

# Analysis of Training Needs of Children with Intellectual Disabilities – A Retrospective Case-File Study

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## ABSTRACT

The aim of the present study was to identify the training needs of children with Intellectual Disabilities (ID) and the factors influencing these training needs. Retrospective Case files were studied and reviewed to identify the training needs. A total of 1257 casefiles from the multidisciplinary rehabilitation clinic were reviewed and analyzed. Madras Developmental Programming System (MDPS) a standardized assessment tool, consisting of 18 domains was used to categorize the training needs. Mean, SD, t- test, One-way ANOVA, Bi-variate analysis and multiple regression analysis were computed to analyse the data. The results indicated that factors such as age, severity level, associated conditions and schooling are major factors which are significantly influencing in determining the training needs of children with intellectual disability. Variables such education and socio economic conditions of the parents had no significant impact on the training needs among children with intellectual disabilities. Significant needs were identified in the practical domains of money, vocational, reading, writing and time whereas, the minimum needs were identified in the domains on Gross Motor, Meal time and Fine Motor activities. It is concluded that children with intellectual disabilities need functional skill training to promote their independent living.

**Key Words:** Intellectual Disability, Functional Skills, Training Needs, MDPS,

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## INTRODUCTION

The quality of life of children with intellectual disability (ID) can be significantly improved by giving appropriate intervention which requires a holistic approach. It is estimated that there are over 50 million people with Intellectual Disabilities (ID) in the world constituting one – two percent of the population. In India, it stands at or a little above the level of two percent of the population [1]. The legal definition which is in use in India is the one given by Rights for the Persons with Disabilities (RPWD) Act, 2016. According to this act, Intellectual Disability is a condition characterized by significant limitation both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behaviour which covers a range of every day, social and practical skills, including—specific learning disability and Autism spectrum Disorder [2]. Apart from sub average intelligence, persons with intellectual disability (PWID) have significant difficulties in adaptive skill behaviors such as self care skills, communication skills, social skills, community use, and functional academics and so on. Co-morbid and associated conditions like cerebral palsy, epilepsy and behavioral issues make the training and intervention much more challenging.

Along with the medical and therapeutic interventions they also need appropriate educational intervention. The role of a special educator in the multidisciplinary team in the rehabilitation process of children with ID is that of identifying the critical areas of training, prioritizing the needs and giving training in various functional skills such as self help, reading, writing and concepts such as number, time, and money depending upon the limitations in the child with ID. But, if the child with ID has to lead an independent life then training in community utilization, leisure and recreational activities, social interaction is also very important. There is a need to identify the training needs of children with intellectual disabilities which can guide professionals in identifying and deciding the priority areas scientifically for providing training and support in both clinical and school setting.

Literature reveals that many studies have been conducted on identifying the needs of children with ID. The focus of earlier research was on service needs of families, educational [3, 5,6] needs, vocational goals [7,8] and health care needs of adults with intellectual development [9,11]. The need for Early detection and intervention for young children with developmental

disabilities [7,12,15] was also emphasized simultaneously. These researches have mainly identified the needs by interviewing the parents, care takers and persons with ID themselves. The present study has focused on categorizing the various training needs of children with ID by analyzing the individual case files of the clients registered at the multi-disciplinary rehabilitation clinic.

### METHODS AND MATERIALS

Data was collected from the clinical case files of the registered clients at the National Institute for the Empowerment of persons with Intellectual Disabilities, Secunderabad over a period of one year. The registered clients were assessed by multi disciplinary team consisting of a clinical/rehabilitation psychologist, special educator and a medical professional to identify their training and intervention needs. The study included review of case files of clients in the age range of 3-18 yrs. Clients with borderline intelligence; specific learning disabilities, Average intelligence and whose assessment was incomplete in any manner were excluded from the study. Thus, out of 3328 registered clients, a total of 1257 case files were reviewed for this study by the team.

The data from the casefiles is authentic as the clinical assessment is conducted by a multi-disciplinary team of trained professionals which includes rehabilitation therapist, clinical and rehabilitation psychologist, physician and a special Educator. Data from these case files were extracted to get information regarding the training needs which clients need. These identified needs were categorized using the Madras Developmental Programming System – (MDPS) [12], which is a standardized tool consisting of 360 items, categorized into 18 domains namely Gross Motor Activities, Fine Motor Activities, Meal Time Activities, Dressing, Grooming, Toileting, Receptive Language, Expressive Language, Social Interaction, Reading, Writing, Numbers, Time, Money, Domestic Activities, Community orientation, Recreation, Leisure time Activities and Vocational. A score of 0 is given if the client doesn't need training in a given domain and item and a score of 1 is given if the client needs training for the functional skills listed in each domain of MDPS. Thus the score in each domain ranges from 0-20. Higher score indicates higher training needs and lower scores indicates that training needs in that domain are minimal. The maximum scale score on the total needs is 360 for all eighteen domains.

