



EFFECTIVENESS OF FILIAL THERAPY AND PIVOTAL RESPONSE THERAPY ON BEHAVIORAL, EMOTIONAL, AND SOCIAL PROBLEMS OF MENTALLY CHALLENGED CHILDREN AND ATTITUDE OF THEIR PARENTS.

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Abstract:

Mentally challenged children are the children with Intellectual Disabilities (ID) and other problems related to adaptive behavior. There is a growing need for the study that include both behavioral and psychosocial components to better address the needs of children with intellectual disabilities and their parents. The investigator found the necessity to provide training for these children along with their parents, by employing Filial Therapy and Pivotal Response Therapy to reduce the behavioral, social, and emotional problems of the mentally challenged children in order to improve their quality of life. **Objectives of the Study:** Compare the effectiveness of Filial Therapy and Pivotal Response Therapy on the level of behavioral, emotional and social problems of the mentally challenged children and the attitude of the mothers among group I, group II and control group. **Methodology:** The framework for the current study was based on the Systems Model expounded by Betty Neuman in the year 1972. A Quasi – Experimental design (Non-Equivalent control group design) was selected for the study. The subjects were selected by using convenience sampling technique. The subjects were allotted to two intervention groups and one control group. The mentally challenged children in group I received the Filial Therapy and the group II received PRT along with their routine care and the children in the control group received the routine care only. The sample for the present study comprised of mentally challenged children in the age group of 6-17 years who were studying in the selected special schools of Calicut district, Kerala. The sample consists of 150 children. A total of 50 children were selected for the Filial Therapy, another 50 children were offered PRT and the remaining 50 were selected as control group. The tools used for the study includes Socio-Demographic Proforma, Clinical Variables, Child Behavior Checklist (Thomas M. Achenbach, 1980 and Parental Attitude Scale for Problem Children (PAS) by (Ramaswamy, 1989). **Results:** The results showed that There was a gradual and statistically significant ($p < 0.001$) reduction in the mean behavioral, emotional and social problem scores of children in group I and Group II and attitude scores of their mothers from pre-test to post-test 1, post-test 2 and post-test 3. The behavioral, emotional and social problems subscales scores from pre-test to post-test 1, post-test II and post-test III also showed significant reduction and the reduction was higher in the group I children who received the FT compared to the children in group II who received PRT. The mean attitude among the mothers of the mentally challenged children showed that there was a significant reduction in the subscale mean scores among the mothers of children in group I who received FT, from pre-test to post-test 1, post-test 2 and post-test 3 ($p < 0.001$) and among the mothers of children in the group II who received PRT ($p < 0.001$).

I. INTRODUCTION

Children are the important members of a family as well as asset for the nation. The growth and development of a child depend upon the environment present in the family. If children are cared with love, affection and support, then family, community and nation get benefited by that. On other hand if children are deprived of their childhood, socially, economically, physically, and mentally, the nation gets deprived of the potential human resources for social progress, economic empowerment, peace and order, and social stability (Ministry of Health and Family Welfare, India, 2016). The development of a healthy child actually begins before conception, with the parents' health and their genetic factors. It is important that, along with the child's physical well-being, social and mental health also must be considered. The health of the family as a whole play a major role in determining the health of the child in a family. This applies not only to children's physical health but also to their emotional and social health. (Williams AM, 2017. Mentally challenged children are children with intellectual disabilities (ID) and problems in adaptive behavior.

Intellectual disability can be characterized by significant limitations in two or more of the following applicable adaptive skill areas such as communication, self-care, home living, social skills, self-direction, health and safety, functional academics, leisure, and work. (Baroff GS, 2014). Though this saying by Great Rocket Scientist and Late President of India, suits with normally developed child, but it suits more to a family with mentally challenged child. The family or parent having given birth to mentally challenged child faces a lot of challenges.

I.1 Prevalence of Intellectual Disability

According to the World Health Organization 2.6% of the total world population has ID (World Health Survey, 2019). Previous studies have documented varied prevalence rates for ID in India, ranging between 1.7 cases to 32 cases/1000 population. Overall, India has a prevalence of 10.5/1000 in ID. Urban population has slightly higher rate (11/1000) than rural (10.08/1000; $P = 0.044$). Age was found to be highly correlated with prevalence of ID in rural children ($P = 0.019$) as well as in children ($P = 0.000$) and adults ($P = 0.000$) in urban population (Lakhan, 2016). The prevalence of intellectual disability is significantly more common in low-income countries such as Zambia, Bangladesh and Ethiopia i.e.; 16.41 cases in every 1000 people (American Association of Intellectual and Developmental Disabilities, 2014). It can be estimated that there are nearly 24 million individuals in India with intellectual disabilities, out of which approximately six million are moderately, severely, or profoundly handicapped and remaining belongs to the mild intellectual disability (ID). The risk of mild ID is highest among children of low socioeconomic status. Out of the 24 million, 0.8 million are adults over 20 years of age whereas 15 million are children below 10 years of age. The term 'Mental Retardation' was changed into 'Disorders of Intellectual Development' (DID) firstly and then the nomenclature was changed in to 'Intellectual Disability' (ID) (ICD-11, 2018). The level of severity of the ID is classified as mild (IQ 50-69), moderate (35-49), severe (20-39), and profound (<20) ID results from a heterogeneous environment and hereditary factors. In about 50% of cases, the etiology is unknown. Accidents or infections during prenatal, natal, or postnatal period also may cause ID (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), 2013).

