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Effect of psycho-education on cognitive skills developmental problems among mild mentally challenged children's enrolled at special schools of selected city

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Abstract

Introduction: A child's process of changing over time is known as child development. It includes the entire time from conception to the point at which a person becomes a fully developed adult. It's a journey from complete reliance to complete autonomy. Physical development is included in the process of a child's intellectual, linguistic, emotional, and social growth. Even though they are frequently taken into independent consideration, each factor affects the others. For instance, intellectual capacity increases with the physical development of the brain. The most common definitions of intellectual disability, also known as mental retardation, place a strong emphasis on subaverage intellectual functioning (IQ less than 70) and impairments in life skills, including communication, self-care, home living, and social or interpersonal skills, before the age of 18. IQ scores are used to define various severity categories of retardation, ranging from mild to severe. **Method and Material:** This study utilized pre experimental research study, where one group Pretest & post-test design was used to assess the effect of psycho education on cognitive skills developmental problems in 60 mentally challenged children from special schools, Non probability purposive sampling technique was used. Data was collected using a combination of formal interviews with teachers and caregivers, children's behavior and interactions in their educational and social settings. Standardized developmental assessment techniques were used to evaluate effectiveness of mental teaching on cognitive problems. **Results;** The study also highlights the effectiveness of mental education on cognitive development. The pre-test mean score of 25.95±4.52 significantly improved in the post-test to 21.48±5.26, with a paired t-test revealing a t-value of 18.8398 and a highly significant p-value of 0.0001. This indicates that mental education interventions have a meaningful impact on the cognitive skills of mentally challenged children. Furthermore, while the analysis of socio-demographic variables and developmental history revealed that most factors showed no significant associations. **Conclusion:** Overall, these findings underscore the importance of targeted educational interventions and highlight areas for future research to enhance outcomes for mentally challenged children.

Keywords: Cognitive problems, Mentally Challenged Children, Special School, Mental Education.

INTRODUCTION:

A child's process of changing over time is known as child development. It includes the entire time from conception to the point at which a person becomes a fully developed adult. It's a journey from complete reliance to complete autonomy. Physical development is included in the process of a child's intellectual, linguistic, emotional, and social growth. Even though they are frequently taken into independent consideration, each factor affects the others. For instance, intellectual capacity increases with the physical development of the brain. As a result, a kid is able to delve deeper into their social environment and acquire the verbal and emotional reactions to it. However, this exploration also has a direct effect on the child's continued physical brain growth. The course and growth of

a child's development within a particular individual are influenced by multiple factors. These comprise the child's inherent qualities or biological make-up as well as outside factors including culture, family, society, economics, and health. Therefore, a child's diet, level of wealth, parenting practices, education, and peer interactions all have a direct impact on their growth and development.[1]

Although there are many opportunities for the best possible brain development throughout early childhood, it is also a vulnerable time. During these early years, there is a rapid development in the verbal, cognitive, motor, and socioemotional domains. As a child gains independence, these stages of development support and interact with one another rather than functioning or developing independently. For example, as a children gains vision, she will play and reach for objects more and more, which will help her develop her motor skills and coordination. According to Salami, it's a developmental disorder that affects a person's cognitive functioning, which leads to a deficit in the capacity to acquire and comprehend concepts. There are people with intellectual disabilities all over the world, including children.[2]

In India, mental illnesses are among the leading causes of non-fatal morbidities. In 2017, 197.3 million individuals, or 14.3% of India's total population, had these disorders (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020). According to reports, the community prevalence rate of psychiatric disorders among children and adolescents in India was 6.46%, while the school prevalence rate was 23.33%.[3]