### Statistical Analysis

The data was analyzed using SPSS 17.0. Descriptive statistics (Mean and SDs) on each domain as well as total needs (dependent variable) were computed. Inferential statistics i.e., t- test and one way ANOVA were used for testing the significance of the training needs with respect to demographic as well as parental variables of the clients.

### Results

Table 1 shows the demographic details of the clients with ID. The male/female percentage of the clients in the study was 63.2% (795) and 36.8% (462) respectively. Among the clients 42% were diagnosed as having mild ID, followed by moderate ID 34%, severe 18.9% and profound ID 5.1%. Majority of the clients registered were in age range of 7-12 yrs (45.2%), followed by the 3-6 yrs age group (32.9%) and above 13yrs (21.9%). Further, it was observed that 82% had associated conditions such as cerebral palsy, speech disorders, behavior problems, Down syndrome and so on. Only 46.5% were attending school and 14.7% have discontinued going to the school for various reasons. Majority of the clients (61.8%) were coming from the urban back ground.

**Table 1: Demographic details of the Clients with ID (N = 1257)**

<i>Variable</i>	<i>n</i>	<i>%</i>	<i>Variable</i>	<i>N</i>	<i>%</i>
<b>Gender:</b>			<b>Associated conditions</b>		
Male	795	63.2	Absent	220	17.5
Female	462	36.8	Present	1037	82.5
<b>Severity level</b>			<b>Behaviour problems</b>		
Profound	64	5.1	Absent	357	28.4
Severe	237	18.9	Present	900	71.6
Moderate	427	34.0	<b>Schooling Status</b>		
Mild	529	42.0	Attending	584	46.5
<b>Age (years)</b>			Not attending	488	38.8
			Discontinued	185	14.7
3 - 6	414	32.9	<b>Locality</b>		
7-12	568	45.2	Rural	480	38.2
> 13	275	21.9	Urban	777	61.8

The analysis of the data with respect to the domain as per the MDPS revealed that the highest training needs were in the domains of money (17.26), vocational (17.23) and time (17.10). Lowest mean scores were obtained in gross motor activities (7.74), followed by meal time activities (10.97) and fine motor activities (11.49). Average Needs on each domain of MDPS are presented in **Table 2**. The average of the total training needs of MDPS was  $253 \pm 58.1$  out of a total of 360 needs, which comes to 70%, indicating a higher score on the needs of the clients for training.

**Table-2 Training Needs of Children with ID based on MDPS – Domain Wise**

S.no	Domain*	Mean	SD	S.no	Domain*	Mean	SD
1.	Money	17.2	3.23	10.	Expressive Language	13.9	4.25
2.	Vocational	17.2	3.19	11.	Dressing	13.4	4.43
3.	Time	17.1	3.29	12.	Grooming	13.3	4.81
4.	Community orientation	16.6	3.32	13.	Social Interaction	13.1	3.50
5.	Domestic Activities	16.6	3.43	14.	Toileting	11.6	5.62
6.	Numbers	15.9	4.14	15.	Receptive Language	11.5	4.57
7.	Reading	15.5	3.43	16.	Fine Motor Activities	11.5	4.92
8.	Writing	15.1	4.13	17.	Meal Time Activities	10.9	4.53
9.	Recreation, Leisure Time Activities	14.9	3.74	18.	Gross Motor Activities	7.7	4.87
<b>Total Needs (360)</b>						<b>253.6</b>	<b>58.1</b>

Further, the total training needs were analyzed and compared with respect to severity level, age, gender, associated condition, and schooling and behavior problems of the children with ID which are presented in **Table 3**. The results showed that the needs identified in children less than six years age is higher (Mean= 288.2, SD= 39.62) when compared to children in the age range of 7-12yrs (Mean = 251.7, SD= 48.66) and above 13yrs (Mean=.205.4, SD = 63.98). It is also observed that needs are significantly decreasing with age of the clients ( $F= 228.65, p<0.01$ ).