I.2. Problems Related to Intellectual Disability: The common physical and psychological problems associated with ID are convulsions, sensory impairments, delays in language development, deficits in memory skills, difficulty in learning social rules, difficulty with problem-solving skills, delays in the development of adaptive behaviors, social, emotional and behavioral problems (Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), 2013). Parents have a major role in helping children grow and develop to their full potential. The social life of parents was found to be disrupted by the presence of a mentally challenged child in the family. Parents also experienced conflicts in the community and experience social withdrawal due to the behavior of the child. Daily life and activities of parents may very much be affected by the presence of a mentally challenged child. Parent's attitude towards their child is important for the proper development of the child. ID continues to be a growing challenge for the parents in specific and to the societies in general, worldwide (Ray A. 2018). There is a growing need for interventions that include both behavioral and psychosocial components to better address the needs of children with intellectual disabilities and their parents. Parents can be involved in the education and training of their children. The mentally challenged child's adaptive skills can be improved by various therapeutic services such as Occupational Therapy, Speech Therapy, Physical Therapy, Play therapy, Psycho Therapy, Behavior therapy and Pharmacotherapy (Gadsden, 2016). The training programs involving parents in various therapies can influence the emotional social, and behavior needs of children with ID. Psychoanalytic therapy uses play as a means of establishing contact with the client, as a source of data, as a medium of observations, and as a method for interpretive communication (Machalick W, 2015).

I.3 Benefits of play: Play allows children to use their creativity while developing their imagination, dexterity, physical, cognitive, and emotional strength. Play is important to healthy brain development. Play allows children to create and explore a world they can master, conquering their fears while practicing adult roles, sometimes in conjunction with other children or adult caregivers. As they master their world, play helps children develop new competencies that lead to enhanced confidence and the resiliency they will need to face future challenges (Blanner K, 2019). Children's development is mediated by appropriate, affective relationships with loving and consistent caregivers as they relate to children through play. When parents observe their children in play or join with them in child-driven play, they are given a unique opportunity to see the world from their child's point as the child navigates a world perfectly created just to fit his or her needs (Allen, 2015). The interactions that occur through play tell children that parents are fully paying attention to them and help to build enduring relationships. Parents who have the opportunity to glimpse into their children's world learn to communicate more effectively with their children and are given another setting to offer gentle, nurturing guidance (Hitchinson, 2019). Children may be able to express their views, experiences, and even frustrations through play, allowing their parents an opportunity to gain a fuller understanding of their perspective. Play is integral to the academic environment. It helps the children adjust to the school setting and even to enhance children's learning readiness, learning behaviors, and problem-solving skills (Kimberly, 2020).

I.4 Filial therapy : Filial therapy was developed in 1960s by Bernard and Louise, Psychologists, when they became aware of the limited number of treatment providers trained to work with children. This innovative approach to play therapy attempted to train the parents in relevant techniques and giving them the ability to practice these techniques with their children, expanding the reach of play therapy in the process. (Mahalakshmi, 2016). The techniques in filial therapy are non-directive and child-centered, meaning children are free to play as they wish, without any instruction or direction from the parents. Four basic techniques are taught in filial therapy i.e., structuring the play session by creating a specific play area, **Empathic listening** by reflecting a child's behavior and emotions, watches and follows as the child engages in imaginary play, set limits to ensure safety and respect for property (White AS, 2014).

I.5 Pivotal Response Therapy (PRT): Pivotal Response Therapy (PRT) was initially established in the 1970s by Dr. Robert Koegel and Dr. Lynn Kern Koegel at the University of California- Santa Barbara. It is a behavioral treatment for autism. This therapy is play-based and initiated by the child. PRT is based on the principles of Applied Behavior Analysis (ABA). In the current study, researcher aimed to identify the effectiveness of PRT on emotional, social and behavioral problems of mentally challenged children (Zaheri, 2015). The PRT therapist targets "pivotal" areas of a child's development instead of working on one specific behavior. By focusing on pivotal areas, PRT produces improvements across other areas of social skills, communication, behavior and learning. In PRT parents get training on pivotal areas such as motivate the child by giving choices, rewarding the child for self-management and self-initiating actions, and teaching them to responding to multiple cues (Morris, 2019).

I.6 Importance of Filial Therapy and PRT: Through systematic efforts and using proper techniques, it is possible to reduce the behavioral, social, and emotional problems of mentally challenged children. Training for children with IDs, prepares them for social life and help them to acquire the skills necessary to lead independent or least dependent lives, in turn decreases the burden of parents. So that the investigator found that it's essential to support the society by educating the children with ID and their parents with some interventions like Filial Therapy and PRT (Marrus N, et al. 2018). Comparing to India (1-4% ID), in Kerala, the prevalence rate of intellectually disabled persons is nine percentage. 132 special schools are running all over Kerala. In the Calicut district, 18 special schools are working under the Social Security Board. Around 1800 children are registered in the special schools at Calicut district. There is also the problem of misconception/judgment, wrong educational placement, insufficient therapeutic services, inadequate rehabilitative care training, all of which result in inadequate care of children with ID. The investigator observed that children with ID face problems in health and social life and also the parents feeling guilty and have unfavorable attitude. The investigator found the necessity to provide training for these children along with their parents, by the effective use of Filial Therapy and PRT and improve the quality of their life.

I.7. Statement of the problem

A comparative study to assess the effectiveness of filial therapy and pivotal response therapy on behavioral, emotional, and social problems of mentally challenged children and attitude of their parents, in selected special schools at Calicut District, Kerala.