Disabilities known as neurodevelopmental disorders are mainly linked to abnormalities in the brain and nervous system. Children with neurodevelopmental disorders can have learning disabilities, attention-deficit/hyperactivity disorder (ADHD), autism, cerebral palsy, conduct disorders, intellectual disability (also called mental retardation), and visual and auditory impairments. Language and speech, motor skills, behavior, memory, learning, and other neurological functions can all be problematic for kids with neurodevelopmental disorders. Certain disabilities are permanent, but as a child gets older, the signs and behaviors of neurodevelopmental disabilities frequently alter or evolve. These disorders can be difficult to diagnose and treat; typical treatments include multiple types of medication, professional counseling, and programs that are based in schools and homes.[4]

The most common definitions of intellectual disability, also known as mental retardation, place a strong emphasis on subaverage intellectual functioning (IQ less than 70) and impairments in life skills, including communication, self-care, home living, and social or interpersonal skills, before the age of 18. IQ scores are used to define various severity categories of retardation, ranging from mild to severe.[5]

Also known as cognitive impairments, these can cause children to develop more slowly than others. Signs include delayed motor skills, poor memory, and difficulty understanding consequences. They can be caused by injury, disease, or genetic conditions. Cognitive disorders affect thinking and perceptual processes and the acquisition of knowledge and new information. They have an enormous societal impact because special educational resources are required, and independent living often cannot be achieved. Learning problems may lead to behavioral disorders in the home and community. The pathogenesis of most mild and moderate cognitive disorders is poorly understood. Severe cognitive impairment is usually accompanied by somatic abnormalities, and an etiology can be identified in many cases. Specific treatments are available for disorders such as congenital hypothyroidism, some metabolic acidurias, and congenital toxoplasmosis.[6]

NEED FOR THE STUDY: According to estimates from the World Health Organization (WHO), 10–20% of children and adolescents experience some kind of mental disability; by the time they are 14 years old, half of them will have completed so. Being a parent is a challenging job in and of itself, and parents of intellectually disabled children may find it particularly challenging. However, most people are unaware that there are various degrees of intellectual disability because of the stigma associated with it. 10.8% of mental disorders in India are caused by intellectual disability, estimated by disability-adjusted life years. In India, anxiety disorders and depressive disorders outweigh ID in terms of burden. Despite having a lower lifetime prevalence than many other childhood development disabilities (DD), intellectual disability (ID) accounts for a significant 10.8% of all mental disorders in India. Since India has such a large population, its burden of ID contributes to the burden of ID globally. As a result, it has been recommended to improve disability programs in order to implement long-term burden reduction strategies at the national level.[7]

It is more difficult for people to develop psycho-physically, intellectually, and socially when they are immature or have different degrees of damage to these psychological functions. A number of studies indicate that teenagers with mental retardation have a weak focus on social interaction. Their lack of self-awareness is shown in their unreasonable, exaggerated demands, which is the root of major instability in their self-esteem, increased

suggestibility, lack of independence, stereotyped judgments, uncritical revaluation of their character logical personality traits, and instability in their positions when making decisions, all of which frequently result in antisocial behavior.[8]

Methods and Material

The research design adopted for this study was a pre experimental research study, where one group Pretest & post-test design was used to assess the effect of psycho education on cognitive skills developmental problems among mild mentally challenged children enrolled at special schools of Ahmednagar district. Non probability purposive sampling technique was used to choose 60 mild mentally challenged children between the ages of 6 and 12 years old. This ensured that the sample reflected a varied range of age groups and severity levels of mental health issues common in the public. Data was collected using a combination of formal interviews with teachers and caregivers, as well as direct observation of the children's behavior and interactions in their educational and social settings. Standardized developmental assessment techniques were used to evaluate effectiveness of mental teaching on cognitive problems. These instruments included the Socio demographic variables and check list to assess the cognitive problems. Statistical analysis was used to assess the data and detect any significant improvement in cognitive problems and other variables such as age, gender, income, and family type. And Developmental history like Mothers age at the time of delivery, Type of delivery, Nature of birth, Place of delivery, type of feeding was given. Descriptive statistics were largely used to summarize data and show it understandably. Throughout the study, ethical concerns were prominent. All participants or their legal guardians provided informed consent, and the children's and their families' privacy was protected. The study followed the standards specified in the Declaration of Helsinki, which ensured that all participants were treated ethically.

