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The Psychometric Properties of the Wechsler-4 Standard for Deaf People with Mild Intellectual Disability

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Abstract

This study aimed to investigate the psychometric properties of the Wechsler-4 Intelligence Scale who are deaf with Mild Intellectual Disability. Descriptive survey method was used. The sample included (174) deaf students in Jordan, ranging in age from (6-16.11) years. The scale was also applied in sign language. Validity indicators were found which were Content Validity (80%), Construct Validity (1.939- 0.489), Concurrent Validity with Goodenough- Harris Drawing Test (0.688) and Achievement (0.887), and the correlation coefficients ranged between subtests and the total score of the scale Between (0.487 - 0.898). Also, the significance of Reliability scale was the Test Re-test method (0.866), the arbitrator's agreement (78.2%), and the half-way method for individual questions (0.76), the marital questions (0.75), and the correlation coefficient between odd and even paragraphs (0.868). The results showed that the level of total intelligence was (IQ = 62.54). And the existence of differences in the level of arithmetic average intelligence (Verbal Comprehension Index, VCI) = (62.02), (Perceptual Reasoning Index, PRI) = (66.63), (Working Memory Index, WMI) = (74.50), and (Processing Speed Index, PSI) = (82.68), and Full-Scale IQ (FSIQ) = (62.54).And the presence of statistically significant differences in the level of Intelligence (WMI and PSI) in favor of females. There were no differences in IQ, attributable to the variable degree of hearing impairment for each of the tests (VCI, PRI, WMI, PSI, and FSIQ). The study recommends related to the understanding of sign language of deaf Mild Intellectual Disability.

Keywords: Deaf, Wechsler Intelligence Scale, WISC-IV, Multiple Disabilities, Intellectual Disability.

Introduction

Sign language poses a significant barrier for both psychologists and those working with deaf and hard-of-hearing persons (D/HOH), particularly in translating the sign language used to determine deaf intelligence, which may pose a significant challenge in interpreting intelligence tests. Another problem is the dearth of studies on the intelligence of deaf children using the WISC-IV, which dealt with the use of sign language, as the previous literature that enhances this subject is insufficient. Hearing impairment associated with (Intellectual Disability, ID) Multiple Disabilities is one of the most significant obstacles that come with the Deaf and Hard of Hearing category, particularly the diagnostic process using sign language. According to the researcher's knowledge, this specialized research for (Deaf people with Mild Intellectual Disability, DMID) is considered rare in Arab research, which confirms that a deaf category is a heterogeneous group, depending on the degree of auditory loss, and many books specializing with people with hearing disabilities and through theoretical literature. Because the information is the same and was not discovered educationally, it caused challenges with measuring and diagnosing within the deaf community. And if any, the information offered is almost insufficient to understand the reality of the deaf handicap. As a result, measuring and diagnosing (DMID) is one of the issues that bear aspects of being extremely difficult in general, whether it is psychometric (due to a lack of specialized measures for those with ID accompanying the deaf, whether it is mental ability, cognition, or sign language) or educational measures that are appropriate to their ability to use Sign language. As a result, the current study was designed to provide an explanation for the mental qualities of (DMID).

Intellectual Disability, according to the American Association for (ID), would be a disability defined by major limits and limitations in both mental performance and adaptive skills, conceptual, social, and practical. This demonstrates that this deficit existed prior to puberty (Luckasson et al., 2000). The concept of mental functioning, which is typically tested by intelligence tests, is an important component of this description. It is difficult to apply these tests to the deaf. The deaf assessment might result in misdiagnosis or over-recognition of a condition (ID). (Marschark, 1997; Morgan & Vernon, 1994).

According to (Admiraal, Huygen, 1999), who conducted a longitudinal investigation on the etiology of (ID) among

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deaf persons, 30% of all cases of deafness accompanied by Intellectual Disability had no known cause. As a result, the percentage of Deaf persons with hearing loss is typically unknown, as is the number of Deaf people with disabilities. However, the rate of hereditary deafness in children with Intellectual Disability is half that reported for the deaf community, owing to the prevalence of acquired causes in the deaf community (ID). Furthermore, the most common causes of disease among deaf and intellectually disabled people over the age of twenty (20) years were (German measles, CMV, prolonged prematurity, keratitis, and meningitis).Whereas persistent prematurity was the leading cause of deafness in children (ID).

As mentioned earlier, careful verification is required to ensure that the child really has (ID). This is especially true for deaf children because their hearing levels are varied and language is affected as a result. For specific examples of how the (ID) appears to a deaf person:

1. Mental ability below average: Most psychological assessments do not depend on deaf individuals who have communication problems (using a sign language interpreter). Lack of experience by a doctor or examiner in a child's results may affect the diagnosis of mental ability. Specific tests may not be appropriate for Deaf individuals, which reduce our ability to understand their full potential. (Larson et al, 2000).
2. Weakness in adaptive performance: A child who suffers from deafness has problems with hearing and speech and thus this may be seen as a "communication disorder" especially when discussions focus on how the child is unable to perceive speech or speak properly. If this same child is placed in an inclusive school (where the only deaf individual has a sign language interpreter), the deaf may also encounter difficulty with social skills. They are unable to understand their classmates or that their classmates do not understand them, and therefore they often play alone on account of the absence of language between the two parties. But one of the important things to consider when assessing a deaf child with (ID) is:

    - Distinguishing between language barriers.
    - Distinguishing cultural barriers.
    - Situational influences. (Herer, 2012).

(Nelson, Bruce, 2019) also believes that (DWD) are a diverse group of persons in society, including deaf people with educational disabilities (DMID), deaf people with autistic spectrum disorder, and deaf people with visual impairment. Individuals with deafness or hearing impairment (Deaf and Hard of Hearing, DHH) may range in degree, type, and age of onset of hearing loss (i.e. deafness before or after language acquisition), as well as preferred communication modalities. Deaf people with impairments, on the other hand, vary in terms of disability type, cause, quantity, and severity. (Herer, 2012) presented this article on hearing status reported by a sample (9,961) of persons with (ID), where early detection of hearing loss for people with Intellectual Disability is critical. In addition, studies show that patients with (ID) have a higher prevalence of hearing loss than their peers. He also mentioned the existence of undiscovered hearing loss in individuals with (ID), and several studies have been examined the state of hearing in adults with Intellectual Disability in institutions. However, few evaluations have focused on people who reside in and participate in the larger community.

However, with the identification of (ID) at an early stage, responsibility for understanding the new path to language development likely to occur for children who benefit from these improvements in (DMID) through technology as well. We need to be aware when the child is not making appropriate language progress. Since approximately (40%) of children has an additional disability. (Gallaudet, 2008). Statistics also show that half of Deaf children also suffer from other disabilities associated with them (Gallaudet, 2005). Correct evaluation is a prerequisite for providing treatment and educational programs because Deaf people with multiple disabilities vary greatly in relation to individual differences, competencies, and capabilities. The evaluation should be done by people who are good at communication methods that children prefer, such as sign language or other communication methods that are appropriate for the degree of auditory loss (Roth, 1991).