I.8 Objectives of the study

1. Assess the level of behavioral, emotional, and social problems of mentally challenged children in group I, group II and control group in the pre-test.
2. Assess the level of attitude of mothers towards caring for mentally challenged children in group I, group II and control group in the pre-test.
3. Assess the effectiveness of Filial Therapy on the level of behavioral, emotional, and social problems of mentally challenged children and attitude among mothers in group I.
4. Assess the effectiveness of Pivotal Response Therapy on the level of behavioral, emotional, and social problems of mentally challenged children and attitude of mothers in group II.
5. Compare the effectiveness of Filial Therapy and Pivotal Response Therapy on the level of behavioral, emotional, and social problems of mentally challenged children and attitude of mothers between groups I, group II and control group.
6. Correlate the pre-test and post-test level of behavioral problems with emotional and social problems of mentally challenged children and attitude of their mothers.
7. Associate the pre-test level of behavioral, emotional, and social problems of mentally challenged children and attitude of mothers with selected demographic and clinical variables in group I, group II and control group.

I.9 Hypotheses

The hypothesis is tested at a 0.05 level of significance

Hypothesis 1 (H₁) The post-test behavioral, emotional, and social problem scores of mentally challenged children and attitude of mothers in group I who underwent Filial Therapy is different from that of the Pre-test scores.

Hypothesis 2 (H₂) The Post-test behavioral, emotional, and social problem scores of mentally challenged children and attitude of mothers in group II who underwent Pivotal Response Therapy is different from that of the pre-test scores.

Hypothesis 3 (H₃) - The Post-test behavioral, emotional, and social problems of mentally challenged children in group I who underwent Filial Therapy is significantly different from that of mentally challenged children in Group II who underwent Pivotal Response Therapy and the control group.

Hypothesis 4 (H₄) - The attitude scores of mothers of mentally challenged children in the Post-test is significantly different from that of the Pre-test scores in group I and group II and the control group.

Hypothesis 5 (H₅) - There is a significant relationship between behavioral, emotional and social problems among children and attitude of their parents in group I, II and control group.

Hypothesis 6 (H₆) - There is a significant association between the Pre-test scores of behavioral, emotional and social problems of mentally challenged children and attitude of mothers with selected demographic variables and clinical variables in group I, group II and group III.

I.10. Operational definitions

Assess

Assess refers to finding out or measuring the effectiveness of some interventions. In this study, it refers to assessing the effectiveness of filial Therapy and Pivotal Responds Therapy on behavioral, emotional and social problems of mentally challenged children and their parent's attitude.

Effectiveness

In this study effectiveness refers to the impact of Filial Therapy and Pivotal Response Therapy in terms of reducing emotional and behavioral problems of mentally challenged children and improving the attitude of their mothers.

Filial Therapy

Filial Therapy is a non-directive play therapy in which the researcher trains the mothers of mentally challenged children on skills required for filial play sessions, such as empathy towards child, structuring of play area, limit setting to ensure the safety of child and property, and imaginary play. After gaining competency in filial therapy skills, the mothers conduct the filial sessions with their children, in their own home environment.

Pivotal Response Therapy

It is a directive play-based therapy in which the researcher trains the mothers of mentally challenged children on techniques such as motivate the child by giving choices, rewarding the child for self-management and self-initiating actions, and

teaching them to responding to multiple cues. After getting training on these techniques, the mothers conduct the therapy sessions with their child in their home environment by using specific play materials.

Emotional Problems

It refers to the problems such as anxiety, depression, withdrawal problems, and somatic complaints of mentally challenged children which are assessed by using the Child Behavior Checklist and is a standardized scale developed by **Thomas (1980)**.

Behavioral Problems

It refers to the problems such as aggressive Behavior and rule-breaking behavior of mentally challenged children, which are assessed by using the Child behavior Checklist and is a standardized scale developed by Thomas (1980).

Social Problems

It refers to the immature social behavior such as dependency, not getting along with others, jealousy, susceptibility to get accidents, preference towards younger kids for socialization and speech problems of mentally challenged children which are assessed by using the Child Behavior Checklist and is a standardized tool developed by Thomas (1980).

Parental Attitude

In this study, parental attitude refers to the attitude of mothers of mentally challenged children towards caring of their children. It is assessed by using the Parental Attitude scale developed by **Rangaswamy (1989)** and the major areas assessed by this scale are overprotection, acceptance, rejection, permissiveness, communication, attitude towards education, home management, and hostility.

Special schools

Special schools are specifically designed, with specially trained staffs, and resourced to provide the appropriate special education for mentally challenged children. In this study, special schools refer to the schools catering to the needs of mentally challenged children who have special educational needs due to intellectual disability.