Results

Table: 1 Frequency and Percentage distribution of demographic data of the participants

Sr. No	Socio demographic variables	Category	Total	Percentage
1	Gender	Male	25	41.67
		Female	35	58.33
2	Age	6 to 8 years	22	36.67
		9 to 10 years	33	55.00
		10 to 12 years	5	8.33
3	Income of the family per month	Less than 10,000	21	35.00
		10001 to 20000	35	58.33
		Above 20000	4	6.67
4	Type of family	Joint	22	36.67
		Nuclear	32	53.33
		Extended	6	10.00

The table presents data on various socio demographic variables, 1. Gender: The population is predominantly female, with 58.33% (35 individuals) identifying as female, while males account for 41.67% (25 individuals).2. Age: The majority of individuals fall within the 9 to 10 years age group, representing 55.00% (33 individuals). The 6 to 8 years group comprises 36.67% (22 individuals), and those aged 10 to 12 years are the least represented at 8.33% (5 individuals). 3. Income of the Family per Month: Most families earn between 10,001 to 20,000 (58.33%, 35 families), followed by those earning less than 10,000 (35.00%, 21 families). A small percentage (6.67%, 4 families) have a monthly income above 20,000. 4. Type of Family: The data indicates that the majority of families are nuclear (53.33%, 32 families), while joint families account for 36.67% (22 families), and extended families are the least common at 10.00% (6 families).

Table: 2 Frequency and Percentage distribution of Developmental history data of the participants

Sr. No	Developmental history	Category	Total	Percentage
1	Mothers age at the time of delivery	Below 20 yrs	13	21.67
		21-30 yrs	15	25.00
		31-40 yrs	18	30.00
		Above 40 yrs	14	23.33
2	Type of delivery	Normal	22	36.67
		Instrumental	32	53.33
		Caesarean	6	10.00
3	Nature of birth	Full term	33	55.00
		Pre mature	22	36.67
		Post mature	5	8.33
4	Place of delivery	Home	25	41.67
		Hospital	35	58.33
5	What type of feeding was given?	Breast feed	25	41.67
		Bottled feed	35	58.33

The table presents data on various Developmental history related to mothers. 1. Mothers' Age at the Time of Delivery, The majority of mothers (30.00%) were aged between 31-40 years, followed by those aged 21-30 years (25.00%). Mothers below 20 years accounted for 21.67%, while those above 40 years represented 23.33%. 2. Type of Delivery: A significant portion of deliveries were instrumental (53.33%), with normal deliveries at 36.67%. Caesarean sections constituted the smallest group at 10.00%. 3. Nature of Birth: Most births were full term (55.00%), while 36.67% were premature, and post-mature births were the least common at 8.33%. 4. Place of Delivery: The majority of deliveries occurred in hospitals (58.33%), with 41.67% taking place at home. 5. Type of Feeding Given: Bottled feeding was more prevalent (58.33%) compared to breastfeeding, which was at 41.67%.

Table: 3 Assessment of Pre test level of cognitive development among mentally challenged children

Sr. No	Level of Cognitive problem	Range of score	No. of Respondents	Percentage
1	Mild Problems	7 to 16	0	0.00
2	Moderate Problems	17 to 26	32	53.33
3	Severe Problems	27 to 35	28	46.67

The table categorizes respondents based on their temperature problem severity, indicating the range of scores, the number of respondents in each category, and the corresponding percentages. **Mild Problems**: This category includes scores ranging from 7 to 16. No respondents fell into this category, resulting in 0.00%. **Moderate Problems**: Respondents scoring between 17 to 26 are classified here. This group is the largest, with 32 individuals, representing 53.33% of the total respondents. **Severe Problems**: Individuals scoring between 27 to 35 fall into this category. A total of 28 respondents were identified as having severe problems, making up 46.67% of the total.

