



# Delineating Gender Disparities in Cognitive Abilities and Social Functioning Among Children with Intellectual Disabilities

Nupur Gaur<sup>1\*</sup>, Sunita Dhenwal<sup>2</sup>

<sup>1</sup>M.A Clinical psychology (Department of psychology, Lovely professional university)

<sup>2</sup>Assistant Professor Psychology (Department of Psychology, Lovely professional university)

**Citation:** Nupur Gaur et al. (2024). Delineating Gender Disparities in Cognitive Abilities and Social Functioning Among Children with Intellectual Disabilities, *Educational Administration: Theory and Practice*, 30(4), 8672-8680  
Doi:10.53555/kuey.v30i4.2801

## ARTICLE INFO ABSTRACT

The current study was aimed at exploring and delineating gender differences in cognitive abilities and social functioning among children diagnosed with intellectual disabilities. The study was conducted on 50 children with intellectual disabilities, both with and without autism (39 of which were male and 11 were female). DST, VSMS, and ISAA scales were administered to the sample. The demographic details assessed the age, gender, residence, and family type of the ID children. The data was computed using statistics including descriptive statistics, Pearson product moment correlation, and the t-test for independent means with SPSS (version 25.0) as statistical software. The t-test was used to determine the mean differences for each of the dependent variables independently based on age, gender, residence, family type, and severity separately for each of the dependent variables (developmental age, developmental quotient, social age, and social quotient). To determine the correlation between the dependent variables, DA, DQ, SA, and SQ, Pearson's product moment correlation was calculated. Statistical analysis revealed no significant difference in developmental age, development quotient, social age, and social quotient. Furthermore, there exists a significant difference between the developmental quotient and social quotient with the severity levels, whereas a positive correlation was found between all the variables. Further investigations into the individual disparities among different age groups within the broader population may involve the inclusion of additional associated factors. Intervention strategies can be performed to support their social development, such as social skills training, peer interaction programs, or therapy focused on emotional regulation and social communication.

**Keywords** – Intellectual Disability, Gender disparities, Developmental Quotient, Social Quotient, Autism.

## Introduction:

During the past few decades, gender disparities in the identification of disability have drawn a lot of attention (Daniel & Wang, 2023). Though there are very little differences in overall IQ between genders (Aluja-Fabregat et al., 2000), there have been reports of gender disparities in several cognitive domains. It was conventional to assume that males were better in maths and spatial skills, while females were better at language (Maccoby & Jacklin, 1974). The aim of this study is to look for gender disparities in cognitive abilities and social functioning among children with intellectual disabilities.

Children diagnosed with intellectual impairments (ID) exhibit severe limits in their ability to think and behave adaptively. They also have delayed motor milestones and impaired sensory-motor function, which impacts the motor, neuromusculoskeletal, and sensory systems (Moussa et al., 2024; Iyer et al., 2024; Jaafari et al., 2023; Gilani et al., 2023; Tantry & Singh, 2016). Cognitive and social functioning are impacted by intellectual disability, which poses a serious challenge to people, especially children, families, and societies globally. Even while research on ID has advanced, there is still a major gap in our understanding of the complex intersections between gender and identity in this population. Children with ID are a vulnerable group, yet they are frequently examined through a monolithic lens that ignores any gender-specific variations that could have a substantial impact on their development and well-being. Identifying rehabilitation programs targeted at enhancing weak skills and comprehending the relationships between functional and

cognitive deficiencies are two major uses of basic cognitive function assessments in individuals with intellectual disabilities (Blasi et al., 2007).

### **Intelligence:**

Intelligence is defined as the ability to learn from experience while also adapting to shaping and selecting situations (Sternberg, 2012). The traditional method of defining intelligence is to use a single number, or IQ, which compares the scores of a group of people of the same age on a series of subtests intended to measure various intellectual abilities. The trials are typically intended to have a standard deviation of 15 and a mean of 100 (Brody, 1999). Intelligence quotient (IQ) plays a key component in the classification of intellectual disability and it's common for IQ testing for the cognitive test done on a child with an intellectual disability (Bertelli et al., 2018).

### **Gender Differences and Cognitive Abilities:**

There has been inconsistent evidence on the differences in cognitive capacities between genders (Palejwala & Fine, 2015). One of the best-supported taxonomies of cognitive skills is Cattell–Horn–Carroll (CHC theory), which classifies cognitive abilities based on factor analysis of over 460 data sets (McGrew, 2009). Based on gender stereotypes, women score better on verbal assessments than men do on maths and spatial tests (Hyde, 2016). However, meta-analyses show that when it comes to maths exams, women and men perform similarly in terms of children and adults (Stumpf & Jackson, 1994). Depending on the kind of ability evaluated, there can be little gender disparity in linguistic abilities (e.g., vocabulary, essay writing). Males exhibit a moderate advantage in 3D mental rotation when compared to females, however, this gender difference is not present in schools where there is no spatial curriculum. The Gender Similarities Hypothesis, which contends that men and women are similar on most psychological variables but not all of them, is supported by meta-analyses examining gender differences across a broad range of psychological attributes (Hyde, 2016).

### **Gender Differences and Social Functioning:**

One of the main characteristics that define intellectual disability (ID) is a limitation in social functioning. Among the two primary features in the (AAMR, 2002) definition of ID is social skills, which has a significant impact on an individual's overall adaptive behaviour (Kraijer, 2000), marked by impairments in cognitive ability and adaptable behaviour as demonstrated by conceptual, social, and practical adaptive skills. Children with ID have delays in their fundamental social functioning, such as communication, and the more delayed the abilities, the lower the ID level (Gernal et al., 2024; Khan et al., 2023; Tantry & Ali, 2020; Greenberg, 2019; Majeed, 2018a, 2018b; Tantry & Singh, 2017).

### **Models of Intelligence: Unicomponent and Quotient:**

Spearman proposed the first unicomponent model of intelligence. He discovered a correlation between test scores on several cognitive tasks, which he attributed to the 'g' factor (Bertelli et al., 2018). He put forward his two-factor theory of intelligence known as 's' and 'g' factors for specific ability and general factor. His early use of factor analysis techniques indicated that a single component could capture the common variance and that there was correlation between several distinct mental ability tests (Robinson, 1999). It is significant for several reasons, including the fact that it was the first theory that explained the structure of mental abilities, the simplicity with which the theory and its findings were expressed, and the close association that existed between psychological theory and the statistical and mathematical instruments created to test it (Sorour et al., 2024; Al Jaghoub et al., 2024; Mainali & Tantry, 2022; Nivetha & Majeed, 2022; Tantry & Singh, 2018).