Since communication is the basis of education, the main objective of the assessment should be to study the methods of accessing communication with a deaf child who has another disability. Moreover, the evaluation should provide information about the child's potential to acquire language and learn daily life skills, and possibly acquire academic skills as a result of improved communication. Unfortunately, a formal educational psychological test for deaf or deaf children with severe disabilities is often present which presents significant challenges. Evaluations of Validity and Reliability implications for vision, hearing, perception and comprehensive development are problematic for deaf people (Chen, 2014; Mc-Cracken, 1998; Mauk & Mauk, 1988; Roth, 1991).There is also an enormous lack of standardized tests and data for this category. As well as evaluation and identification of strengths and weaknesses in the areas of cognition, behavior, language and motor skills of the deaf, this is important for educational planning. (DO GEENENS, 1999; Stillman & Battle, 1986).

Even with the assistance of assessment tools, much depends on the experience of the evaluators (examiners), particularly their ability to synthesize the results of several assessments. This, however, should not be used as an excuse to avoid evaluating. Due to the numerous challenges that Deaf persons with severe disabilities experience, a thorough approach to

multidisciplinary assessment and intervention is required (Chen, 2014; Van Dijk, Janssen, 1993).

(Abu Drei, 2017) asserts that the diagnosis and evaluation of deaf people go through important stages:

- The ability of the examiner to translate the sign language (a license to practice the profession of translation).
- The ability of the examiner to use grammar for sign language.
- The ability of the examiner to use psychometric tests.
- Establishing deaf standards with great accuracy through psychometric tests.
- Diagnosis of deaf people, taking into consideration their mental ability.
- Ensure the integrity of the sense of sight of the deaf.

Intellectual Disability affects over 10% of the deaf or hard of hearing population (GRI, 2008). Cognitive abilities can influence a child's rate of development in all areas. Although mental capabilities are not the only element influencing a child's language development, they are strongly connected to linguistic outcomes (MeinzenDerr et al., 2010).

Although Deaf children have aspects of developmental development, the evaluation process is still accurate for their uncomplicated capabilities (Patrick ,Brice, 2009; Metz, Miller & Thomas-Presswood, 2010). Moreover, heterogeneity between deaf and hard of hearing samples has been continuously observed through research findings across decades (Vernon, 2005). (Marschark, 2007) also argues that it could harm a child if these differences are rejected without good reason. Since deafness in itself does not make the deaf and hard of hearing less able to perceive them compared to their hearing counterparts, but low auditory stimulation may lead to different brain functional organization (Patrick ,Brice, 2009).

Thus it is indicated here on the complexity of the evaluation with deaf and hearing impaired individuals, and therefore examiners who use measurement and diagnosis of the Wechsler Children's Intelligence Scale must obtain approval from Wechsler Company. Appropriate training and comprehension of the language and cultural difficulties of the deaf and hard of hearing are also needed. As well as understanding the steps taken to ensure consistency in the assessment process for this segment of society. The Wechsler Tests are therefore often used to evaluate and determine the mental abilities of persons who are deaf and hard of hearing. (Braden, 1994; McQuaid & Alovisetti, 1981; Spragins & Blennerhasset, 1998). The examiner's qualifications should be in accordance with educational and psychological testing standards (American Educational Research Association, AERA,1999), American Psychology Association, APA, and the National Council on Measurement in Education, NCME, 2014), as ensuring integrity of the test requires consideration of accessibility of the test, and in order to comply with this standard, examiners who administer the WISC scale for deaf and hearing impaired individuals must be aware of the variability of this group in the community in relation to relevant factors, such as Age at hearing loss, appropriate communication methods, early language access, degree of hearing loss, use of assistive technology, and pathological conditions.

Few studies on individuals with (ID) have been reported in the literature. There was one noteworthy and comprehensive investigation (Meuwese-Jongejeugd et al. 2006) in the Netherlands in a sample of (1598) people between the ages of (18 and 70) years and the overall prevalence of hearing loss was (36%). This result was twice that of (16% to 17%) of reported prevalence rates for population studies in Britain, Italy, and Australia (DAvIs, 1989; Quaranta, Assennato, & Sallustio, 1996; Wilson et al., 1999) as well as However, (48%) of people with mental disability with hearing loss were not identified before this study was conducted.

Although there are no Arabic and English studies (according to the researcher's knowledge) confirming the psychometric properties of (DMID) and mental ability to measures of intelligence, especially on the Wechsler-4 scale, if any, the identification of (ID) associated with hearing impairment through the medical side without indicating the degree Disability and its percentage, but this was medically achieved through medical examinations, not psychometric ones. These cases were identified when (Abu Drei, 2017) conducted an extensive study entitled "Standardization A Jordanian Version of The Wechsler Intelligence Scale " for Children -Fourth Edition Adapted for Deaf Via Sign Language From (6 - 16.11) years " This study aimed to legalize the Jordanian image of the (wisc-4) at school stage for the age group (6 - 16.11) years to measure intelligence in sign language for the deaf. In order to achieve the objectives of the study, the wisc-4 were converted after indications of their validity, reliability, and criteria of the wisc-4 scale in the ordinary and deaf samples were converted into sign language. The sample of the study included the deaf and ordinary (831), and indications of the validity of the Jordanian image from the (wisc-4) scale in the sign language of the deaf were represented in the honesty of the content, discriminatory honesty, sincerity of the building, and associative honesty, as well as indications of consistency The scale was the use of Alpha Cronbach, the method of return, and the residents' agreement.

It was also reached to the criteria of the scale represented by converting the raw grades to standard degrees and then to an IQ. The results of the study showed:

- There were statistically significant differences (α = 0.05) in performance on the sub-tests of the Jordanian image of the scale (wisc-4) of children's intelligence in the school stage due to a variable in the ordinary and deaf category and the gender variable in the deaf group.

- There were statistically significant differences (α = 0.05) in performance on the sub-tests of the Jordanian image of the scale (wisc-4) for deaf children in the language of sign at school due to the change in the degree of hearing disability (Mild - Medium - Severe - Cochlear - Mild + Cochlear) for the category Age (6-16.11) years.
- There are statistically significant differences in performance on the subtests of the Jordanian image of the scale (wisc-4) of children in school due to the age variable for the deaf in the sign language in favor of the age group (13.00-13.12).

