICOG). The results confirmed the convergent validity of the verbal intelligence index but not the nonverbal intelligence index. The study by Hashemi, Kamkari, and Shokrzadeh (25) revealed that the second version of the Reynolds Intellectual Assessment Scales has good internal consistency and, due to its high criterion-related validity with the Stanford-Binet test, can be used as a reliable tool. Kiomarsy, Sharifdarami, and Kamkari (18) demonstrated that this instrument possesses the necessary validity and reliability, making it a powerful and reliable tool for screening, diagnosis, and research purposes.

In conclusion, most previous studies have reported high correlation coefficients between the Reynolds Cognitive Assessment Scales and other intelligence scales, suggesting that these scales measure a similar construct, commonly interpreted as general intelligence. Additionally, research has shown that this tool can differentiate between groups with varying intellectual abilities. Therefore, considering the distinctive characteristics of this tool, such as its brevity, usefulness,

and ease of administration, if it is standardized, it can be used as a suitable replacement for other cognitive assessment tools that are at least twice as long. This would allow for a nearly complete assessment of individuals' cognitive abilities in the shortest amount of time. Since the use of lengthy and costly tools can deprive many individuals and specific groups of children from access to these assessments, delayed diagnosis and interventions can have detrimental and irreversible effects on people's lives.

Research limitations: One limitation of this study is the restricted age range of the sample and the use of a convenience sample. Given the advantages of this scale compared to other intellectual scales, as previously discussed, it is recommended to conduct further research on this scale and examine its characteristics in other age groups. This would be a step towards the localization of this scale in Iran and its use as a reliable and practical tool for assessing individuals' intellectual abilities. Identifying cognitive processes can lead to a better understanding of mental disorders and provide a foundation for planning effective interventions. Furthermore, this tool enables counselors, psychologists, and educational experts to create more conducive environments for identifying and diagnosing children's difficulties.

Acknowledgments: This article is taken from the first author’s doctoral dissertation in Exceptional Children Education and Psychology at the University Tehran Science and Research, successfully defended on November 1, 2019. The authors would like to express their sincere gratitude to the families of the children who participated in this study, as well as to their esteemed the supervising professor, and the consulting professor.

Ethical considerations: This research strictly adhered to the ethical guidelines outlined in the Publication Manual of the American Psychological Association (APA) and the ethical codes of the Iranian Psychological Association. These guidelines include, but are not limited to, the principles of confidentiality, maintaining the privacy of participants' information, and obtaining written informed consent from all participants.

Contribution of creators: The first author is a student, the second author is the supervising professor, and the third author is the consulting professor.

Funds: This research was conducted as part of a doctoral dissertation without any financial support.

Conflict of interest :The authors declare no conflict of interest for this study.

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en
Family and health

Reference:

1- Jozsa K, Amukune S, Zentai G, Barrett KC. School Readiness Test and Intelligence in Preschool as Predictors of Middle School Success: Result of an Eight-Year Longitudinal Study. Journal of intelligence. 2022; 10(3): 66; https://doi.org/10.3390/jintelligence10030066 [Link]

2- Veneziani I, Marra A, Formica C, Girmaldi A, Marino S, Quartarone A, Maresca G. Applications of Artificial Intelligence in the Neuropsychological Assessment of Dementia: A Systematic Review. Journal of Personalized Medicine. 2024; 14(1): 113; https://doi.org/10.3390/jpm14010113[Link]

3- Hoogdalem, AV, BBosman AM. Intelligence tests and the individual: Unsolvable problems with validity and reliability. Sage Journal. 2023; 17(1): 231 doi.org/10.1177/20597991231213871 [Link]

4- Jin H, Pang Y, Du X, Shi L. Artificial Intelligence-Based Prediction of Individual Differences in Psychological Occupational Therapy Intervention Guided by the Realization of Occupational Values. Occup Ther Int. 2022 Jul 6. https://doi.org/10.1155/2022/2735824 [Link]

5- Vanessa Torres V, Grinsven V. The Response Process in Psychometric (Intelligence) Testing and Validity. Global Journal of Intellectual and Developmental Disabilities. 2023; 11(5): 55. DOI: 10.19080/GJIDD.2023.11.555825 [Link]

6- Cheng A, To J, Wahianuar NH, Chan YH, Mulay KV. Concurrent validity of intelligence assessments in children with developmental disabilities in an Asian setting: Comparison of the Kaufman brief intelligence test – Second edition with the Wechsler Intelligence Scales. Pediatrics & Neonatology. 2024; 65(4): 341-347. https://doi.org/10.1016/j.pedneo.2023.07.005 [Link]

7- Suen H., Greenapan S. Linguistic sensitivity does not require one to use grossly deficient norms: Why U. S. Norms should be used with the Mexican WAIS-III id capital cases, Psychology in Intellectual and Developmental Disabilities, Official Publication of Division 33, American Psychological Association Retrieved from, 2009 Jul;16(3):214-22. doi: 10.1080/09084280903098786. [Link]

8- Hagmann-von Arx P, Lemola S, Grob A. Does IQ= IQ? Comparability of intelligence test scores in typically developing children. Assessment. 2018 Sep; 25(6): 691-701. https://doi: 10.1177/1073191116662911 [Link].