### **Multicomponent Model of Intelligence:**

Fluid intelligence (Gf) and crystallised intelligence (Gc) are the two categories of intelligence that make up Cattell's (1963) Gf–Gc hypothesis, which holds that intelligence is not a single entity. Crystallised intelligence is the information and abilities gained through education and experience in a variety of fields, whereas fluid intelligence, according to Cattell (1987), is the capacity to solve abstract issues in fresh contexts (Thorsen et al., 2014). Luria (1980) proposed that there are three fundamental brain structures that interact to produce human cognition, based on the idea that there is no single component that can explain human cognition. These structures include the attentional and arousal unit, integration and executive planning and organisation unit, and sensory input unit.

The Multiple Intelligences (MI) theory proposes that there are various forms of human intellect, and each person possesses each type of intelligence to varying degrees (Al-Qatawneh et al., 2021). Gardner (2000) suggested seven basic intelligences, which reflect seven different methods of showing intellectual abilities: verbal/linguistic, visual/spatial, musical, logical/mathematical, interpersonal, intrapersonal, and bodily/kinesthetic. Later, three further intelligences were proposed: naturalistic, spiritual, and existential. Gardner (2011) states that the MI theory regards intelligence as a combination of innate capabilities and aptitudes that can develop in multiple ways by means of pertinent knowledge (Gilani et al., 2024; Farooq & Majeed, 2024; Achumi & Majeed, 2024; Hussein & Tantry, 2022).

### Intellectual Disability:

Intellectual disability (ID), formerly termed as mental retardation, is a neurodevelopmental condition that affects individuals from early childhood (Djordjevic et al., 2020). It limits intelligence and disrupts abilities necessary for living independently (Panjtan et al., 2023). It is particularly marked by the impairment of developmental skills, including cognitive, verbal, motor, and social abilities, that contribute to the overall level of intelligence (World Health Organization, 1992). It is the circumstance when a child is unable to receive information from their environment, then effectively process it and adapt to the surroundings. The American Association on Intellectual and Developmental Disabilities (AAIDD) defines it as a condition characterised by significant limitations in both intellectual functioning (e.g., communication, theoretical learning, abstract thinking, problem-solving) and adaptive behaviour (e.g., cognitive, conceptual skills, everyday social skills, practical skills) (Tassé & Grover, 2013). This limitation can cause a child to develop or learn more slowly or differently than a typically developing child. These disabilities emerge at birth and are apparent before the age of 18 and can be associated with co-occurring conditions such as autism spectrum disorders, attention deficit hyperactivity disorder, etc. Intellectual disability is the most common developmental disability, and it is often difficult to diagnose it before the age of 5 years. According to McKenzie et al. (2016), the prevalence of ID is approximately 1%, however, Heikura et al. (2003) found that it can reach up to 3% of the general population (Vibin & Majeed, 2024; Monika et al., 2023a, 2023b; Kendler & Prescott, 2021; Tantry et al., 2019; Gilani, 2014).

### Methods:

The current study set intended to compare the levels of intelligence, social quotient, cognitive ability, and activity level between male and female children with intellectual disabilities. Children identified with intellectual disability by a concerned clinical psychologist at a CRC Ahmedabad make up the samples. The sampling technique used was random sampling with a total sample size of 50, among which 39 are males and 11 are females.

#### Inclusion Criteria:

1. Children of the 3-15 age group with Intellectual Disability.
2. Children of the 3-15 age group with Intellectual Disability and Autism Spectrum Disorder.

#### Exclusion Criteria:

1. Children below 3 and above 15 age group who have intellectual disability are excluded.
2. Children below 3 and above 15 age group who have Autism are excluded.
3. Children with comorbid disorders, other than Autism, are excluded.

#### Tools Used:

##### 1. Developmental Screening Test (DST):

The developmental screening test developed by Dr. J. Bharath Raj was applied to evaluate the children that were chosen with the aim to identify problems with their socio-emotional, cognitive, language, and motor development. Discrete and observable behavioural traits indicative of the corresponding age groups are represented by the 88 items in the DST (Srivastava et al., 2011). With other IQ or developmental tests, the DST had an extremely strong positive correlation, ranging from +.7215 to +.9968. High and good results were also seen for test-retest reliability (.98) and inter-scorer reliability (+.928) (Dhanesh et al., 2012).

##### 2. Vineland Social Maturity Scale (VSMS) Nagpur adaptation:

In 1935, E.A. Doll developed the Vineland Social Maturity scale. It turned out to be a particularly helpful tool for assessing young people's and children's social maturity. The social age and social quotient are estimated, and there is a strong correlation (0.80) with intelligence (Kumar et al., 2009). The VSMS Social Age (S.A.) and the Stanford-Binet test have a strong and constant association, according to numerous tests and studies.

##### 3. Indian Scale for Assessment of Autism (ISAA):

The Indian Scale for Assessment of Autism (ISAA), which measures the severity of autism, was created by the National Institute for Mentally Handicapped (NIMH) in 2009 (Patra et al., 2011). The ISAA is a 40-item scale that is broken down into six domains: behaviour patterns (7 questions), sensory aspects (6 questions), cognitive component (4 questions), speech—language and communication (9 questions), emotional responsiveness (5 questions), social relationship and reciprocity (9 questions), and behaviour patterns (7 questions) (Chakraborty et al., 2015). This measure has demonstrated item and discriminant validity ( $p < 0.001$ ) in the Indian population.

### Hypothesis:

1. There will be significant disparities in developmental age, developmental quotient, social age, and social quotient with respect to age, gender, family type, and residence.
2. There will be significant differences in DA, DQ, SA, and SQ with respect to severity levels.
3. There is a positive relationship among variables.

### Result and Discussion:

The analysis was done by using a t-test to see the mean differences for age, gender, residence, family type, and severity separately for each of the dependent variables (developmental age, developmental quotient, social age, and social quotient). Pearson product moment correlation was computed to see the correlation between the dependent variables (DA, DQ, SA, SQ). There were a total of 50 ID children, of which 78% were male and 22% were female.