II. Conceptual framework based on Betty Neuman's System model

The framework for the current study was based on the Systems Model expounded by Betty Neuman in the year 1972. The chief propositions of Neuman's System model and their applications to the current study are described as follows:

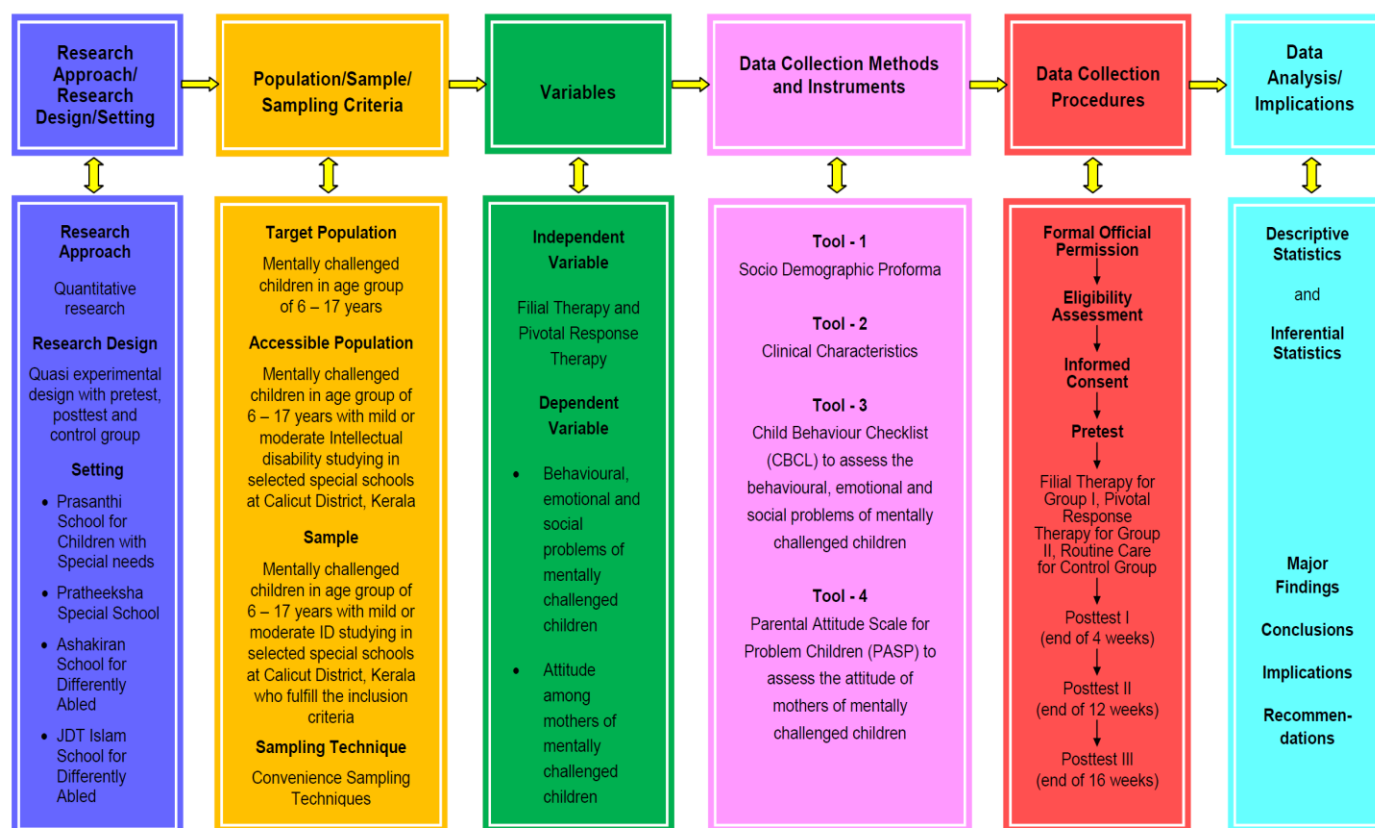


Figure – 3 : Schematic Representation of the Research Methodology

The individual's **central core** comprises the basic survival factors which include genetic features, personality traits, ego and immunity. The children with ID considered as a whole system which consist of five variables such as *physiological variables* which includes presence of mild or moderate ID, family history of ID; *psychological variables* such as personal strengths, emotions, *socio-cultural influences* such as norms, parental and societal attitude towards care of mentally challenged children, *developmental variables* such as the age of the child, in the current study it is 6-17, mild or moderate category of Intellectual Disability with delay in developmental milestones; *spiritual variables* such as faith in God and prayer which may influence the parental attitude towards caring mentally challenged children. A child's **normal line of defense** is weak due to the presence of intellectual disability, and associated health problems. **Lines of resistance** which are protecting the basic core, when these lines are effective which lead to **reconstitution** and if it is not effective that leads to **disequilibrium**. In the present study, lines of resistance were strengthened by Filial Therapy and Pivotal Response Therapy. In a child with intellectual disability, the **flexible line of resistance** also is weak due to the presence of mild or moderate ID, which can allow stressors to penetrate through and disrupt the normal line of defense. Various **stressors** can pose problems to the child such as poor IQ, poor judgment, and lack of confidence, assertiveness, decision-making ability and poor verbal ability to share their emotional and social problems, anxiety, thought problems, and somatic illnesses (Intrapersonal) which is worsened by poor parental attitude; Increased compliance to others commands, dependence on others for

personal care (interpersonal); society's negative attitude towards mentally challenged children, no supportive legal system (extra personal). The current study focused on the **secondary level of prevention**. It consisted of twelve weeks of Filial Therapy and PRT sessions for children with ID, thirty minutes per day, three times, per week. The conceptualization of the nursing practices according to this model is as follows: The investigator identified the stressors in children with ID and assessed the level of behavioral, emotional and social problems and attitude of their mothers. The Filial Therapy was given to the group I children and PRT was given to group II children, which helped to strengthen the normal line of defense through secondary level of prevention. Thus, the normal line of defense will, in turn, helped to protect the lines of resistance and basic core of patients, which helps to maintain the **reconstitution and equilibrium** among children with ID who received the therapies.