9- Spoci MK. The Construct Validity of the Wechsler Abbreviated Scale of Intelligence, Second Edition (WASI-II) and the Reynolds Intellectual Assessment Scales, Second Edition (RIAS-2) [master s thesis]. Eastern Illinois University, 2023 [Link]

10- Reynolds CR, Kamphaus RW. Reynolds Intellectual Assessment Scales Second Edition: Professional manual.Lutz, FL: Par. 2015. https://www.parinc.com/Products/Pkey/365 https://eric.ed.gov/?id=EJ1139968 [Link]

11- Dombrowski SC, Watkins MW, Brogan MJ. An exploratory investigation of the factor structure of the Reynolds Intellectual Assessment Scales (RIAS). J Psycho Assessment. 2009 Dec; 27(6): 494-507. http://dx.doi.org/10.1177/0734282909333179 [Link]

12- Rasouli, S., Vahedi, SH., Gharadaghi, A Nemati, Sh. Developing and Validation of Intervention Program Based on Multiple Learning Systems for Students with Specific Learning with

Reading Disabilities: Meta-Synthesis Study. Quarterly Journal of Child Mental Health. 2022; 9(2): http://dx.doi.org/10.52547/jcmh.9.2.2[Link]

13- Tebyani Nian L, Kamkari K, Lavasani M. Psychometric Properties of the Reynolds Intellectual Assessment Scales (RIAS)-in students with Intellectual Developmental Disorder. Applied Psychological Research. 2018 Sep 23; 9(3): 161-79. https://doi.org/10.22059/japr.2018.69114 [Link]

14- Raines TC, Reynolds CR, Kamphaus RW. The Reynolds Intellectual Assessment Scales, Second Edition, and the Reynolds Intellectual Screening Test, Second Edition. https://psycnet.apa.org/record/2018-36604-018 [Link]

15- Ruchinskas, R., Goette, W. Reynolds Intellectual Screening Instrument 1st versus 2nd Edition in a Memory Disorder Sample. Archives of Clinical Neuropsychology. 2021 July; 36 (2021): 570–577. https://academic.oup.com/acn/article/36/4/570/5897451 [Link]

16- Miles S, Fulbrook P, Mainwaring-Mägi D. Evaluation of standardized instruments for use in universal screening of very early school-age children: suitability, technical adequacy, and usability. Journal of Psychoeducational Assessment. 2016 Mar; 36(2): 99-119. https://doi.org/10.1177/0734282916669246. [Link]

17- Reynolds CR, Kamphaus RW. Development and application of the Reynolds Intellectual Assessment Scales (RIAS). Practitioner's Guide to Assessing Intelligence and Achievement. Hoboken, NJ: John Wiley & Sons, Inc. 2009; Jul 15: 95-126. https://www.semanticscholar.org/paper/Development-and-Application-of-the-Reynolds-Scales-Hapter-Reynolds/2f2c190ed556cd1c7a5be3e6afcaedb0e6f3935c [Link]

18- Kioumarsi, F., Sharifidaramdi, P., Kamkari, K. Psychometric Properties of Second Edition of Reynolds Intelligence Measures in Students with learning disabilities. Journal of Learning Disabilities, 2019; 8(2): 76-98. https://jld.uma.ac.ir/article_758.html?lang=en [Link]

19- Beaujean AA, Firmin MW, Michonski JD, Berry T, Johnson C. A multitrait—Multimethod examination of the Reynolds Intellectual Assessment Scales in a college sample. Assessment. 2010 Sep; 17(3): 347-60. https://doi.org/10.1177/1073191109356865 [Link]

20- Miles S, Fulbrook P, Mainwaring-Mägi, D. Evaluation of Standardized Instruments for Use in Universa Screening of Very Early School-Age Children: Suitability, Technical Adequacy, and Usability, Journal of Psychoeducational Assessment. 2016; 36(2): 1-21, DOI: 10.1177/0734282916669246. [Link]

21- Gliniak, R. R. A comparison of scores on the RIAS and WISK-IV in a referred sample, A Thesis submitted to the Graduate College of Marshal University, 2014 https://mds.marshall.edu/etd/829/ [Link]

22- Nelson JM, Canivez GL. Examination of the structural, convergent, and incremental validity of the Reynolds Intellectual Assessment Scales (RIAS) with a clinical sample. Psycholo Assessment. 2012 Mar; 24(1): 129. https://psycnet.apa.org/record/2011-17261-001 [Link]

23- Farmer, R.L., Kim, S.Y. Difference score reliabilities within the RIAS-2 and WISC-V. Psychology in the school. 2020Mar.

Family and health Quarterly, vol14, Issue (A), Summer 2024, ISSN: 2322-3065
https://journal.astara.ir/article_718416.html?lang=en
Family and health

https://www.researchgate.net/publication/338557202_Difference_score_reliabilities_within_the_RIAS-2_and_WISC- [Link]

24- Gygi JT, Hagmann-von Arx P, Schweizer F, Grob A. The predictive validity of four intelligence tests for school grades: a small sample longitudinal study. Front Psychol. 2017 Mar 13; 8: 375. https://doi.org/10.3389/fpsyg.2017.00375 [Link]

25- Hashemi, S., Kamkari, K., Shokrzadeh, S. The Psychometric Properties of Reynolds Intellectual Assessment Scales, Second Edition in student's Sampad. Journal of Applied Psychological Research, 2018; 9(1): 137-148. https://doi.org/10.22059/japr.2018.67064 [Link]

26- Dacey CM, Nelson WM, Stoeckel J, Reliability, criterion-related validity and qualitative comments of the Fourth Edition of the Stanford–Binet Intelligence Scale with a young adult population with intellectual disability. Journal of Intellectual Disability Research. 2001; 43(3): 179-174. https://doi.org/10.1046/j.1365-2788.1999.00187.x[Link]