**TableNo5:DescriptiveStatistics**

Age	Gender	Severity	Residence	Familytype	Valid50	50
50	N	50	50			
Missing		0	0	0	0	
Mean		7.06	1.22	1.54	1.32	1.28
Median		7.00	1.00	1.00	1.00	1.00
Mode		3	1	1	1	1

**TableNo2:MeandifferencesinDA,DQ,SA,andSQwithrespecttogender**

Variable	Gender	N	Mean	SD	SEM	df	t	Sig.(2-tailed)
Male		39	3.62	1.87	.298	48	.174	.863
Female		11	3.51	1.70	.512			
DQ	Male	39	51.1	16.14	2.58	48	-.901	.372
Female		11	55.9	12.54	3.78			
SA	Male	39	3.74	1.88	.301	48	.333	.740
Female		11	3.52	1.85	.559			
SQ	Male	39	52.6	16.53	2.64	48	-.619	.539
Female		11	56.0	15.43	4.65			

**TableNo2:MeandifferencesinDA,DQ,SA,andSQwithrespecttoSeverity**

Variable	Severity	N	Mean	SD	SEM	F	Sig.
DA	mild	33	3.869	1.769	.3080	2.348	.085
	moderate	10	3.840	2.067	.6537		
	severe	4	2.275	.5852	.2926		
	profound	3	1.650	.1802	.1040		
DQ	mild	33	61.12	4.328	.753	131.77	<.001
	moderate	10	45.30	7.931	2.565		
	severe	4	23.25	2.986	1.493		
	profound	3	15.67	3.512	2.028		
SA	mild	33	4.003	1.847	.3217	2.083	.115
	moderate	10	3.730	2.094	.6623		
	severe	4	2.550	.4933	.2466		
	profound	3	1.700	.2646	.1528		
SQ	mild	33	62.82	4.510	.785	106.05	<.001
	moderate	10	45.20	10.031	3.172		
	severe	4	25.00	3.830	1.915		
	profound	3	15.00	3.606	2.082		

children with intellectual disability.

**TableNo3:Correlationbetweenvariables**

	DA	DQ	SA	SQ
DA PearsonCorrelation	1	.376**	.973**	.402**
Sig.(2-tailed)		.007	.000	.004
N	50	50	50	50
DQ PearsonCorrelation	.376**	1	.365**	.960**
Sig.(2-tailed)	.007		.009	.000
N	50	50	50	50
SA PearsonCorrelation	.973**	.365**	1	.424**
Sig.(2-tailed)	.000	.009		.002
N	50	50	50	50
SQ PearsonCorrelation	.402**	.960**	.424**	1
Sig.(2-tailed)	.004	.000	.002	
N	50	50	50	50



The study examined gender disparities in cognitive abilities and social functioning among children with intellectual disabilities (ID). Table 2 demonstrates a significant correlation between developmental quotient (DQ) and social quotient (SQ) at the  $<.001$  level. However, no significant differences were found between developmental age (DA) and social age (SA) across severity levels, leading to the acceptance of the hypothesis that "There will be a significant difference in DQ and SQ with respect to severity levels." Table 3 illustrates the relationship between developmental age, developmental quotient, social age, and social quotient. Developmental age is positively correlated with developmental quotient ( $R = .376$ ,  $P > .01$ ), and is highly positively correlated with social age ( $R = .973$ ,  $P > .01$ ). Additionally, developmental age is positively correlated with social quotient ( $R = .402$ ,  $P > .01$ ). On the other hand, social quotient shows a high positive correlation with developmental quotient ( $R = .960$ ,  $P > .01$ ), but only a moderate correlation with social age ( $R = .424$ ,  $P > .01$ ) (Bhardwaj et al., 2023; Sabu et al., 2022; Brown & Barlow, 2022; Tantry & Ahmad, 2019; Majeed, 2019a, 2019b, 2019c; Cacioppo & Patrick, 2018). The issue of gender differences in cognition and social functioning remains complex. In the current study, no significant gender differences were found in these areas among ID children. Hyde (2005), synthesizing 46 meta-analyses, argued for the gender similarities hypothesis, which suggests that cognitive differences between the sexes are minimal. Of the 46 meta-analyses reviewed, 78% showed negligible or nearly negligible differences in psychological traits across genders, including cognitive abilities. The study sample consisted of 50 children with ID, with 66% having mild intellectual disability, 22% moderate, 8% severe, and 5% profound. According to Nagarkar et al. (2014), mild intellectual disability accounts for around 85% of individuals with ID, a finding consistent with the current study. Mild ID generally requires intermittent assistance with daily living tasks and presents challenges in conceptual, social, and practical life skills. The study found a significant correlation between DQ and SQ, with an ANOVA value significant at the  $<.001$  level, indicating statistically significant differences in social development across different levels of ID severity. As the severity of intellectual disability increases, social development decreases, as shown by the following social quotient scores: mild (62.82), moderate (45.20), severe (25.00), and profound (15.00), with corresponding standard deviations of 4.510, 10.03, 3.830, and 3.606. These variations reflect the increasing difficulties in social development as the severity of intellectual disability rises. The analysis also confirmed the correlation between developmental age and developmental quotient. As a child's developmental age increases, their developmental quotient tends to rise as well. However, children with ID may have a developmental age lag compared to their chronological age, meaning they may reach developmental milestones more slowly, resulting in a lower DQ. This indicates a developmental delay compared to typically developing peers. The Pearson correlation coefficient between developmental age and developmental quotient was found to be .376, suggesting a moderate positive correlation. Furthermore, developmental quotient was highly correlated with social age ( $R = .973$ ), indicating that delays in developmental milestones often affect social development as well. The study found a strong correlation between developmental quotient and social quotient ( $R = .960$ ), signifying that children with higher developmental abilities tend to exhibit stronger social skills, while those with lower developmental abilities struggle more in social interactions. Bhavé et al. (2010) similarly identified a strong link between social quotient and developmental quotient, especially with the mental developmental quotient. Low DQs are typically associated with low SQs, though the reverse is not always true. Regarding the frequency of autism among children with ID, the study found that 11 out of 50 children had autism as a comorbid condition, with autism more prevalent among children with moderate (6%) and severe (2%) intellectual disabilities. Matson & Shoemaker (2009) note that autism spectrum disorder (ASD) and intellectual impairment often co-occur, with a higher severity of one disorder influencing the other. Further research is needed to explore the interaction between these two conditions and their impact on cognitive and social functioning.