III. Research methodology

A quantitative research approach has been chosen in this study to assess the effectiveness of Filial Therapy and PRT on behavioral, emotional and social problems of mentally challenged children in selected Special Schools in Calicut District, Kerala.

III.1 Research Design: A research design is defined as a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings (Burns and Grove, 2002). Quasi – Experimental design (nonequivalent control group design) was selected for the study by the investigator to solve the research problem. The samples were selected by using convenience sampling technique. They were allotted to two intervention groups and one control group. The mentally challenged children in Group I received Filial Therapy and the Group II received PRT along with their routine care and the children in control group received the routine care only.

III.2 Setting of the Study: The study was conducted at 4 special schools in Calicut district, Kerala.

III.3 Population and sample: Population for the present study consists of mentally challenged children in the age group of 6- 17 years. The sample for the present study comprised of mentally challenged children in the age group of 6- 17 years who were studying in selected special schools of Calicut district, Kerala. The sample consists of 150 children. Fifty children were selected for Filial Therapy, other 50 children received PRT and the remaining 50 were selected as control group from three different special schools. Convenience sampling technique was used to draw the samples for study. The researcher has taken the total number of special schools in Calicut district. There were 18 special schools in Calicut district. From that four special schools were selected based on criteria of accessibility, adequacy, appropriateness, suitability and feasibility. The sample size was estimated using **the comparison of two proportion formula**. The sample size was calculated based on the pilot study results.

III.4. Description of the tool

Part I: Socio –Demographic proforma: It contains about 13 items such as age, gender, religion, type of family, educational status and occupational status of parents, family income, duration of house hold works of mother, time spend for care of child and the support person of family.

Part II: Clinical Characteristics : It contains 17 items related to both child and mother, such as severity of intellectual disability, birth order of child, history of malnutrition, sleep habits, medications, academic performance, duration of schooling, history of consanguinity in family, history of intellectual disability in family, age of mother at time of giving birth to this child, history of abortion, history of any infections during pregnancy, history of taking any medicines without prescription and history of any other health problems during pregnancy.

Part III: Child Behavior Checklist (CBCL) to Assess Behavioral, Emotional and Social Problems of Mentally Challenged Children: The Child Behavior Checklist is a parent report form to screen for behavioral, emotional and social problems of children in the age group of 6-18 years.

III.5. Content Validity

The content validity of the tool and description of intervention was obtained from 7 experts including 5 in the field of Nursing, 1 in field of Psychiatry, and one in the field of PRT. The necessary modifications have done on basis of suggestions and the opinions of experts. The final tool and the planned training program were given for language validation and translation to Malayalam. Again, it was retranslated to English and the translation was found to be congruent.

III.6. Reliability of tool

Sl No.	Parameters	Method of Test	Reliability Value
1.	Child Behavior Checklist (CBCL)	Test –Retest	0.82
2.	Parental Attitude Scale for Problem Children	Test –Retest	0.916

III.6. Description of the intervention

Filial Therapy: Filial Therapy is a special kind of non-directive play therapy in which the parents play with their children in home environment after getting training from the therapist. Filial Therapy was developed by Psychologists called **Bernard and Louise Gurney (1960)**. The researcher has undergone a course on Play Therapy for Children with Special Needs at National Association for Play Therapy, India. After the initial data collection process, the researcher spent one week to train the mothers of mentally challenged children regarding the basic Filial Therapy skills such as empathy, structuring, limit setting and imaginary play. The researcher underwent an online certificate program on play therapy for children with special needs for 6 months. The training sessions for mothers on Filial Therapy were conducted in the special schools where the mentally challenged children enrolled. Mothers got to practise the skills in the presence of therapist before they hold the first play session with their child at home. At the end of each day of training at school, mothers were checked for their competency in skills to do Filial Therapy, without the supervision of researcher by using a Competency scale. After attaining 80% of competency in all the skills, the mother could hold a 30-minute play session with their child thrice a week in their home, at the same time, in the same place for 12 weeks. The Filial Therapy was conducted in a confined place at home where the mother and child can sit comfortably. Children played with variety of play materials in the presence of mother. In Filial Therapy the child gets to lead the play, not mother. The mother has to put the child's feelings, thoughts and even actions into words, without questioning, teaching or praising. The most important thing is that

the mother learns a simple method to set limits on the child's behavior. Mother practices these skills in mock play sessions during training with the researcher. The self-reported checklist has been filled by the mother after each play sessions and been communicated with the researcher at the end of each month.

Pivotal Response Therapy (PRT) : It is a play-based therapy in which the principles of learning are followed to teach the child new skills and reduce undesirable behaviors. It is developed from Applied Behavior Analysis which involves techniques of learning such as shaping, fading, prompting, chaining and reinforcement to change the undesired behaviors. PRT was initially established by **Koegel R and Koegel LK (1970)** at the University of California- Santa Barbara. The **major pivotal areas** of a child used in this therapy are **motivation** (E.g.: allow the child to choose preferred objects or activities for learning new skills), **self-management** (helping to discriminate desirable and undesirable behavior i.e., asking the child that "Was that behavior appropriate?"), **social initiation** (prompting the child to make them ask "What is that?" until the child begin to spontaneously ask the question "What is that?" and **responding to the multiple cues** (E.g.: Selecting cues such as colors, size or shape to teach a receptive language i.e., a big red rectangular building block). The researcher has undergone an online certificate program for 6 months on PRT from Koegel Autism Centre, California. After the initial data collection, the mothers were trained on PRT techniques. The training sessions were conducted in the special schools where the mentally challenged children enrolled. Mothers got to practise the techniques of PRT in the presence of therapist before they hold the first session with their child at home. At the end of each day of training at school, mothers were checked for their competency in skills to do PRT, without the supervision of researcher, by using a Competency scale. After attaining 80% of competency in all the skills, the mother could hold a 30-minute play session with their child thrice a week in their home, at the same time, in the same place for 12 weeks. The PRT was conducted in a confined place at home where the mother and child can sit comfortably. Children play with variety of play materials in the presence of mother. In PRT, mother has to use techniques such as prompting, fading, shaping and reinforcements. Mother practices these skills in mock PRT sessions during training with the researcher. The self-reported checklist has been filled by the mother after each PRT sessions and been communicated with the researcher at the end of each month.