Also (Abu Drei, Al-Rousan, 2021) conducted a study entitled "The Psychometric Characteristics of the A Jordanian Version of The Wechsler Intelligence Scale in Sign Language for the Deaf" (6 - 16.11) years. I aimed to get acquainted with a Jordanian version of the Wechsler-4 Intelligence Scale in Sign Language for the Deaf for the age group (6-16.11) years to measure the mental capacity of the deaf. Evidence of validity and reliability of the Wechsler scale in the deaf sample in sign language. The sample of the study included deaf (413) male and female students, and the WISC-4 scale was applied in the sign language to them, and the indications of honesty from the WISC-4 scale in the sign language for the deaf were represented in the validity of the content, and the validity of the construction as the correlation coefficients ranged between (0.305 - 0.698), and the correlation coefficients for the paragraphs ranged between (0.602-0.823), The significance of Reliability of the scale was reached by using Alpha Cronbach for sub-tests of the scale ranged between (0.815 - 0.922). The results of the study showed:

- There were statistically significant differences (α = 0.05) in performance on the sub-tests of the Wechsler scale of intelligence in favor of the deaf group with a degree of Mild hearing loss.
- The level of deaf intelligence on the scale is largely equal among groups of deaf students with different degree of hearing impairment (moderate, Severe, Cochlea, and Mild + Cochlea).

Also (Abu Drei,2020) conducted a study entitled "Constructing and Standardizing a Standard for Diagnosing the Indicative Understanding of the Language Skills of Deaf Children and Adolescents in Sign Language from (7-18) years on the Jordanian Environment". This study aimed at identifying the psychometric properties, indications of validity and reliability and standards of the scale. In order to achieve the objectives of the study, the scale paragraphs were converted to sign language after reaching indications of validity, reliability and standards in the deaf sample in sign language. The sample of the study on the deaf included (385) male and female students, and a measure of sign language was applied to them. which were represented in Content Validity, Factorial validity ranged between (13.259-0.069), Construct Validity (0.310 and 0.768), and Concurrent Validity with a Jordanian Version of The Wechsler Intelligence Scale in Sign Language for the Deaf through IQ test (Verbal Comprehension Index, VCI) Which includes the following sub-tests:(Similarities, Vocabulary, Comprehension, Information, Word Reasoning). Indications were also reached regarding reliability of the scale represented in the use of the Cronbach alpha method (0.905), and the half-way method (0.953). The results showed:

- There are statistically significant differences in measuring indicative understanding of linguistic skills according to gender in each of the sub-tests represented in (pronouns, family, time, money, nature, religion, different expressions, clothing, electrical tools, the human body, office supplies, circles Government, Jordanian regions, Arab countries, alphabet) was in favor of females according to the gender variable for the deaf.
- There are statistically significant differences in measuring indicative understanding of linguistic skills according to the degree of hearing impairment and the source of the differences in the pronouns test was in favor of the category of degree of hearing impairment (Mild, Severe) respectively. The source of the differences in the math and family test was in favor of the degree of hearing impairment (Mild, Moderate, Severe) respectively. The source of the differences in the religion test, different expressions, the alphabet, and the overall measurement was in favor of the Mild category of hearing impairment.

Also (Johnson,1990) conducted a study titled "Creative Thinking among Deaf Teenagers with Intellectual Disability". This study aimed at knowing the creative thinking of both deaf and hearing persons, as the study sample included (30) of deaf teenagers with (ID) with (30) Of the hearing persons with (ID), to evaluate the following:

(A) Differences in creative thinking as a function of hearing.
(B) The effect of the severity of mental disability on the hearing state.
(C) The interaction between hearing and intelligence. The results of the study showed the following:

- Multiple Factor Analysis showed that Deaf teenagers with (ID) differed significantly from hearing-impaired in terms of fluency and originality.
- (DMID) scored the highest level on Fluency, while hearing people with (ID) scored highest on originality.

Also (Chantanee, Sheila, Edith, Nahal, Carl, 2016) conducted a study entitled "Comparing the measures of ability in adolescents with Intellectual Disability." This study aimed to find an appropriate intelligence test for those with (ID), which is difficult because of the limited language, interest

and skills of their Cognitive, motor, and ability to continue the task. Where the study compared the performance of (23) adolescents with (ID) on the IQ scale (Wechsler for Children, WISC-IV) in Australia, which is one of the most used IQ tests, and three tests were used for non-verbal intelligence, and the (Raven Scale). Results showed:

- The WISC-IV Full Scale IQ scores were largely associated with the total scores from the three non-verbal tests, although the correlations were higher relative to the raw scores, indicating that they might lead to a better understanding of the differences within the group and what individuals with (ID) can do at the time of the evaluation.
- Initial analysis showed that individuals of (ID) (n = 15) generally achieved higher scores than those who presented with Intellectual Disability of Autism (n = 8).
- Our findings support the view that short non-verbal tests are more likely to present a similar intelligence result as obtained from (WISC-IV).
- Concerning the time required, it is more appropriate to evaluate adolescents with (ID).

As for studies of validity and Reliability, each of (Krouse, Braden, 2011) conducted a study entitled "validity and Reliability Scale (WISC-IV) among deaf and hard of hearing children" aimed at identifying the extent of validity and Reliability scale of children's intelligence, the fourth edition of the Wechsler (WISC- IV) For use with deaf and hard of hearing children. Where psychologists (n = 10) provided data for (128) deaf and hard of hearing children, they were evaluated by the Wechsler scale as part of their ongoing assessments. All sub-tests for (8) of the Wechsler scale used IQ indicators and their number (2), where the results indicated that:

- Coefficients and Reliability in the half-way method were higher than ($p < .05$).
- Average intelligence index (Perceptual Reasoning Index, PRI) = (M = 93.21).
- The average Verbal Comprehension Index (VCI) = (M = 80.86) is less than ($P < .05$) for the mean of the sample (M = 100). These results support the stability parameters of the Wechsler-4 scale for the deaf and hard of hearing.
- The results also indicate that the (Word Reasoning) indicator may have a different meaning and results for the deaf and hard of hearing which are among the lowest arithmetic averages.

(Cejas et al., 2018) conducted a study entitled "Comparing the intelligence of children with or without cochlear implants: a longitudinal study" aimed at making longitudinal comparisons of intelligence in children with cochlear implants and their hearing peers from the early to the school stage. Children with other comorbidities (at risk) were also evaluated. As well as studying the effect of socio-economic status and oral language on cognitive performance at the school stage. Where this longitudinal study of the non-verbal IQ (performance) was applied in a multiple sample of centers, it included (n = 147) children with cochlear implantation and (n = 75) from their hearing peers. Where the IQ was assessed in advance of the cochlear implant, using (the Bayley Scales) child development scale and the (Leiter International Performance Scale) was used. Also, (IQ) was extracted using the (Wechsler Intelligence Scales for Children), where only the (Perceptual Reasoning Index, PRI) and the Processing Speed Index (PSI) were used. The oral language of the study sample was also evaluated using the Comprehensive Assessment of Spoken Language.