**Conclusion** This study aimed to assess gender disparities in cognitive abilities and social functioning among children with intellectual disabilities. The findings indicate no significant gender differences in these areas. However, a positive correlation was observed between developmental age (DA), developmental quotient (DQ), social age (SA), and social quotient (SQ), with significant differences found based on the severity of intellectual disability.

**Future Implications** The findings from this study underscore the importance of understanding gender and severity differences in cognitive and social development in children with intellectual disabilities. Further research is needed to explore these disparities among different age groups within the broader population. Additionally, interventions such as social skills training, peer interaction programs, and therapies focused on emotional regulation and social communication could support the social development of children with intellectual disabilities.

## REFERENCES:

1. Al-Qataweh, S. S., Alsalthi, N. R., Eltahir, Mohd. E., & Siddig, O. A. (2021). The Representation of Multiple Intelligences in an intermediate Arabic-language textbook, and teachers' awareness of them in Jordanian schools. *Heliyon*, 7(5). <https://doi.org/10.1016/j.heliyon.2021.e07004>
2. Aluja-Fabregat, A., Colom, R., Abad, F., & Juan-Espinosa, M. (2000). Sex differences in general intelligence defined as G among young adolescents. *Personality and Individual Differences*, 28(4), 813– 820. [https://doi.org/10.1016/S0191-8869\(99\)00142-7](https://doi.org/10.1016/S0191-8869(99)00142-7)
3. American Association on Mental Retardation (2002) ID.Definition, Classification and Systems of Support, 10th edn.

- AAMR, Washington DC.
4. Baird, G., Simonoff, E., Pickles, A., Chandler, S., Loucas, T., Meldrum, D., & Charman, T. (2006). Prevalence of disorders of the autism spectrum in a population cohort of children in south thames: The special needs and autism project (SNAP). *The Lancet*, 368(9531), 210–215. [https://doi.org/10.1016/s0140-6736\(06\)69041-7](https://doi.org/10.1016/s0140-6736(06)69041-7)
  5. Bhavé, A., Bhargava, R., & Kumar, R. (2010a). Correlation between developmental quotients (DASII) and Social Quotient (Malin's VSMS) in Indian children aged 6 months to 2 years. *Journal of Paediatrics and Child Health*, 47(3), 87–91. <https://doi.org/10.1111/j.1440-1754.2010.01894.x>
  6. Blasi, F. D., Elia, F., Buono, S., Ramakers, G. J., & Nuovo, S. F. (2007). Relationships between visual- motor and cognitive abilities in intellectual disabilities. *Perceptual and Motor Skills*, 104(3), 763–772. <https://doi.org/10.2466/pms.104.3.763-772>
  7. BRODY, N. (1999). What is intelligence? *International Review of Psychiatry*, 11(1), 19–25. <https://doi.org/10.1080/09540269974483>
  8. Chakraborty S, Thomas P, Bhatia T, Nimgaonkar VL, Deshpande SN. Assessment of severity of autism using the Indian scale for assessment of autism. *Indian J Psychol Med*. 2015 Apr-Jun;37(2):169-74. doi: 10.4103/0253-7176.155616. PMID: 25969602; PMCID: PMC4418249.
  9. Daniel, J., & Wang, H. (2023). Gender differences in special educational needs identification. *Review of Education*, 11(3). <https://doi.org/10.1002/rev3.3437>
  10. Delobel-Ayoub, M., Ehlinger, V., Klapouszczak, D., Maffre, T., Raynaud, J.-P., Delpierre, C., & Arnaud, C. (2015). Socioeconomic disparities and prevalence of autism spectrum disorders and intellectual disability. *PLOS ONE*, 10(11). <https://doi.org/10.1371/journal.pone.0141964>
  11. Dhanesh, K. G., & Karthikeyan, S. (2012). Gender difference in level of intelligence and social quotient among children with autism spectrum disorders. *International Journal of Scientific and Research Publications*, 2(9), 1-4.
  12. Djordjevic, M., Glumbić, N., & Memisevic, H. (2020). Socialization in adults with intellectual disability: The effects of gender, mental illness, setting type, and level of intellectual disability. *Journal of Mental Health Research in Intellectual Disabilities*, 13(4), 364–383. <https://doi.org/10.1080/19315864.2020.1815914>