When compared with gender, no significance difference was observed in the average needs between male and female children ( $t= 0.91, p>0.05$ ). The results also showed that the average needs identified in children with Profound ID is higher (Mean=317.9, SD = 33.47) than children with Severe ID (Mean = 284.4, SD= 46.48) followed by moderate (Mean =247.8, SD= 52.94) and children with mild ID (Mean=236.6, SD=58.63), clearly indicating that the needs of these children are significantly increasing with severity level ( $F = 76.62, p<0.01$ ) as indicated in detail in Table-3 below.

**Table -3 Analyses of Mean scores of total needs of clients with their demographic variables**

Variable	N	Mean	SD	t-value / F ratio
Age (years)				
3- 6	414	288.2	39.62	F=228.65**
7-12	568	251.7	48.66	
13+	275	205.4	63.98	
Gender				
Male	795	252.3	59.15	't'= 0.91 <sup>NS</sup>
Female	462	255.7	56.41	
Severity level				
Profound	64	317.9	33.47	F= 76.6**
severe	237	284.4	46.48	
Moderate	427	247.8	52.94	
Mild	529	236.5	58.63	
Associated Conditions				
Absent	220	225.9	64.11	't'= 7.94**
Present	1037	259.4	55.09	
Schooling				
Attending	584	236.3	55.91	F= 112.5**
Not Attending	488	282.0	49.36	
Discontinued	185	233.3	56.78	
Behaviour Problems				
Absent	357	253.5	61.68	't'= 0.46 <sup>NS</sup>
Present	900	253.6	56.74	
Locality				
Rural	480	258.9	55.87	't'= 2.58**
Urban	777	250.3	59.32	

**\*\* =  $p < 0.01$ , NS = Not Significant,  $p > 0.05$**

When compared with presence of associated conditions, needs of the clients are more in the group having associated conditions (Mean=259.4, SD=55.09) than with the children not having any associated condition (Mean=224.9, SD=64.11) and this difference is statistically highly significant ( $t = 7.94$ ,  $p < 0.01$ ). This clearly indicates that the presence of associated condition increases the criticality of the training needs and requires more attention and time to plan appropriate intervention program. It is also observed that the needs among clients who are attending school is less (Mean = 236.3, SD = 55.91) when compared to those who are not attending (Mean= 282.0, SD = 49.36) as well as discontinued (Mean = 233.3, SD = 56.78). This difference is statistically highly significant ( $F= 113.5$ ,  $p < 0.01$ ). The needs of clients from rural backdrop are higher (Mean =258.9, SD = 55.87) when compared to clients from urban background (Mean=250.3, SD=59.32). The variables such as gender of the client and the presence of behavior problems among the children are not significant when compared with total needs of the client.

Analyses on total needs with respect to father education, mother education and family income of the Children with ID are presented in **Table 4**. The results showed that there was no significant difference in the average training needs with respect to father education ( $F= 0.361$ ,  $p > 0.05$ ), mother education ( $F= 0.740$ ,  $p > 0.05$ ) and family income ( $F= 0.86$ ,  $p > 0.05$ ).

**Table -4 Analyses of Mean scores of total needs of the Clients with respect to their parental variables**

Variable	N	Mean	SD	F -ratio
Fathers Education				
Illiterate	375	253.9	55.37	F= 0.361 <sup>NS</sup>
< SSC	290	255.1	60.35	
SSC	256	253.0	56.37	
Inter	147	248.5	66.83	
Graduate	149	256.5	56.04	
PG>	40	251.2	54.50	
Mothers Education				
Illiterate	481	252.9	56.23	F= 0.740 <sup>NS</sup>
< SSC	333	253.4	60.02	
SSC	220	255.4	58.28	
Inter	85	250.1	60.05	
Graduate	103	250.5	63.12	
PG>	35	270.1	45.29	
Monthly Family Income				
<5000/-	531	253.3	57.60	F = 0.86 <sup>NS</sup>
5000 – 10,000/-	175	247.7	61.91	
10,000-15,000/-	206	254.6	59.60	
>15,000/-	345	256.3	56.17	

*NS = Not Significant,  $p > 0.05$*

Further, the significance of needs on various domains of MDPS with respect to client variables as well as parental variables was analyzed and the significance (p-values) of these variables is presented in **Table-5** and **Table -6**. The analysis with respect to child variables shows that age, severity level, schooling and associated conditions of the clients are significantly ( $p < 0.01$ ) determining the needs of the children. Gender and presence of behavior problems are not significant ( $p > 0.05$ ) in determining the needs, except in gross motor activities which is significant at 1% level with respect to presence of behavior problems.