- Children with cochlear implants had a normal IQ of (PRI) = (100.3) while listeners (115.5). And also on the intelligence index (PSI) among cochlear implants = (96.7) while hearing persons (103.4).
- Children with comorbidities scored significantly on the (PSI), not on the (PRI).
- Mother and language education was highly correlated to (IQ) in school in both groups. More importantly, language was the strongest predictor of mental performance in both cochlear implant and hearing children.

In a very ancient study of the beginning of the Wechsler scale applied to deaf people; it was found that their mental ability had not significantly improved for our time. (Vonderhaar, 1977) conducted a study entitled "Comparing the performance of the IQ scale for children with the revised Wechsler scale." This study aimed to compare the intelligence of the performance tests of deaf children who were tested on the Wechsler IQ scale (WISC) and the Wechsler IQ scale for children (WISC-R). To investigate whether the original test (WISC) and the revised version (WISC-R) would show statistically significant differences between the IQ scores of the scale in the same group of deaf people. Where the sample included (73) students in the Deaf Public Schools located in California, Arizona and Colorado. Their ages range from (10 to 15) years. The test was applied using two tests (WISC and WISC-R) for a period of four months. Whereas, (66) children were previously tested using (WISC-R), and accordingly, they were given the original scale (WISC); Also (7) children who had previously undergone the original test (WISC) were given the revised scale (WISC-R). It was studied whether there were differences between the scores for the performance test scale for both scales, if one of the tests was significantly higher and whether the time interval between the timing of the two tests had any effect on the differences between the scores. Where the results of the study showed:

- There is a significant difference between the average IQ of the original scale (WISC) and the average IQ of the revised image (WISC-R).
- The IQ of the original scale (WISC) was higher than the IQ of the revised image (WISC-R) at the significance level (0.05).
- The seven children who took both tests (WISC and WISC-R) showed a difference, which was in favor of the performance intelligence of the original scale (WISC) at the level of significance (0.05).
- The relationship between (WISC and WISC-R) of the performance intelligence of the deaf is as follows:

Full-Scale IQ (FSIQ) (76) which includes: Picture Completion Test (64), Picture Arrange (50), Block Design (55), and Coding (48).

Research Questions

The study answers the following questions:

What are the psychometric properties of Deaf people with Mild Intellectual Disability?

The following sub-questions emerge from the study problem which deals with psychometric properties:

1. What are the indications for the validity of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?
2. What are the indications for the Reliability of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?
3. Are there differences in the sub-tests of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?
4. Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the gender variable?
5. Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the variable degree of hearing impairment?

Study Significant

Provide knowledge about the mental ability of (DMID).

First: theoretical importance:

1. pique people's interest in learning about Intellectual disabilities for those who are deaf or hard of hearing.
2. Recognizing a person's mental capacity (DMID).
3. The scarcity of studies on the intellect of children (DMID).
4. Adding a section on hearing impairment to the Arab library.
5. Recognizing (DMID) features using verbal and performance intelligence tests.
6. Choosing an appropriate educational setting (Placemen).
7. Assessing the efficacy of the instructional programs given (Evaluation).
8. Follow up with (DMID) to determine their sign language abilities.

Second: The practical importance

Where this study represents:

1. Determining the properties of (DMID) on the intelligence natural distribution curve.
2. Assisting researchers in reaping the benefits of this study's findings in interacting with and communicating with (DMID), as well as measuring their mental capabilities.

Study limitations

- The results of this study are determined by the limited sample to be studied.
- The researcher was unable, through his research, to reach and identify other cases of a sample (981) deaf from Deaf schools in Jordan distributed (North, Center, and South) during the codification of the Wechsler-4 scale of intelligence in the sign language of the deaf (the researcher's rationing).
- Difficulty diagnosing deaf people with mild mental disabilities due to their inadequate use of sign language.

Definitions of Terms

Deaf:

1. They are individuals who use sign language, alphabet, lip reading, and total communication in order to communicate with each other, with or without Hearing aids, and their audio capacity ranges between (25 - 90) decibels.
2. Mild Intellectual Disability: It is the intelligence that ranges between (55-70) and they are known educationally in the category Educable Mentally Retarded, accompanied by the inability to respond to the requirements of daily social life.

Methodology: Method and Procedures

Method of study

The researcher used Descriptive Approach for its suitability for the purposes of the current study, as this study aims to verify the psychometric properties of the WISC-IV scale for deaf intelligence with Mild Intellectual Disability and differences in the level of intelligence with gender.

The sample of study

According to the researcher's work as a specialist and interpreter of sign language for the deaf, as well as an expert and assessor of the level of deaf intelligence, when the researcher pursued the deaf community (947) deaf and enrolled in Ministry of Education schools from the North Region (170), Central Region (654) and South Region (123) According to Ministry of Education statistics for 2016/2017, the results of (174) people with Mild Intellectual Disability were extracted based on their age range of (6 - 16.11) years.

Knowing that all members of the study sample are (DMID), repetitions and percentages have been calculated to describe the members of the study sample by gender, and Table (1) shows that:

Table (1) shows that the number of members of the study sample reached (174) students, as the percentage of males among them was (54.0%), and the female category represented what was (46.0%).

The study tool

The original version of WISC-IV (Liban Tests Editions) has been translated into sign language by (Abu Drei, 2017) to suit the Jordanian environment. The original version of the scale consisted of (4) sub-scales, each scale contains sub-tests as follows: The VCI Scale which includes the following sub-tests (similarities, vocabulary, comprehension, information, verbal reasoning). The PRI Scale includes (Block Design, Picture Completion, Picture Concepts, and Matrix Reasoning). The WMI Scale includes (Digit Span, letter-number sequencing, and arithmetic). Where the PSI scale includes (coding, symbol search, Cancellation). The total intelligence scale includes (VCI, PRI, WMI, PSI).

The validity of the Jordanian version

The validity of the original version of the scale (Abu Drei, 2017) was tested by presenting it to (10) sign language interpreters to determine the linguistic formulation's suitability to the rules and sign language, as well as its applicability to the Jordanian environment. In addition to the extent to which the items are related to their dimension. The scale was presented to (8) deaf individuals, to determine the suitability of the sign language formulation and its rules and suitability for the deaf community in the Jordanian environment. It obtained more than (80%) agreement for its suitability. The calculation of the correlation coefficient between performance on the WISC-IV for deaf aged (6-11.16) and the Goodenough-Harris Draw-A-Person (DAP) yielded indications of concurrent validity, as the Jordanian version of the WISC-IV and DAP scale was applied to a sample (n= 30) of deaf children. The value of the correlation coefficient was (0.688) with a statistical significance of less than (0.01), which shows the concurrent validity of the two scales. Indications of the validity of the original version were obtained through the Principal Component Analysis (PCA) for the scores of the subjects using Orthogonal Rotation by Varimax rotation. The number of sub-factors was determined by four, to be equal to those that make up the original scale (in its original version).