III.7. Description of Data Collection Procedures:

Data collection points	Time point of measurement	Parameters assessed
O	Pre-test	<ol style="list-style-type: none"> 1. Socio-demographic data 2. Clinical data 3. Level of behavioral, emotional and social problems of mentally challenged children 4. Attitude of parents of mentally challenged children
O ₁	Post-test 1 After 4 weeks of intervention. Group I received Routine care and Filial Therapy Group II received routine care and PRT Control group received routine care only.	<ol style="list-style-type: none"> 1. Level of behavioral, emotional and social problems of mentally challenged children 2. Attitude of parents of mentally challenged children
O ₂	Post-test II After 12 weeks of intervention. Group I received Routine care and Filial Therapy Group II received routine care and PRT Control group received routine care only	<ol style="list-style-type: none"> 1. Level of behavioral, emotional and social problems of mentally challenged children 2. Attitude of parents of mentally challenged children
O ₃	After 16 weeks of intervention. Group I received Routine care Group II received routine care Control group received routine care	<ol style="list-style-type: none"> 1. Level of behavioral, emotional and social problems of mentally challenged children 2. Attitude of parents of mentally challenged children

III.8. Data analysis

- Socio demographic data and clinical characteristics were analysed by using frequency, mean and standard deviation.
- Chi Square test was used to find out the similarity of demographic variables of all the groups and association between study variables and selected demographic and clinical variables
- Repeated measures analysis of variance (ANOVA) and post hoc comparisons to identify the differences between the pre-test and post test scores in multiple group
- The independent 't' test was used to identify the difference between experimental groups and control group regarding the comparison of the interventions
- Paired t test to assess the effectiveness intervention in pre-test and post test
- Karl Pearson Correlation Coefficient test was used to identify the correlation between behavior problems, social problems and emotional problems and attitude of mothers

IV. Results and discussion

IV.1. Distribution of Socio Demographic Variables and Clinical Characteristics of Mentally Challenged Children.

N=150

Sl. No.	Demographic variables		Groups						Total	%	χ^2 values	p value
			Group I		Group II		Control Group n=50					
			n=50		n=50							
			N	%	N	%		N				
1	Age of child in years	6-11	22	44	18	36	20	40	60	40	0.718	0.698
		12-17	28	56	32	64	30	60	90	60		
2	Gender	Male	25	50	25	50	25	50	75	50	0.000	1.000
		Female	25	50	25	50	25	50	75	50		
3	Religion	Hindu	15	30	7	14	13	26	35	23.3	3.876	0.144
		Muslim	35	70	43	86	37	74	115	76.7		
		Christian	0	0	0	0	0	0	0	0		
4	Type of family	Nuclear	29	58	29	58	30	60	88	58.7	0.221	0.895
		Joint	21	42	21	42	20	40	62	41.3		
		Extended	0	0	0	0	0	0	0	0		
5	Educational status of father	Primary	13	26	19	38	13	36	45	30	2.537	0.638
		Secondary	25	50	20	40	23	46	68	45.3		
		Higher secondary	12	24	11	22	14	28	37	24.7		
6	Educational status of mother	Primary	10	20	15	30	10	20	35	23.3	2.138	0.71
		Secondary	24	48	21	42	22	44	67	44.7		
		Higher secondary	16	32	14	28	18	36	48	32		
7	Occupational status of father	Daily wages/ coolie worker	24	48	26	52	21	42	71	47.3	4.548	0.603
		Clerical / administrative job	17	34	20	40	22	44	59	39.3		
		Technical/ professional job	8	16	4	8	7	14	19	12.7		
		Unemployed	1	2	0	0	0	0	1	0.7		
8	Occupational status of mother	Housewife	32	64	37	74	34	68	103	68.7	4.033	0.672
		Clerical / administrative job	10	20	10	20	10	20	30	20		
		Technical/ professional job	1	2	0	0	1	2	2	1.3		
		Daily wages/ coolie worker	7	14	3	6	5	10	15	10		
9	Family income per month in rupees	<5000	0	0	0	0	0	0	0	0	6.662	0.353
		5000-10000	2	4	0	0	0	0	2	1.3		
		10001-15000	36	72	39	78	36	72	111	74		
		15001-20000	11	22	11	22	13	36	35	23.3		
		>20000	1	2	0	0	1	2	2	1.3		
10	Time spends for job or house hold works by mother / day	<4 hours	4	8	0	0	1	2	5	3.3	8.248	0.077
		4-8 hours	38	76	42	84	42	84	122	81.3		
		>8 hours	8	6	8	16	7	14	23	15.3		
11	Time spends for care of child by mother / day	<3 hours	44	88	39	78	39	78	122	81.3	2.196	0.334
		3-6 hours	6	12	11	22	11	22	28	18.7		
12	Support person for mother to take care of child in family	Mother-in-law/ father-in-law	14	28	17	34	16	32	47	31.3	0.434	0.805
		None	36	72	33	66	34	68	103	68.7		

Group I - Filial Therapy group Group II -Pivotal Response Therapy P>0.05 – non-Significant

The chi-square test and P value > 0.05 shows that subjects in the three groups were homogeneous and comparable with regard to socio demographic variables in the Pre-test.