**Table -5 Significance of Needs of the clients on various Domains of MDPS with respect to their demographic variables.**

Domains	Age (F ratio)	Gender (t value)	Severity level (F ratio)	Schooling (F ratio)	Behavior problem (t value)	Associated Condition (t value)
Gross Motor Activities	**	NS	**	**	**	**
Fine Motor Activities	**	NS	**	**	NS	**
Meal Time Activities	**	NS	**	**	NS	**
Dressing	**	NS	**	**	NS	**
Grooming	**	NS	**	**	NS	**
Toileting	**	NS	**	**	NS	**
Receptive Language	**	NS	**	**	NS	**
Expressive Language	**	NS	**	**	NS	**
Social Interaction	**	NS	**	**	NS	**
Reading	**	NS	**	**	NS	**
Writing	**	NS	**	**	NS	**
Numbers	**	NS	**	**	NS	**
Time	**	NS	**	**	NS	**
Money	**	NS	**	**	NS	**
Domestic Activities	**	NS	**	**	NS	**
Community orientation	**	NS	**	**	NS	**
Recreation, Leisure time Activities	**	NS	**	**	NS	**
Vocational	**	NS	**	**	NS	**

NS = Not Significant-  $p > 0.05$ , \*\* =  $p < 0.01$

Table -6 Significance of Needs of the clients on various Domains of MDPS with respect to their parental variables

S.No	Domains	Father Education (F ratio)	Mother Education (F ratio)	Family Income (F ratio)	Locality (t value)
1.	Gross Motor Activities	NS	NS	NS	NS
2.	Fine Motor Activities	NS	NS	NS	*
3.	Meal Time Activities	NS	NS	NS	*
4.	Dressing	NS	NS	NS	*
5.	Grooming	NS	NS	NS	NS
6.	Toileting	NS	NS	NS	NS
7.	Receptive Language	NS	NS	NS	*
8.	Expressive Language	NS	NS	NS	*
9.	Social Interaction	NS	NS	NS	NS
10.	Reading	NS	NS	NS	**
11.	Writing	NS	NS	NS	*
12.	Numbers	NS	NS	NS	*
13.	Time	NS	NS	NS	*
14.	Money	NS	NS	NS	NS
15.	Domestic Activities	NS	NS	NS	NS
16.	Community orientation	NS	NS	NS	**
17.	Recreation, Leisure time Activities	NS	NS	NS	*
18.	Vocational	NS	NS	NS	NS

NS = Not Significant-  $p > 0.05$ , \* =  $p < 0.05$ , \*\* =  $p < 0.01$

A similar analysis was done with parental variables such as fathers' education, mothers' education and family income, which revealed that these variables are not significant ( $p > 0.05$ ) in influencing the needs of the clients. However, the variable locality (rural or urban) in which the clients are residing is found to be statistically significant in the domains such as fine motor, meal time, dressing, receptive and expressive language, reading, writing, number, time, community orientation and leisure and recreational activities indicating locality is a factor in identifying the training needs of the clients.

Further, multiple regression analysis was carried out to find out the best set of variables significantly influencing the total needs of the clients (dependent). The results of the analyses showed that age, severity level, associated condition and schooling of the clients are major factors which are significantly influencing in determining the total needs among children with ID.

## DISCUSSION

The present study aimed at identifying the training needs of the children with ID. It was identified that maximum training needs were identified in domains such as Money, Vocational, Time, Community orientation, Numbers, Reading, Writing and in Recreation & Leisure Time activities.

According to [7] families having children with ID needed more training related skills in community living services such as social skills and communication skills. Studies conducted by [10], [4] & [6] have revealed that these children need more training in activities of daily living skills. It was expected that more training needs would be identified in these areas. But



the present study revealed that more training needs were identified in domains such as money, vocational, time and community orientation which contribute to the independent living. Training in identifying and arranging currency in rank order, transactions of money independently during shopping and saving money in a bank account are critical for independent living. At the same time training in crossing streets, moving freely in neighborhood, following traffic signals, traveling independently and using community facilities are also important to lead. Similar findings were reported by [6] and [4].

This implies that the training needs identified are very critical for independent living which is the ultimate goal of special education. These findings also suggest that special educators should pay more attention to these practical aspects while planning the individualized education program. As these skills are functional skills and training in these skills would enable children with ID to lead an independent life in the community.