Table 1: Distribution of study sample individuals according to the gender of the deaf

Gender	*Repetition*	*Percentage*
Male	94	54.0
female	80	46.0
Total	174	100.0

The reliability of the Jordanian version

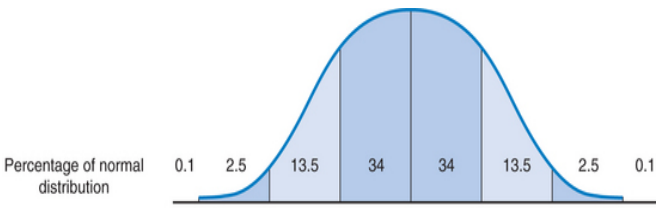
The reliability of the Jordanian version of the WISC-IV (Abu Drei, 2017) was verified. The reliability coefficient was calculated by using Cronbach's alpha coefficient of internal consistency between the scale's paragraphs (0.869) and the test-retest method (0.866). The scale's reliability was confirmed by calculating the Spearman-Brown coefficient of split-half. The Spearman-Brown coefficients reached (0.904). The reliability of the scale was also established by calculating the Cronbach's alpha coefficient, which was (0.838) for the overall scale, which is an acceptable value for the objectives of the current research.

IQ distribution over the normal distribution curve

- From 55-70: Deaf with Mild Intellectual Disability.
- From 70-85: Deaf with Learning Disability.
- From 85-115: Deaf is Normal.
- From 115 - 130: Deaf with Gifted.
- From 130 - 145: Deaf with Talent.
- From 145 - and over: No results were reported for the deaf (Genius). (Abu Drei, 2017)

Research procedures

The Jordan version of WISC-IV in sign language for the deaf was prepared following these procedures:



Standard deviation	–3	–2	–1	x	+1	+2	+3
Deviation IQ (SD = 15)	55	70	85	100	115	130	145
T-score	20	30	40	50	60	70	80
Z-score	–3	–2	–1	0	+1	+2	+3
Percentile	0.1	2	16	50	84	98	99.9
Stanine		1	2	5	8	9	

1. Written approval was obtained from the publisher (Liban Tests Editions) to use the Wechsler Scale-IV in the Jordan environment, as well as through the Jordanian version of the Wechsler Scale-4 in sign language (Abu Drei, 2017).
2. The initial Arabic version was prepared
3. The initial Arabic version of the scale in sign language was prepared with including details:
   - - a list of terms to be translated into sign language.
   - - Photographing (4000) photographs in sign language by researchers over three months.
   - - Revising the sign language terms.
   - - Preparing three copies of the Wechsler Scale-IV in sign language.
4. Translating the scale using sign language grammar for deaf, which includes (109), special grammatical sentences in sign language in the sub-tests of the scale (Comprehension, information, arithmetic, verbal reasoning) as illustrated in the following examples: In Comprehension test in ordinary language, we ask the question "Why do people brush their teeth?" While in sign language it is asked like this (people teeth cleaning reason?). In signs it is expressed as follows (Figure 1):

Using sign language requires:

- Unifying facial gestures.
- Determining the tense used in sign language (past, present, imperative) to convey the correct meaning.
- Correctly identifying areas of sign language use with deaf students.
- Unifying the alphabet used by deaf people for using them in the sub-test of the WISC-IV (Letter-Number Sequencing).
- Unifying numbers used by deaf people for using them in the following sub-tests of the WISC-IV (Digit Span, Letter-Number Sequencing).

5. Preparing a guide for the WISC-IV for deaf in sign language by the researcher, including booklets for the signs covering each of the following:
   - The items of the scale in sign language.
   - Examiner's guide to the WISC-IV subtests in sign language.
   - Scale questions based on the grammar of the sign language.
6. Nominating the training team (5) translators provided holding a bachelor's degree and a doctorate in special education and a professional license of sign language translation by the Supreme Council for the Affairs of Persons with Disabilities including the researcher. They were trained in several stages including:
   - Standardization of sign language grammar of the WISC-IV used by interpreters and deaf people.
   - Training on (examiner's guide, test items, test questions, test correction).
   - Training and testing the subjects to ensure their understanding of the WISC-IV.
   - Correcting the test: Deaf sample (n = 174). The correction of the Jordan version of WISC-IV in sign language for the deaf took a large period due to the conversion of the written sign language (following their rules) to the ordinary language and then giving the appropriate mark for the answers, for example, "The question (why do people brush their teeth?" the answer was (important- teeth- clean) which is interpreted to (clean teeth) and the answer (tooth perfectly 100/100) is interpreted (clean teeth).
7. Five (5) packages of the WISC-IV were prepared by researchers, including all the tools necessary for the implementation of the scale.
8. Duration of the application:

The WISC-IV was applied in schools for 4 hours per day from (8:00 am-12:00 pm). This was followed by the correction period from (4:00 pm-9:00 pm). The scale was applied to the subjects (n=174) for 23 working days.

The Study Results

Study questions will be answered according to their sequence: Results for the first question: What are the indications for the validity of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

The psychometric properties of the WISC-4 Scale for (DMID) were validated by validating the scale, and by identifying the Construct Validity for sub-tests of the scale. Below are the results:

Fig 1: Sign language for the question "Why do people brush their teeth?"

1. Content Validity for the Jordanian version of the Deaf in sign language:

The Jordanian version of the sign language was presented to (7) translators in the sign language for the deaf, with the aim of knowing the adequacy of the linguistic wording with the grammar and sign language of the deaf and its suitability for the Jordanian environment, and how the paragraph relates to the dimension.

The scale was presented to (5) deaf individuals, with the aim of knowing the appropriateness of the linguistic wording in the sign language and its rules and its relevance to the deaf community in the Jordanian environment. The arbitrators indicated an agreement rate (80%) or more on the linguistic wording in the sign language.

2. Concurrent Validity: By calculating a correlation coefficient between (WISC-4) and the Goodenough-Harris Drawing Test and achievement of the deaf sample (n = 30).
   - As the correlation coefficients between performance on the WISC-4 scale and (Goodenough- Harris Drawing Test), the correlation coefficient was (0.688) with a statistically significant indication of (0.01).
   - As the correlation coefficients between performance on a scale (WISC-4) with achievement, the correlation coefficient was (0.887) with a statistical significance less than (0.01).