IV.2. Major findings of the study:

Clinical Characteristics of the Mental Challenged Children

- ❖ With regard to the level of ID, majority (96%, 100% and 98%) of the children in group I, II and control group respectively, had moderate level of ID.
- ❖ Nearly half of the children (56 %, 40% and 56%) in group I, II and control group respectively, were born as second child in the family.
- ❖ Most (94%, 94% and 96%) of the children in group I, II and control group respectively, were well nourished.
- ❖ About 48 %, 62 % and 54 % of the children in group I, II and control group respectively, were under regular medication for seizure disorder.
- ❖ Majority (78 %, 92% and 84 %) of the children in group I, II and control group respectively, had no history of hospital admission in last two years.
- ❖ About 62%, 50% and 56% of the children in group I, II and control group respectively, had a habit of waking up one to two times during sleep at night.
- ❖ About 48 %, 56 % and 54 % of children in group I, group II and control group respectively, were not having the habit of sleep at day time.
- ❖ About 44 %, 40 % and 36% of children in group I, group II and control group respectively, were studying in special schools for 6 to 10 years.
- ❖ Majority (92 %, 86 % and 90 %) of the children in group I, group II and control group respectively, were having poor level of academic performance as per school records.
- ❖ Most (98 %, 94 % and 96 %) of children in group I group II and control group respectively, had no history of consanguinity among parents.
- ❖ There is a history of ID in the family of children in group I, group II and control group (50%, 32 % and 38 %) respectively.
- ❖ Majority (70 %, 92% and 78 %) of mothers of mentally challenged children were in the younger age group (18 to 25 years) at the time of birth of this child.
- ❖ About (44 %, 36 % and 39 %) of mothers of children in group I, group II and control group respectively, reported that they had a history of abortion 1-2 times before the birth of this child.
- ❖ Majority (14% %, 12 % and 16%) of mothers of children in group I, group II and control group respectively, reported diabetes mellitus during the pregnancy.
- ❖ Majority (94%, 86 % and 90%) of mothers were not having any history of taking non prescribed medicines during pregnancy in group I, group II and control group respectively.
- ❖ Most (94%, 94 % and 96 %) of mothers did not have any history of infection during the pregnancy in group I, group II and control group, respectively.

Emotional Problem Scores of Mentally Challenged Children in Pre-test

- ❖ The mean emotional problem scores of children in subscales showed in the group I it was 18.92 ± 3.24 , in the group II, it was 19.36 ± 4.19 and in the control group, 19.24 ± 3.99 .
- ❖ About (46%, 56% & 48%) of the mentally challenged children in group I, group II and control group respectively, had borderline clinical range of emotional problems on the anxious/ depressed subscale.
- ❖ On the subscale withdrawn/depressed also showed more than half (58%, 64% and 62) of the children in group I, group II and control group respectively, had borderline clinical range of emotional problems.
- ❖ About 28%, 48% and 30% of children in group I, group II and control group had borderline clinical range of emotional problems in subscale somatic complaints.
- ❖ The mean emotional problem scores of children in subscales showed that in the group I it was 18.92 ± 3.24 , in the group II, it was 19.36 ± 4.19 and in the control group, 19.24 ± 3.99 .
- ❖ The p value > 0.05 showed that groups were homogenous with regard to mean overall emotional scores in the pre-test.

Behavioral Problem Scores of Mentally Challenged Children in Pre-test

- ❖ About 38.0 %, 50.0% and 42.0 % of children in group I, group II and control group belonged to borderline clinical range of rule breaking Behavioral problems.
- ❖ About 24.0 %, 36.0% and 20.0 % of children in group I, group II and control group belonged to borderline clinical range of aggressive Behavioral problems.
- ❖ The mean scores of rules breaking behavior among mentally challenged children which were 6.10 ± 2.20 for group I, 7.80 ± 3.15 for group II and 6.52 ± 2.89 for the control group.
- ❖ The mean scores of aggressive behavior among mentally challenged children were 9.84 ± 3.15 for group I, 11.58 ± 3.16 for group II and 10.52 ± 3.48 for control group.
- ❖ The overall Behavioral problems of children in group I was 15.94 ± 4.71 and in group II was 19.30 ± 6.22 and in control group was 17.04 ± 6.07 .
- ❖ The p value (<0.05) infers that the groups are dissimilar with regard to Behavioral problems in pre-test.

Social Problem Scores of Mentally Challenged Children in Pre-test

- ❖ About 36.0% 30.0% and 36.0% of the children in group I, group II and control group respectively belonged to borderline clinical range of social problems
- ❖ About 36.0%, 46.0% and 40.0% in group I, II and control group, respectively were in the clinical range and rest of the children were in the normal range.
- ❖ The mean score obtained in social problem subscale was 7.34 ± 2.15 for group I, 7.54 ± 2.02 for group II and 7.84 ± 2.11 for control group.
- ❖ The p value >0.05 showed that groups were homogenous with regard to the mean social problem scores in the pre-test.