The present study revealed that children with ID were least involved in recreational & leisure time activities. Their involvement was limited to simple games like catching the ball, throwing the ball and to watch television for long hours. Majority reported need for training in art and craft activities, use of community recreation facilities like parks & amusement places and games. The reason for this could be because, the parents are either shy or are apprehensive to take their children with ID out to utilize the community resources and recreational facilities as it would call for unnecessary attention from the public, and unsupportive neighborhood. The study conducted by [13] revealed that training in recreational and leisure activities can reduce behaviour problems in children with ID. Hence, the special educators have to emphasize training in leisure and recreational skills which will help in the overall development of the child. Around 80% could not communicate address when asked which is considered to be an important survival skill.

According to [6,9] severity may not have any gross impact on parental needs having children with ID. This study revealed that severity has a major influence on the needs in children with Intellectual disabilities. The severity level played an important role in identifying the needs among these children. Children with profound and severe ID had more needs when compared to children with mild and moderate ID. This finding is in line with the finding of [6], who also concluded that as severity increases, the need for basic care increases among persons with disabilities.

It was expected that more needs would be identified in children in the age range of thirteen years and above because of the critical features of adolescent age and transitional needs. But, it was found that children between three to six years were identified with more needs than their counter parts. This is a major finding of the study which really re-emphasizes the need for appropriate early intervention and early childhood special education programs [15].

In the present study it was found that, gender of the client had no influence on the total training needs identified. However, it was observed that more training was required on pre menstrual and menstrual care for adolescent girls with ID. This calls for an attention on part of special educators for planning appropriate training programmes for adolescent girls during planning IEPs and also while giving follow up services. Training modules on menstrual hygiene management may be developed by special educators for giving proper training to adolescent girls and their parents.

The results indicated that children who are attending school were having less training needs when compared to those who are not attending the school. This is because of the fact that special and mainstream schools emphasize on providing appropriate functional skill training in activities of daily living skills, functional academics and social skills depending upon the ability of the children with ID. It was noticed that majority of the students who were not attending the school had more needs in the area of functional academic such as reading, writing, money, time concept and social skills. Children with ID, no matter what the severity level is, should be encouraged to attend school and need the support of the special educator for planning and implementing the IEP.

Majority of children had associated conditions such as cerebral palsy, speech and communication problems, autistic features, downs syndrome etc. As expected, it was found that children with associated conditions had more number of training needs than children without any associated conditions. The presence of associated conditions further increases the criticality of the condition. Therefore, special educators should be equipped with necessary multi categorical disability training to teach children with ID with associated conditions. This may really help these children who have a magnitude of limitations due to co morbid conditions. Special educators should also take an active role in facilitating and collaborating with other multi disciplinary team members for providing appropriate training to children with ID.

Often, it is observed that educators attribute the low learning and achievement among children with ID to the presence of behavior problems. It was also seen that some children have discontinued going to school because of problem behaviors. One of the important finding of the study is that, presence of problem behaviors is not a significant variable to influence the

training needs among children with ID. Hence, rehabilitation professionals should not be biased while planning educational programmes that children having behavior problems have low potential to learn. Though the existing rehabilitation programs and teacher curriculum focuses on providing inputs on management of problem behavior, there is a dire need to re-look at the existing curricular inputs and provide more practical exposure for handling children with problem behaviours. Locality from which children with ID come from plays a significant role in identifying the training needs of these children. This implies that the training needs of children with ID from rural and urban background are not similar. While planning an intervention programme for CWID one must also consider to use ecology based approach for assessment and programming. It was expected that children whose parents with low educational qualifications might have more needs, when compared to children whose parents with high educational qualifications. The results have showed that income, locality and parental education i.e., both fathers and mothers educational qualification does not play a significant role in identifying the overall training needs among children with ID.

. More focus should be given on developing functional skills among children with ID. Further, the domain wise analysis also showed that the significant variables which determine the training needs among children with ID are age, severity level, and schooling status and associated conditions present in the child. These factors should be taken into consideration by the rehabilitation professionals and special educators while planning educational programs for children with ID

### **CONCLUSION**

Based on the above findings it can be concluded that children with ID require more training in functional domains such as money, time, community orientation, vocational aspects, numbers, reading, writing and domestic activities, which are required and which promote independent living in the society. The present findings support that there need not be any discrimination on the basis of gender, or problem behaviours while planning IEP for children with ID. Special educators should consider the age of the client, severity level of the client and the presence of associated conditions while developing and planning IEP for children with ID as they have been identified as critical aspects which would influence the training needs of these children. There continues to be a need for additional research in this area. Specifically, systematic research to replicate this effort is needed to confirm the training needs of children with ID.

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