3. Construct Validity: Evidence of Construct Validity was reached for a scale in the Jordanian version of the (DMID), where (Principle Component Analysis) were used for the degrees of the individuals in the sample using the orthogonal method (Varimax).The number of sub-factors was determined by four, to be equal to the ones that make up the original scale (the original version), and Table (2) Shows the number of sub-tests and the amount of explanatory variance for each of the tests:

Table (2) indicates that the Eigen Value of the Deaf sample with Mild Intellectual Disability ranged between (0.439–1,939), and that the first factor (VCI) explained its proportion (48.477%) of the total variance of the scale, and the second factor (PRI) came to explain its ratio (25.964%) of the total variance, as (13.342%) of the scale was interpreted by the third factor (WMI), and finally the fourth factor (PSI) came to explain (12.218%) of the total variance of the test, and it was explained (100%) .

To reach the significance of the validity of the scale for the (DMID), correlation coefficients were extracted between the sub-tests and the total degree of the scale (total intelligence), and the results indicated that the correlation coefficients ranged between (0.487 - 0.898) and were statistically significant at the level (0.01 or less, and Table (3) shows that:

Results related to the second question: What are the indications for the Reliability of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

The significance of the Reliability scale was arrived at in the Jordanian version by the following methods for the deaf sample (n = 30):

1- Test Re-test method.

2- Rates Agreement Method.

1. Reliability Test Re-test method:

The scale was applied to (30) deaf students with Mild Intellectual Disability, and the scale was applied to them with a time difference of two weeks, and the researcher used to calculate stability Pearson Correlation, and the Reliability coefficient values for the sub-tests and the total degree of intelligence as in Table (4):

Table (4) Results of Reliability Transactions Using the Test Re-test Method for (DMID) (n = 30)

Table 2: Construct Validity of scale for (DMID) of the sample (n = 174)

Factors	*Eigen Value*	*ozf variance %*	*Cumulative %*
Verbal Comprehension Index,VCI	1.939	48.477	48.477
Perceptual Reasoning Index, PRI	1.039	25.964	74.440
Working Memory Index, WMI	.534	13.342	87.782
Processing Speed Index,PSI	.489	12.218	100.000

Table 3: Correlation coefficients between standard sub-tests and the overall degree of (DMID), for the sample (n = 174)

VCI	*PRI*	*PRI*	*WMI*	*PSI*	*Total*
VCI	-.176-*	-.176-*	.465**	-.464-**	.233**
PRI			-.236-**	-.040-	.412**
WMI				-.402-**	.360**
PS					.327**

**: Statistical significance at (0.01) level.

Sub-intelligence	Test Re-test Method (n = 30)
VCI	0.874
PRI	0.949
WMI	0.889
PSI	0.980
Total IQ	0.866

The Reliability Coefficient value for Test Re-test method was (0.866), and these Reliability Coefficient values are acceptable for the purposes of this study.

2. Reliability Coefficients by the Rates Agreement Method (n = 30)

To verify the degree of stability of the (WISC-4), the researcher performed Pearson Correlation coefficients, where the value of the correlation coefficient between the two evaluators was (0.864) which is a statistically significant value at the level of significance (0.01) or less, and the stability was extracted using the Holsti method which is:

$$\text{Reliability} = \frac{2M}{N1 + N2}$$

(M) In the equation denotes the number of evaluation decisions agreed by the evaluators, while N1 + N2 represent the total sum of the coding decisions by the two correctors. To this end, two coders (analysts) were trained who individually analyzed the results of (30) deaf students (n = 30), during the Reliability Procedure (Test Re-test) period, and were provided with a copy of the registration form. The paragraphs in the analysis were (312) items, of which (156) were for each test coder. It turned out that: The number of decisions agreed upon by the two correctors (122 out of 156) decisions (unity), and therefore the application of the Holsti equation is as follows:

$$\frac{122 \times 2}{156 + 156} = \frac{244}{312} = 78.2\%$$

It appears from the equation that the degree of Reliability is (78.2%) and, accordingly, the measuring instrument used is applicable (n = 30) for (DMID).

The significance of the Reliability scale was arrived at in the Jordanian version by the following methods for the deaf sample (n = 30):

3. Reliability by Guttman Split-Half

The Split Half test was used, as Relief coefficients were extracted for individual sub-questions, Reliability coefficients for marital sub-questions were extracted, and Reliability coefficient for individual sub-questions was (0.76), Reliability coefficient for sub-questions even (0.75), and Coefficient reached Correlation between odd and even paragraphs with the extract of the Spearman-Brown correlation coefficient of (0.868), which are Reliability coefficients values acceptable for the purposes of the present study.

Results related to the third question: Are there differences in the sub-tests of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

Mathematical averages and standard deviations were extracted to identify differences in the level of sub-tests from the (WISC-4) scale for (DMID), and Table (5) shows that:

Table 5: Mathematical Averages, Standard Deviations, and Minimum and Upper Marks to Identify the Differences in Sub-Tests of the (WISC-4) Scale for (DMID) in Descending Order.

Subtest	*Number*	*Minor degree*	*Grand degree*	*Arithmetic mean*	*standard deviation*
Cancellation	174	.00	110.00	36.05	25.98
Coding	174	.00	68.00	26.44	12.53
Block Design	174	.00	44.00	12.43	8.57
Symbol Search	174	.00	31.00	11.42	7.24
Picture Concepts	174	.00	32.00	9.87	6.55
Matrix Reasoning	174	.00	23.00	9.67	4.43
Letter-Number Sequencing	174	.00	21.00	8.45	3.06
Picture Completion	174	.00	17.00	7.53	3.76
Arithmetic	174	.00	20.00	7.40	3.97
Digit Span	174	.00	16.00	6.75	3.36
Information	174	.00	20.00	5.55	3.12
Comprehension	174	.00	24.00	4.28	4.82
Vocabulary	174	1.00	34.00	3.93	2.87
Similarities	174	.00	19.00	2.09	2.74
Word Reasoning	174	.00	8.00	1.30	1.85

Table (5) shows that there are differences in the level of sub-tests of the WISC-4 scale for the (DMID), and the results showed that the (Cancellation) test scored the highest mark of (36.05) and with a standard deviation (25.98), and then (Coding) ranked second with mean (26.44) and standard deviation (12.53). These two tests represent the intelligence of (PSI) in this sample.

On the other hand, the (Word Reasoning) test came in the last rank, with an average arithmetic score (1.30) and a standard deviation (1.85), and the penultimate rank (Similarities) came with an average arithmetic score (2.09) and a standard deviation (2.74), and these two tests represent intelligence (VCI).

Results related to the fourth question: Are there statistically significant differences at the level of significance (α = 0.05) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the gender variable?