Table: 4 Assessment of Post test level of cognitive development among mentally challenged children

Sr. No	Level of Cognitive problem	Range of score	No. of Respondents	Percentage
1	Mild Problems	7 to 16	13	21.67
2	Moderate Problems	17 to 26	29	48.33
3	Severe Problems	27 to 35	18	30.00

The table categorizes respondents based on the severity of temperature-related problems, detailing the score ranges, the number of respondents in each category, and their corresponding percentages. **Mild Problems**: This

category includes scores ranging from 7 to 16, with 13 respondents falling into this group. This represents 21.67% of the total respondents. **Moderate Problems**: Respondents scoring between 17 to 26 are classified as having moderate problems. This group is the largest, comprising 29 individuals, which accounts for 48.33% of the total. **Severe Problems**: Individuals with scores ranging from 27 to 35 are categorized as having severe problems. A total of 18 respondents were identified in this group, making up 30.00% of the total.

Table: 5 Assessment of effectiveness of mental education on cognitive development among mentally challenged children

Sr. no	Test	Mean	SD	paired t' Test	P value
1	Pre test	25.93	4.520		
2	Post test	21.48	5.265	18.8398	0.0001

The table presents data from a paired t-test analysis, showcasing the mean scores, standard deviations (SD), t-values, and p-values for both pre-test and post-test assessments. In Pre-test: Mean score of the pre-test is 25.93. Standard Deviation is 4.520. where in Post-test: Mean score of the post-test is 21.48. Standard Deviation for the post-test is 5.265. Paired t-test: The t-value calculated for the comparison is 18.8398. P-value: The significance level is indicated by a p-value of 0.0001, suggesting that the results are statistically significant.

Table: 6 Association between level of cognitive problems with selected socio demographic variables of mentally challenged children

Sr. No	Socio demographic variables	Category	Levels of cognitive problems				Total	Chi square value	p value
			Moderate		Severe				
			f	%	F	%			
1	Gender	Male	13	52.00	12	48.00	25	0.031	0.861
		Female	19	54.29	16	45.71	35		
2	Age	6 to 8 years	13	59.09	9	40.91	22	0.694	0.707
		9 to 10 years	16	48.48	17	51.52	33		
		10 to 12 years	3	60.00	2	40.00	5		
3	Income of the family per month	Less than 10,000	9	42.86	12	57.14	21	1.885	0.390
		10001 to 20000	20	57.14	15	42.86	35		
		Above 20000	3	75.00	1	25.00	4		
4	Type of family	Joint	13	59.09	9	40.91	22	0.463	0.793
		Nuclear	16	50.00	16	50.00	32		
		Extended	3	50.00	3	50.00	6		

Here's a table description of the socio-demographic variables along with their Chi-square values and p-values: Gender: The Chi-square value is 0.031 with a p-value of 0.861, indicating no significant association. Age: The Chi-square value is 0.694 with a p-value of 0.707, suggesting no significant relationship. Income of the Family per Month: With a Chi-square value of 1.885 and a p-value of 0.390, there is no significant association. Type of Family: A Chi-square value of 0.463 and p-value of 0.793 indicate no significant relationship.

Table: 7 Association between level of cognitive problems with selected developmental history of mentally challenged children

Sr. No	Developmental history	Category	Levels of cognitive problems				Total	Chi square value	p value
			Moderate		Severe				
			f	%	f	%			
1	Mothers age at the time of delivery	Below 20 yrs	7	53.85	6	46.15	13	0.163	0.983
		21-30 yrs	8	53.33	7	46.67	15		
		31-40 yrs	9	50.00	9	50.00	18		
		Above 40 yrs	8	57.14	6	42.86	14		