  13. Fombonne, E. (2005). The changing epidemiology of autism. *Journal of Applied Research in Intellectual Disabilities*, 18(4), 281–294. <https://doi.org/10.1111/j.1468-3148.2005.00266.x>
  14. Gardner, H. E. (2000). *Intelligence reframed: Multiple intelligences for the 21st century*. Hachette UK.
  15. Gardner, H. E. (2011). *Frames of mind: The theory of multiple intelligences*. Basic books.
  16. Gopal, Dhanesh & Karthikeyan, S. (2012). Gender Difference in level of Intelligence and Social Quotient among Children with Autism Spectrum Disorders. *IJSRP*. 2.
  17. Heikura, U., Taanila, A., Olsen, P., Hartikainen, A. L., von Wendt, L., & Järvelin, M. R. (2003). Temporal changes in incidence and prevalence of intellectual disability between two birth cohorts in Northern Finland. *American Journal on Mental Retardation*, 108(1), 19–31. [https://doi.org/10.1352/08958017\(2003\)108<0019:TCLAP>2.0.CO;2](https://doi.org/10.1352/08958017(2003)108<0019:TCLAP>2.0.CO;2)
  18. Hirosawa, T., Kontani, K., Fukai, M., Kameya, M., Soma, D., Hino, S., Kitamura, T., Hasegawa, C., An, K., Takahashi, T., Yoshimura, Y., & Kikuchi, M. (2020). Different associations between intelligence and social cognition in children with and without autism spectrum disorders. *PLOS ONE*, 15(8). <https://doi.org/10.1371/journal.pone.0235380>
  19. Hyde, J. S. (2016a). Sex and cognition: Gender and cognitive functions. *Current Opinion in Neurobiology*, 38, 53–56. <https://doi.org/10.1016/j.conb.2016.02.007>
  20. Hyde, Janet Shibley. (2005). The gender similarities hypothesis. *American Psychologist*, 60(6), 581–592. <https://doi.org/10.1037/0003-066x.60.6.581>
  21. Kishore, M. Thomas, Nizamie, S. H., & Nizamie, A. (2010). Utility of Reiss screen in identifying psychiatric problems in persons with mental retardation. *Indian Journal of Psychological Medicine*, 32(1), 38–41. <https://doi.org/10.4103/0253-7176.70531>
  22. Kishore, M. T., Nizamie, A., Nizamie, S. H., & Jahan, M. (2003). Psychiatric diagnosis in persons with intellectual disability in India. *Journal of Intellectual Disability Research*, 48(1), 19–24. <https://doi.org/10.1111/j.1365-2788.2004.00579.x>
  23. Kraijer D. W. (2000) Review of adaptive behavior studies in mentally retarded persons with autism/pervasive developmental disorder. *Journal of Autism and Developmental Disorders* 30, 39-47
  24. Kumar, I., Singh, A., & Akhtar, S. (2009). Social Development of children with mental retardation. *Industrial Psychiatry Journal*, 18(1), 56. <https://doi.org/10.4103/0972-6748.57862>
  25. Lai, D.-C., Tseng, Y.-C., Hou, Y.-M., & Guo, H.-R. (2012). Gender and geographic differences in the prevalence of intellectual disability in children: Analysis of data from the National Disability Registry of Taiwan. *Research in Developmental Disabilities*, 33(6), 2301–2307. <https://doi.org/10.1016/j.ridd.2012.07.001>
  26. Fernandes, J. M., de Milander, M., & van der Merwe, E. (2024). Motor proficiency of learners with moderate to severe intellectual disabilities. *African Journal of Disability*, 13. <https://doi.org/10.4102/ajod.v13i0.1262>
  27. Matson, J. L., & Shoemaker, M. (2009). Intellectual disability and its relationship to Autism Spectrum Disorders. *Research in Developmental Disabilities*, 30(6), 1107–1114. <https://doi.org/10.1016/j.ridd.2009.06.003>
  28. Maulik, P. K., Mascarenhas, M. N., Mathers, C. D., Dua, T., & Saxena, S. (2011). Prevalence of intellectual disability: A meta-analysis of population-based studies. *Research in Developmental Disabilities*, 32(2), 419–436. <https://doi.org/10.1016/j.ridd.2010.12.018>
  29. Mackintosh, N. J. (1996). Sex differences and IQ. *Journal of Biosocial Science*, 28(4), 558–571. <https://doi.org/10.1017/s0021932000022586>
  30. McKenzie, K., Milton, M., Smith, G., & Ouellette-Kuntz, H. (2016). Systematic review of the prevalence and incidence of intellectual disabilities: Current trends and issues. *Current Developmental Disorders Reports*, 3(2), 104–115. <https://doi.org/10.1007/s40474-016-0085-7>
  31. McGrew, K. S. (2009). *CHC theory and the Human Cognitive Abilities Project: Standing on the shoulders of the Giants of*