Mathematical averages and standard deviations were extracted, and an Independent Sample T-test was used to identify the level of intelligence among (DMID) attributable to the gender variable, and Table (6) shows that:

It is clear from the results shown in Table (6) that there are statistically significant differences at the level of significance (0.05) in the level of intelligence among (DMID) in both (WMI and PSI) due to the gender variable, where the value of the statistic (t) (-2.267, -2.278), which are significant values at the level of significance (0.05) or less, and it is noted that the differences were in favor of the deaf group of females, due to the higher their computer average than males.

The results showed that there were no statistically significant differences in the level of (VCI), (PRI) and (Total IQ) due to the gender variable of the (DMID), where the value of the statistic (t) (-0.347, 1.246, -1.790), these are statistically insignificant values at the significance level (0.05) or less. The differences between the arithmetic averages did not reach the level of statistical significance.

Results related to the Fifth question: Are there statistically significant differences at the level of significance (α = 0.05) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the variable degree of hearing impairment?

Arithmetic averages and standard deviations were extracted and the One Way ANOVA test was used to identify the level of intelligence of (DMID) attributable to the variable degree of hearing impairment, and Table (7) shows that:

It is clear from Table (7) that there are apparent differences in the mathematical averages in the level of intelligence of (DMID) attributable to the variable degree of hearing impairment. To reveal the significance of the differences, a One Way ANOVA test was used, the results of which are shown in Table (8).

The results of Table (8) showed that there were no statistically significant differences in the level of intelligence among (DMID) attributable to the degree of hearing impairment, as the statistic value (F) (1.700, 0.210, 0.658, 0.784, 1.859) respectively for each of the tests (VCI, PRI, WMI, PSI, and Full-Scale IQ), which are statistically insignificant values at the significance level (0.05) or less, and the differences between the averages did not reach the level of statistical significance.

Discussion

Discussion of the results of the first question: What are the indications for the validity of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

The results of the study showed Indications of which were represented in Content Validity (80%), and Construct Validity were achieved through correlation coefficients ranging from (1.939-0.489), and Concurrent Validity with Goodenough-Harris Drawing Test (0.688) with statistically less than (0.01). Concurrent Validity with achievement (0.887), correlation

Table 6: Independent Sample T-test to identify differences in the level of intelligence among (DMID) due to the gender variable

Source	Gender	Number	Arithmetic mean	Standard Deviation	Degrees of Freedom	Value (t)	Statistical Significance
VCI	Male	98	61.83	5.77	172	0.347-	0.729
	female	76	62.21	8.80			
PRI	Male	98	67.60	10.38	172	1.246	0.214
	female	76	65.66	9.98			
WMI	Male	98	71.96	13.87	172	2.267-	*0.025
	female	76	77.05	15.72			
PSI	Male	98	79.79	15.38	172	2.278-	*0.024
	female	76	85.58	18.15			
Total IQ	Male	98	61.63	4.45	172	1.790-	0.075
	female	76	63.46	8.76			

*: A function at the significance level (0.05) or less.

Table 7: Independent Sample T-test to identify the differences in the level of intelligence of (DMID) attributable to the hearing impairment variable

Test	*Degree of Hearing Impairment*	*Number*	*Arithmetic mean*	*Standard Deviation*
VCI	Mild	18	66.00	14.92
	Moderate	11	61.45	5.73
	Severe	129	61.39	5.77
	Cochlear	8	62.50	5.83
	Mild + Cochlear	8	63.00	3.38
	Total	174	61.99	7.23
PRI	Mild	18	67.83	13.96
	Moderate	11	68.82	9.99
	Severe	129	66.54	9.47
	Cochlear	8	66.13	11.95
	Mild + Cochlear	8	65.50	13.04
	Total	174	66.75	10.22
WMI	Mild	18	77.00	19.08
	Moderate	11	73.00	10.36
	Severe	129	73.36	14.43
	Cochlear	8	76.63	17.39
	Mild + Cochlear	8	80.25	15.35
	Total	174	74.18	14.88
PSI	Mild	18	86.67	21.34
	Moderate	11	82.45	18.59
	Severe	129	82.39	16.61
	Cochlear	8	74.88	9.61
	Mild + Cochlear	8	78.63	11.94
	Total	174	82.32	16.84
Total IQ	Mild	18	66.33	16.48
	Moderate	11	62.82	3.66
	Severe	129	61.85	4.30
	Cochlear	8	61.63	6.16
	Mild + Cochlear	8	63.25	3.92
	Total	18	66.00	14.92

coefficients between sub-tests and the overall score for the scale (total intelligence) ranged between (0.487 - 0.898).

- The results of this study differed with the results of a study (Krouse, Braden, 2011) that mean the average intelligence index (PRI) (M = 93.21), and the average intelligence index (VCI) (M = 80.86).

The researcher attributes these results to the fact that this is a good indication of the validity of the scale, as it encourages its application on deaf children. And that the sign language translation method and the conversion of all its components in accordance with the culture of the deaf language through the correct application of sign language norms resulted in sign language coherence with the verbal and performative paragraphs of the scale.

Discussion of the second question: What are the indications for the Reliability of the psychometric properties of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

The results of the study showed that the scale has high Reliability connotations both on the overall degree and on the sub-measures where the results of calculating transactions by Test Re-test (0.866) and arbitrators agreement (78.2%), and

Table (8) One Way ANOVA to identify the significance of differences in the level of intelligence among (DMID), due to the variable degree of hearing impairment.

		Sum of squares	*Degrees of freedom*	*Average squares*	*Value (F)*	*Statistical significance*
	Between groups	349.647	4	87.412	1.700	.152
VCI	Within groups	8687.347	169	51.404		
	Total	9036.994	173			
PRI	Between groups	89.347	4	22.337	.210	.933
	Within groups	17985.027	169	106.420		
	Total	18074.374	173			
WMI	Between groups	586.864	4	146.716	.658	.622
	Within groups	37701.251	169	223.084		
	Total	38288.115	173			
PSI	Between groups	893.518	4	223.379	.784	.537
	Within groups	48176.097	169	285.066		
	Total	49069.615	173			
Total IQ	Between groups	329.459	4	82.365	1.859	.120
	Within groups	7489.213	169	44.315		
	Total	7818.672	173			

stability in the half-way through Reliability coefficients for sub-questions Individual (0.76), and the coefficient of stability for sub-questions even (0.75), and the correlation coefficient between the odd and even paragraphs was obtained by extracting the Spearman-Brown correlation coefficient, whose value (0.868). Thus, the stability coefficients in any of the above methods are considered acceptable and good.

- The results of this study were in agreement with the results of each study (Krouse, Braden, 2011) that Reliability coefficients in a half-way method were higher than ($p < .05$) as these results support the Reliability Factors of the (WISC-4) Scale for the Deaf and Hard of Hearing.

The researcher believes that in light of the results of this research, this result is a good indication of scale validity as it promotes its application of the developed scale with deaf children as well.