2	Type of delivery	Normal	9	40.91	13	59.09	22	4.271	0.118
		Instrumental	21	65.63	11	34.38	32		
		Caesarean	2	33.33	4	66.67	6		
3	Nature of birth	Full term	19	57.58	14	42.42	33	0.694	0.707
		Pre mature	11	50.00	11	50.00	22		
		Post mature	2	40.00	3	60.00	5		
4	Place of delivery	Home	10	40.00	15	60.00	25	3.061	0.080
		Hospital	22	62.86	13	37.14	35		
5	What type of feeding was given?	Breast feed	13	52.00	12	48.00	25	0.031	0.861
		Bottled feed	19	54.29	16	45.71	35		

Association between level of cognitive problems with selected developmental history shows that Mother's Age at the Time of Delivery: Chi-square value is 0.163 with a p-value of 0.983, indicating no significant association. Type of Delivery: Chi-square value is 4.271 with a p-value of 0.118, suggesting no significant relationship, though it is close to significance. Nature of Birth: Chi-square value is 0.694 with a p-value of 0.707, indicating no significant association. Place of Delivery: Chi-square value is 3.061 with a p-value of 0.080, which is approaching significance but not conclusive. What Type of Feeding Was Given?: Chi-square value is 0.031 with a p-value of 0.861, indicating no significant association.

Discussion

The findings of this study provide valuable insights into the demographic characteristics and cognitive development of mentally challenged children. The majority of participants were female (58.33%), with the largest age group being 9 to 10 years (55.00%). Income levels predominantly fell within the range of 10,001 to 20,000 (58.33%), and the most common family structure was nuclear (53.33%). Effectiveness of mental education on cognitive development among mentally challenged children found that in pre test mean 25.95±4.52 and in post test 21.48±5.26. Paired t-test: The t-value calculated for the comparison is 18.8398. P-value: The significance level is indicated by a p-value of 0.0001, suggesting that the results are statistically significant. Association between level of cognitive problems with selected socio demographic variables and developmental history shows that Overall, while most variables show no significant associations, the Type of Delivery and Place of Delivery are closer to indicating a potential relationship with mentally challenged children.

Conclusion

The study also highlights the effectiveness of mental education on cognitive development. The pre-test mean score of 25.95±4.52 significantly improved in the post-test to 21.48±5.26, with a paired t-test revealing a t-value of 18.8398 and a highly significant p-value of 0.0001. This indicates that mental education interventions have a meaningful impact on the cognitive skills of mentally challenged children. Furthermore, while the analysis of socio-demographic variables and developmental history revealed that most factors showed no significant associations with cognitive problems, there were indications that Type of Delivery and Place of Delivery may be relevant. This suggests a need for further investigation into these potential relationships to better understand their implications for cognitive development in this population. Overall, these findings underscore the importance of targeted educational interventions and highlight areas for future research to enhance outcomes for mentally challenged children.

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Research Implications: The findings of this study carry several important implications for practice, and future research in the field of cognitive development for mentally challenged children:

a. Enhanced Educational Strategies: The significant improvement in cognitive scores following mental education interventions suggests that such programs should be prioritized and integrated into educational frameworks for mentally challenged children. This emphasizes the need for tailored curricula that focus on cognitive skill development through mental education.

b. Training for Educators: Educators and caregivers should receive specialized training on effective mental education techniques. This can help them better support the cognitive growth of children with mental challenges, ensuring that interventions are implemented effectively.

c. Longitudinal Studies: Future research should consider longitudinal studies to assess the long-term effects of mental education on cognitive development. This could provide insights into the sustainability of cognitive improvements over time and the potential need for ongoing support.

d. Community Engagement: Engaging with families and communities is crucial. Providing resources and information on the significance of mental education can enhance support systems for mentally challenged children, ensuring that learning environments at home and in the community reinforce educational interventions.

Overall, these implications advocate for a multifaceted approach to cognitive development in mentally challenged children, emphasizing the critical role of mental education, informed policies, and further research into socio-demographic influences.

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