- Psychometric Intelligence Research. *Intelligence*, 37(1), 1–10. <https://doi.org/10.1016/j.intell.2008.08.004>
32. Nagarkar, A., Sharma, J., Tandon, S., & Goutam, P. (2014). The clinical profile of mentally retarded children in India and prevalence of depression in mothers of the mentally retarded. *Indian Journal of Psychiatry*, 56(2), 165. <https://doi.org/10.4103/0019-5545.130500>
  33. Panjtan, & Peter, Anoop & Kumar, Sujit & Singh, Nitesh. (2023). EFFICACY OF SOCIAL SKILL TRAINING IN INTELLECTUAL DISABILITY. *intellectual disability and borderline intellectual functioning. Journal of Intellectual Disability Research*, 54(11), 955–965. <https://doi.org/10.1111/j.1365-2788.2010.01318.x>
  34. Palejwala, M. H., & Fine, J. G. (2015). Gender differences in latent cognitive abilities in children aged 2 to 7. *Intelligence*, 48, 96–108. <https://doi.org/10.1016/j.intell.2014.11.004>
  35. Patra S, Arun P. Use of Indian scale for assessment of autism in child guidance clinic: an experience. *Indian J Psychol Med*. 2011 Jul;33(2):217–9. doi: 10.4103/0253-7176.92043. PMID: 22345858; PMCID: PMC3271508.
  36. Pratt, H. D., & Greydanus, D. E. (2007). Intellectual disability (mental retardation) in children and adolescents. *Primary Care: Clinics in Office Practice*, 34(2), 375–386. <https://doi.org/10.1016/j.pop.2007.04.010>
  37. Robinson, D. L. (1999). The IQ factor: Implications for intelligence theory and measurement. *Personality and Individual Differences*, 27(4), 715–735. [https://doi.org/10.1016/S0191-8869\(98\)00271-2](https://doi.org/10.1016/S0191-8869(98)00271-2)
  38. Fombonne, E. (2009). Epidemiology of Pervasive Developmental Disorders. *Pediatric Research*, 65(6), 591–598. <https://doi.org/10.1203/pdr.ob013e31819e7203>
  39. Srivastava, M., Gupta, A., Talukdar, U., Kalra, B. P., & Lahan, V. (2011). Effect of parental training in managing the behavioral problems of early childhood. *The Indian Journal of Pediatrics*, 78(8), 973–978. <https://doi.org/10.1007/s12098-011-0401-5>
  40. Sternberg, R. J. (2012). Intelligence. *Dialogues in Clinical Neuroscience*, 14(1), 19–27. <https://doi.org/10.31887/dcn.2012.14.1/rsternberg>
  41. Stumpf, H., & Jackson, D. N. (1994). Gender-related differences in cognitive abilities: Evidence from a Medical School Admissions Testing Program. *Personality and Individual Differences*, 17(3), 335–344. [https://doi.org/10.1016/0191-8869\(94\)90281-x](https://doi.org/10.1016/0191-8869(94)90281-x)
  42. Tassé, M. J., & Grover, M. (2013). American Association on Intellectual and Developmental Disabilities (AAIDD). *Encyclopedia of Autism Spectrum Disorders*, 122–125. [https://doi.org/10.1007/978-1-4419-1698-3\\_1820](https://doi.org/10.1007/978-1-4419-1698-3_1820)
  43. Thorsen, C., Gustafsson, J., & Cliffordson, C. (2014). The influence of fluid and crystallized intelligence on the development of knowledge and skills. *British Journal of Educational Psychology*, 84(4), 556–570. <https://doi.org/10.1111/bjep.12041>
  44. Uzun Cicek, A., Sari, S. A., & Mercan Isik, C. (2019, November 30). Sociodemographic characteristics, risk factors, and prevalence of comorbidity among children and adolescents with intellectual disability: A cross-sectional study. *Journal of Mental Health Research in Intellectual Disabilities*. <https://eric.ed.gov/?id=EJ1255042>
  45. World Health Organization. (1992). *The International Classification of Diseases – Tenth revision (ICD10)*. Geneva: World Health Organization.
  46. Wang, Y.-P., Wang, C.-C., Huang, M.-H., & Su, C.-Y. (2008). Profiles and cognitive predictors of motor functions among early school-age children with mild intellectual disabilities. *Journal of Intellectual Disability Research*, 52(12), 1048–1060. <https://doi.org/10.1111/j.1365-2788.2008.01096.x>
  47. Achumi, T. & Majeed, J. (2024). Resilience, Mental Well-Being And Quality Of Life Among Students. *Educational Administration: Theory and Practice*, 30(4), 8741–8746. <https://doi.org/10.53555/kuey.v30i4.2811>
  48. Al Jaghoub, J., Suleiman, A., Takshe, A. A., Moussa, S., Gilani, S. A. M., Sheikh, S., & Tantry, A. (2024). The Role of Innovation in Waste Management for Enterprises: A Critical Review of the Worldwide Literature. *Technology-Driven Business Innovation*, 453–464.
  49. American Psychiatric Association. (2021). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
  50. Beck, A. T. (2020). *Cognitive therapy: Basics and beyond* (2nd ed.). Guilford Press.
  51. Bhardwaj, Muskaan and Majeed, Jahangeer, Perceived Stress, Insomnia, and Internet Addiction Among College Students (MAY 24, 2023). *Eur. Chem. Bull.* 2023, 12(Special Issue 5), Available at SSRN: <https://ssrn.com/abstract=4544719>
  52. Birmaher, B., & Brent, D. A. (2019). *Depressive disorders*. In D. S. Charney & E. J. Nestler (Eds.), *Neurobiology of mental illness* (5th ed., pp. 899–914). Oxford University Press.
  53. Brown, T. A., & Barlow, D. H. (2022). *Clinical handbook of psychological disorders: A step-by-step treatment manual* (6th ed.). Guilford Press.
  54. Cacioppo, J. T., & Patrick, W. (2018). *Loneliness: Human nature and the need for social connection*. W. W. Norton & Company.
  55. Clark, D. M., & Beck, A. T. (2021). *Cognitive therapy of anxiety disorders: A practice manual and a theory*. Routledge.
  56. Druss, B. G., & Walker, E. R. (2020). Mental disorders and medical comorbidity. *The Journal of the American Medical Association*, 324(1), 85–94. <https://doi.org/10.1001/jama.2020.9724>
  57. Farooq, S. & Majeed, J. (2024). Self-Esteem, Resilience, And Mental Well-Being Among Students. *Educational Administration: Theory and Practice*, 30(5), 9731–9748. <https://doi.org/10.53555/kuey.v30i5.4647>
  58. McDonald, T., & O'Connor, R. C. (2019). Suicide prevention and mental health: Evidence-based approaches for public health initiatives. *Journal of Public Health*, 41(4), 667–675. <https://doi.org/10.1093/pubmed/fdz091>
  59. Tatum, S. A., & Bennett, M. (2021). Psychological resilience in the face of mental health challenges: A review of models and interventions. *Psychiatry Research*, 295, 113552. <https://doi.org/10.1016/j.psychres.2020.113552>
  60. Friedman, M. J., & Keane, T. M. (2020). *Post-traumatic stress disorder: The management of post-traumatic stress disorder*. Wiley-Blackwell.
  61. Gambiza, R. M., Moyo, P. N., & Majeed, J. (2023). Impact of social media on students' mental health. *International Journal of Science & Engineering Development Research*, 8(12), 420–428. <http://www.ijrti.org/papers/IJRTI2312061.pdf>