Discussion of the third question: Are there differences in the sub-tests of the Wechsler-4 standard for Deaf people with Mild Intellectual Disability?

The results of the study showed differences in the level of the sub-tests of the WISC-4 scale for (DMID). As the mean value of the (Cancellation) test was (36.05) which are the highest value, then (Coding) came in second place with an average score (26.44), and these two tests represent the intelligence (PSI) of this sample. On the other hand, the (Word Reasoning) test came in the last rank with an arithmetic average (1.30), and in the penultimate rank, the (Similarities) test came with an average arithmetic (2.09), and these two tests represent intelligence (VCI).

The value of the arithmetic mean (VCI) = (62.02), PRI= (66.63), working memory = (74.50), (PSI) = (82.68), and Full-Scale IQ= (62.54).

- The results of this study (Abu Drei, 2020) agreed that the ability of the deaf to test (Word Reasoning) and (Similarities) is low.
- The results of this study agreed with each of the studies (Johnson, 1990) that there are differences of listeners with Intellectual Disability in terms of fluency and originality (authentic), where (DMID) recorded the highest level in (Fluency), while listeners with (ID) recorded the highest degree on the originality. This is confirmed by the results of the (Word Reasoning) and (Similarities) test.
- The results of this study were in agreement with the results of each study (Krouse, Braden, 2011) that the results of the (Word Reasoning) test may have a different meaning and results for the deaf and hearing impaired intelligence which are among the lowest arithmetic averages.
- The results of this study were consistent with the results of the study (Vonderhaar, 1977) that (Full-Scale IQ) was (IQ = 76).
- The results of this study differed with the results of each study (Cejas et al., 2018) that children with concomitant diseases scored significantly lower on the (PSI) index, and not on the (PRI) index.

- - The results of this study differed with the results of each study (Chantanee, Sheila, Edith, Nahal, Carl, 2016) that individuals with (ID) achieved generally higher scores than those who presented with (ID) of Autism. And that our findings support the view that short non-verbal tests are more likely to present a similar (IQ) result as obtained from the (WISC-IV) scale.

The researcher interprets that the mathematical averages of total intelligence were less than (70) in the normal distribution curve, indicating the presence of (ID), and this indicates that this group of (DMID) have an intelligence defect (VCI), then intelligence (PRI).

1. Some examples of Answers from Intelligence (VCI):

- As for VCI: the results of (DMID) through observation during application to a sample were:
- Very short verbal answers.
- The use of meaningless words.

Not knowing the answers to simple questions such as: What is the name of this thing (referring to the nose), so we find either he does not know the answer, or the answers are different, or have no meaning.

Their answer was through the alphabet in sign language and Lip Reading such as: (does not know, eye, ear, rose, money, mouth, grapes, mint, or many incomprehensible words).

- Lack of knowing the sign's term and what it means from the Arabic language or the correct letters and pronouncement, for example: a nose sign (indicative) that is not known to the Arabic language and lip reading does not know it, and also does not know the alphabet of that word.

The language used to communicate with deaf students with Mild Intellectual Disability is almost like a childish language.

2. Some examples of answers from (Similarities) test:

- The difficulty of connecting the term in sign language to the process of perception and visualization, and then giving an answer that summarizes what was given from the sign.
- Repeating a large group of deaf people into sign language (repeating what the translator says).
- A number of deaf people are surprised by the nature of this test.
- Some deaf people used an adjective stored in his memory, for example:
- The word (apple - banana) the answer was (red - yellow).
- The word (butterfly - bee) the answer was (rose), where the word is printed in the brain of the deaf as a picture of a rose.

3. Some examples of answers from the Word Reasoning test:

What is the animal with a long hose and big ears? The answers were:

- Severe Hearing Impairment: (elephant, does not know, demon, bird, giraffe, rose, lion).
- Moderate Hearing Impairment: (elephant, does not know, monkey, lion, donkey, fox, dog).
- Mild Hearing Impairment: (elephant, does not know, God created him, fish).

Discussion of the fourth question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the gender variable?

The results of the study showed that there are statistically significant differences at the level of significance (0.05) in the level of intelligence of (DMID) in both (WMI and PSI) in favor of the female deaf group. The results also showed that there were no statistically significant differences in the level of (VCI, PRI, and Total IQ) due to the gender variable.

- The results of this study were in agreement with the results of (Abu Drei, 2020) that there is a difference in favor of females.
- The results of this study were in agreement with the results of the study (Abu Drei, 2017) that there is a difference in favor of females.

The researcher explains: Because sign language has numerous terms, (DMID) possesses a small number of sign language, which explains why both sexes agree on using these terms and linking them to general intelligence, and which also reveals that females had a greater degree of education, attentiveness, and self-discipline.

Discussion of the Fifth question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the level of intelligence of Deaf people with Mild Intellectual Disability attributable to the variable degree of hearing impairment?

The results of the study showed that there were no statistically significant differences in the level of intelligence of (DMID) attributable to the variable degree of hearing impairment for each of the tests (VCI, PRI, WMI, PSI, and Full-Scale IQ).

- The results of this study differed with (Abu Drei, 2017) that there are statistically significant differences ($\alpha = 0.05$) in performance on the sub-tests of the Jordanian version of the (WISC-4) scale for the intelligence of deaf children in sign language at school level due to the change of hearing impairment degree (Mild, Moderate, Severe, Cochlear, Mild + Cochlear) for the age group (6-16.11) years.

- - The results of this study also differed with (Abu Drei, Al-Rousan, 2021) and the presence of statistically significant differences ($\alpha = 0.05$) in performance on the sub-tests of the Jordanian version of the (WISC-4) scale of intelligence in favor of the deaf group with a degree of mild hearing impairment . And that all previous studies were a sample of intelligence impairment nature and studies did not indicate the existence of (ID) in the deaf due to the gender variable.

The researcher explains that (DMID), regardless of whether they have Hearing Aids or cochlear implants, does not affect their intelligence, and the reason is that the linguistic outcome and sign language are few, which negatively affects them, and those hearing devices are used to amplify the sound without realizing the meaning, as well as the presence of Dual disabilities. According to medical investigations, this resulted in a lack of mental processes in them or the existence of damage to certain sections of the brain.

Recommendations

Based on the findings: Educational recommendations:

1. Emphasis on (DMID) as a significant component of hearing impairment classifications.
2. Educating teachers on how to communicate in sign language in a simple manner.
3. Educating workers on sign language issues and their inferior mental capabilities.

Research Recommendations

1. Researching more studies related to the intelligence of (DMID).
2. Research with studies related to the comparison between deaf and Mild Intellectual Disability.
3. Searching for studies related to the development of the performance section of the (WISC-IV) scale in a way that fits the perceptual deaf.
4. Searching for studies related to understanding sign language for deaf people with disabilities.

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