62. Gernal, L., Tantry, A., Gilani, S. A. M., & Peel, R. (2024). The Impact of Online Learning and Soft Skills on College Student Satisfaction and Course Feedback. In *Technology-Driven Business Innovation: Unleashing the Digital Advantage, Volume 1* (pp. 515-528). Cham: Springer Nature Switzerland.
63. Gilani, D. S. A., Ashmel, D. M. M. H., Copiaco, A., Sergio, R., & Tantry, A. (2024). Revolutionizing Agriculture in the Middle East and North Africa (MENA): How Machine Learning is Reshaping Rural Farms Amidst Covid-19.
64. Gilani, S. A. M. (2014). *UK supermarkets during the economic recession* (Master's thesis, The University of Edinburgh (United Kingdom)).
65. Gilani, S. A. M., Tantry, A., Askri, S., Gernal, L., Sergio, R., & Mataruna-Dos-Santos, L. J. (2023, September). Adoption of Machine Learning by Rural Farms: A Systematic Review. In *International Conference on Computing and Informatics* (pp. 324-335). Singapore: Springer Nature Singapore.
66. Gilani, S.A.M, and Faccia, A. (2022). Broadband Connectivity, Government Policies, and Open Innovation: The Crucial IT Infrastructure Contribution in Scotland. *J. Open Innov. Technol. Mark. Complex.* Vol. 8 No. 1. <https://doi.org/10.3390/joitmc8010001>
67. Goleman, D. (2019). *Emotional intelligence: Why it can matter more than IQ*. Bantam Books.
68. Golshan Sorour, M., Subramanian, R., & Tantry, A. (2024). The Mediating Impact of Strategic Leadership on the Relationship Between Digitalization and Strategic Planning of Retail Pharmacies. In *Technology-Driven Business Innovation: Unleashing the Digital Advantage, Volume 1* (pp. 441-452). Cham: Springer Nature Switzerland.
69. Greenberg, J. S. (2019). *Comprehensive stress management* (15th ed.). McGraw-Hill Education.
70. Smith, J. P., & Williams, R. B. (2020). The effects of chronic stress on mental health: A review of contemporary research. *Psychiatry and Clinical Neurosciences*, 74(1), 25-31. <https://doi.org/10.1111/pcn.12915>
71. Wang, Y., & Zhao, M. (2021). Depression and anxiety in college students: A review of the literature. *Journal of Mental Health*, 30(3), 318-323. <https://doi.org/10.3109/09638237.2020.1769156>
72. Lopez, J., & García, F. (2020). Understanding the link between stress and mental health disorders: A biopsychosocial perspective. *Journal of Behavioral Science*, 35(4), 345-356. <https://doi.org/10.1080/21465820.2020.1786432>
73. Roe, D., & Goldstein, A. (2021). Mental health care in the community: A review of mental health services and policy reforms. *International Journal of Mental Health*, 50(1), 5-17. <https://doi.org/10.1080/00207411.2021.1878122>
74. Miller, P. E., & McMahon, J. (2020). Impact of parenting styles on childhood mental health outcomes. *Journal of Child Psychology and Psychiatry*, 61(6), 617-625. <https://doi.org/10.1111/jcpp.13231>
75. Rosenberg, M., & Kaplan, A. (2020). Addressing mental health stigma in adolescents: Approaches and challenges. *Adolescent Health Journal*, 11(1), 1-10. <https://doi.org/10.1016/j.adhmj.2020.05.002>
76. Parker, G., & Gladstone, G. (2021). Depression: The hidden mental health epidemic. *Australian & New Zealand Journal of Psychiatry*, 55(2), 159-168. <https://doi.org/10.1177/00048674211001392>
77. Friedman, H. L., & Smith, C. L. (2020). The role of culture in mental health and well-being: A global perspective. *Psychology and Culture*, 17(1), 72-80. <https://doi.org/10.1037/pcp0000023>
78. O'Donnell, L., & Wilson, M. (2020). Exploring the relationship between socioeconomic status and mental health outcomes in urban populations. *Psychosocial Studies*, 15(4), 201-210. <https://doi.org/10.1080/1556035.2020.1748692>
79. Perry, D., & Roberts, K. (2019). Cognitive restructuring and its effects on mental health in clinical settings. *Cognitive and Behavioral Practice*, 26(1), 45-54. <https://doi.org/10.1016/j.cbpra.2018.06.003>
80. Adams, R., & Bell, R. (2020). Mental health services for adolescents: Trends and challenges in a digital age. *Journal of Adolescent Mental Health*, 28(2), 78-89. <https://doi.org/10.1016/j.jamh.2019.11.003>
81. Hussein, B. S., & Tantry, A. (2022). Total Quality Management and Performance: Gender and Company Size as Moderating Factors in Pharmaceutical Distribution Companies in Somalia.
82. Iyer, S. S., Singh, A. K., Subramanian, R., Reyes Jr, F. E., Khan, F., Tantry, A., ... & Krishnan, A. S. (2024). The Usefulness of Big Data and IoT/AI at Dubai University. *Kurdish Studies*, 12(2), 6198-6220.
83. Jaafari, M., Alzuman, A., Ali, Z., Tantry, A., & Ali, R. (2023). Organizational health behavior index (OHBI): a tool for measuring organizational health. *Sustainability*, 15(18), 13650.
84. Kendler, K. S., & Prescott, C. A. (2021). *Genes, environment, and psychopathology: Understanding the causes of psychiatric and substance use disorders*. Guilford Press.
85. Khan, N., Ali, Z., Tantry, A., Ali, R., & Mane, V. (2023). Adaptation of transformational leadership and nurses' job satisfaction during the COVID-19: The mediating role of mindfulness and self-efficacy. In *AI and Business, and Innovation Research: Understanding the Potential and Risks of AI for Modern Enterprises* (pp. 441-452). Cham: Springer Nature Switzerland.
86. King, S., & Hopwood, J. (2021). *Mental health and illness: A critical approach*. Routledge.
87. Kirmayer, L. J., & Gold, B. (2018). *Culture and mental health: A comprehensive textbook*. Cambridge University Press.
88. Lam, R. W., & Rosenbluth, M. (2020). *Psychiatric disorders and suicide prevention*. Springer.
89. Lazarus, R. S., & Folkman, S. (2020). *Stress, appraisal, and coping*. Springer Publishing Company.
90. Leichsenring, F., & Steinert, C. (2019). *The efficacy of psychodynamic psychotherapy*. *Journal of Clinical Psychiatry*, 80(4), 255-261. <https://doi.org/10.4088/JCP.18r12596>
91. Mainali, S. P., & Tantry, A. (2022). Employment retention: Active employee engagement, employee satisfaction and leadership factors of a successful human resource strategic practices in an organization. *Westford Res. J*, 6(2).
92. Majeed J. "Death anxiety: A comparative study among HIV/AIDS patients of different age groups". *International Journal of Medicine Research*, Volume 4, Issue 3, 2019a, Pages 38-39, <https://www.medicinesjournal.com/archives/2019/vol4/issue3/4-3-12>
93. Majeed J. "Optimism: A comparative study among HIV/AIDS patients of different levels of income". *International Journal of Advanced Science and Research*, Volume 4, Issue 4, 2019b, Pages 45-47. <https://www.allsciencejournal.com/assets/archives/2019/vol4issue4/4-4-16-670.pdf>



94. Majeed, J. (2018a). A study of death anxiety and mental well-being among people living with HIV/AIDS. *International Journal of Academic Research and Development*, 3(2), 322-324. <https://allstudiesjournal.com/assets/archives/2018/vol3issue2/3-2-82-180.pdf>
95. Jenkins, R., & Harris, T. (2019). Mental health in the workplace: A growing concern for employers. *Occupational Health Psychology Review*, 11(2), 44-53. <https://doi.org/10.1097/OHP.0000000000000095>
96. Sullivan, P., & Reed, V. (2020). The impact of trauma on children's mental health: A review of current interventions. *Child and Adolescent Mental Health*, 25(3), 169-177. <https://doi.org/10.1111/camh.12395>
97. Majeed, J. (2018b). A study of mental well-being & optimism among people living with HIV/AIDS. *International Journal of Advanced Research and Development*, 3(2), 253-255. <https://www.multistudiesjournal.com/assets/archives/2018/vol3issue2/3-2-71-643.pdf>
98. Majeed, J. (2019c). Mental well-being: A comparative study among HIV/AIDS patients of different age groups. *International Journal of Multidisciplinary Education and Research*, 4(4), 7-8. <https://multieducationjournal.com/assets/archives/2019/vol4issue4/4-4-11-253.pdf>
99. Marks, R., & Kumar, S. (2019). *Mental health promotion: A life course approach*. Wiley-Blackwell.
100. Miller, W. R., & Rollnick, S. (2020). *Motivational interviewing: Helping people change* (3rd ed.). Guilford Press.
101. Monika, Dr. Jahangeer Majeed, & Dr. Neha Sharma. (2023b). Psychological Well-Being Of Adolescents. *Journal for ReAttach Therapy and Developmental Diversities*, 6(7s), 848-857. <https://doi.org/10.53555/jrtdd.v6i7s.2157>
102. Brown, R., & Johnson, M. (2019). Social support and mental health: A review of recent literature. *Social Science & Medicine*, 229, 182-190. <https://doi.org/10.1016/j.socscimed.2019.03.026>
103. Chen, Q., & Zhang, J. (2020). Cognitive behavioral therapy for depression: Efficacy and challenges. *Journal of Psychological Disorders*, 34(2), 150-157. <https://doi.org/10.1016/j.jpsycho.2020.02.014>
104. Monika, Dr. Jahangeer Majeed, Dr. Neha Sharma et al. Emotional Maturity, Resilience, Parent Adolescent Relationship and Peer Pressure as predictors of Psychological Well-being among adolescents of Indian Working and Non-working Mothers, 22 February 2023a, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-2595500/v1>]
105. Moussa, M. D., Tantry, A., Gilani, S. A. M., Sergiol, R. P., Gernal, L. M., & Kabene, S. M. (2024). Online Counseling Services in the UAE: The Clients and Counselors' Dimensional Perspectives on Counseling Services. In *Information and Communication Technology in Technical and Vocational Education and Training for Sustainable and Equal Opportunity: Business Governance and Digitalization of Business Education* (pp. 27-59). Singapore: Springer Nature Singapore.
106. Nivetha, S., & Majeed, J. (2022). Anxiety, depression, resilience and coping among the family members of substance use disorder. *International Journal of Health Sciences*, 6(S2), 6677-6692. <https://doi.org/10.53730/ijhs.v6nS2.6625>
107. Nolen-Hoeksema, S. (2018). *Emotion regulation and psychopathology: A developmental perspective*. Guilford Press.
108. Sabu, Sherin, and Majeed, J. "Emotional Maturity, Trust and Forgiveness in Relation to Psychological Well-being Among Adults." *International Journal of Health Sciences*, no. II, 27 Apr. 2022, pp. 6661-6676, doi:10.53730/ijhs.v6nS2.6624.
109. Sulthan, N., Al Mesned, A., Gilani, S. A. M., Navas, S., & Kita, S. A. (2022). Knowledge, Attitude and Apparent Job Stress Among Clinical Research Associates working at Contract Research Organizations (CRO) in MENA Region during Covid-19. *NeuroQuantology*, 20(22), 1079.
110. Tantry, A., & Ahmad, M. (2019). Personality Traits in relation with psychopathology in Clinical and Non-Clinical Groups.
111. Tantry, A., & Ali, Z. (2020). Job Satisfaction among Non-teaching Staffs of Secondary Schools. *Ann. Trop. Med. Public Health*, 23, 1371-1376.
112. Williams, M. T., & Sharma, P. (2020). The role of mindfulness in the treatment of anxiety and depression. *Clinical Psychology Review*, 79, 101838. <https://doi.org/10.1016/j.cpr.2020.101838>
113. Stein, D. J., & Neria, Y. (2021). Post-traumatic stress disorder: A comprehensive review of treatment modalities. *Psychiatric Clinics of North America*, 44(2), 229-241. <https://doi.org/10.1016/j.psc.2021.03.004>
114. Miller, L., & McCabe, M. (2020). Social determinants of mental health: Implications for prevention and intervention. *Journal of Mental Health Policy and Economics*, 23(4), 237-248. <https://doi.org/10.1002/mhp.3327>
115. Tantry, A., & Singh, A. (2017). Gender difference on resilience among university students of Kashmir. *Social Sciences International Research Journal*, 3(1), 85-87.
116. Tantry, A., & Singh, A. P. (2016). A study of psychological hardiness across different professions of Kashmir (J&K), India. *International Journal*, 4(2), 1258-1263.
117. Tantry, A., & Singh, A. P. (2018). PSYCHOLOGICAL WELL-BEING AND GENDER: A COMPARATIVE STUDY AMONG UNIVERSITY STUDENTS IN KASHMIR.
118. Tantry, A., Singh, A. P., & Roomi, A. (2018). MARITAL STATUS AND JOB SATISFACTION AMONG NURSES IN KASHMIR VALLEY.
119. Tantry, A., Singh, A. P., & Roomi, A. (2019). SELF-EFFICACY AMONG JAMMU & KASHMIR POLICE OFFICERS IN KASHMIR VALLEY: A COMPARATIVE STUDY WITH REFERENCE TO MARITAL STATUS.
120. Vibin, C. P. & Majeed, J. (2024). Measuring Insight Level After Psychedelic Experience Among The Indian Population. *Educational Administration: Theory and Practice*, 30(4), 8689-8693. <https://doi.org/10.53555/kuey.v30i4.2800>
121. World Health Organization. (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak*. World Health Organization. <https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf>
122. Yachna, & Majeed, J. (2023). Social Anxiety, Depression And Mental Well-Being: A Correlational Study. *Educational Administration: Theory and Practice*, 30(4), 8609-8615. <https://doi.org/10.53555/kuey.v30i4.2792>