Attitude Scores among mothers of Mentally Challenged Children in Pre-test

- ❖ The mean score in the area of 'over protection' among mothers of mentally challenged children were 5.46 ± 1.73 for group I, 5.30 ± 1.66 for group II and 5.24 ± 1.70 for control group.
- ❖ The mean score in the area, 'acceptance' was 4.36 ± 1.70 for group I, 4.06 ± 1.58 for group II and 4.14 ± 1.59 for control group.
- ❖ The mean score in the area of 'rejection' were 5.48 ± 1.11 for group I, 5.34 ± 1.10 for group II and 5.42 ± 1.16 for control group.
- ❖ The mean score in the area of 'permissiveness' was highly unfavourable and it was 6.28 ± 1.25 for group I, 6.48 ± 1.07 for group II and 6.44 ± 1.18 for the control group.
- ❖ The mean score in the area of 'communication' was 5.42 ± 0.99 for group I, 5.44 ± 0.95 for group II and 5.36 ± 0.92 for control group.
- ❖ The mean score in the area of 'attitude towards education' was 5.26 ± 1.45 for group I, 5.0 ± 1.58 for group II and 5.28 ± 1.46 for control group.
- ❖ The mean score in the area of 'home management' was 6.2 ± 1.14 for group I, 6.12 ± 1.36 for group II and 6.06 ± 1.10 for control group.
- ❖ The mean score in the area of 'hostility' was 4.08 ± 2.17 for group I, 3.88 ± 2.18 for group II and 3.98 ± 2.12 for control group.
- ❖ The overall mean attitude scores (42.52, 40.92 and 43.32) of mothers of mentally challenged children showed that mothers in group I, group II and control group respectively, were having moderately unfavourable attitude towards caring of their mentally challenged children.
- ❖ The unfavourable attitude of mothers towards their children was highest in the area of home management and permissiveness whereas the lowest scores in the area of acceptance and hostility in all three groups in pre-test.

Effectiveness of FT on Emotional Problems of Mentally Challenged Children in Group I

- ❖ There was a gradual reduction in the mean emotional problem scores of children from pre-test (18.92) to Post-test 1(16.68), post-test 2(13.14) and the reduction was higher in post-test 3 (11.94) inferring that the longer the duration of FT better the reduction of emotional problems.
- ❖ There was a statistically significant reduction ($p<0.001$) in emotional problem scores of mentally challenged children in group I who received FT.

Effectiveness of FT on Behavioral Problems of Mentally Challenged Children in Group I

- ❖ There was a gradual reduction in the mean Behavioral problem scores of children from pre-test (15.94) to Post-test 1(14.36), post-test 2(11.76) and the reduction was higher in post-test 3 (10.76) inferring that the longer the duration of FT better the reduction of Behavioral problems.
- ❖ There was a statistically significant reduction ($p<0.001$) in Behavioral problem scores of mentally challenged children in group I who received FT.

. Effectiveness of FT on Social Problems of Mentally Challenged Children in Group I

- ❖ There was a gradual reduction in the mean social problem scores of children from pre-test (7.34) to Post-test 1(6.34), post-test 2(5.00) to post-test 3 (4.22) inferring that the longer the duration of FT better the reduction of social problems.
- ❖ There was a statistically significant reduction ($p<0.001$) in mean social problem scores of mentally challenged children in group I who received FT.

Effectiveness of FT on attitude among mothers of Mentally Challenged Children in Group I

- ❖ There was a gradual reduction in the mean attitude scores among mothers from pre-test (42.54) to post-test 1(38.0), post-test 2(28.48) to post-test 3 (26.08) inferring that the longer the duration of FT better the reduction of unfavourable attitude of mothers.
- ❖ There was a statistically significant reduction ($p < 0.001$) in mean attitude scores among mothers of mentally challenged children in group I who received FT.

Effectiveness of PRT on Emotional Problems of Mentally Challenged Children in Group II

- ❖ There was a gradual reduction in the mean emotional problem scores of children from pre-test (19.36) to Post-test 1(18.70), post-test 2(18.10) to post-test 3 (17.30) inferring that the longer the duration of PRT better the reduction of emotional problems.
- ❖ There was a statistically significant reduction ($p < 0.001$) in emotional problem scores of mentally challenged children in group II who received PRT.

Effectiveness of PRT on Behavioral Problems of Mentally Challenged Children in Group II

- ❖ There was a gradual reduction in the mean Behavioral problem scores of mentally challenged children from pre-test (19.30) to Post-test 1(18.80), post-test 2(17.84) to post-test 3 (17.68).
- ❖ There was a statistically significant reduction ($p < 0.001$) in Behavioral problem scores of mentally challenged children in group II who received PRT.

Effectiveness of PRT on Social Problems of Mentally Challenged Children in Group II

- ❖ There was a gradual reduction in the mean social problem scores of mentally challenged children from pre-test (7.54) to Post-test 1(7.18), post-test 2(6.78) to post-test 3 (6.28).
- ❖ There was a statistically significant reduction ($p < 0.001$) in mean social problem scores of mentally challenged children in group II who received PRT

Effectiveness of PRT on attitude of mothers of Mentally Challenged Children in Group II

- ❖ There was a gradual reduction in the mean attitude scores among mothers of mentally challenged children from pre-test (40.92) to Post-test 1(38.80), post-test 2(38.08) to post-test 3 (37.58).
- ❖ There was a statistically significant reduction ($p < 0.001$) in mean attitude scores of mentally challenged children in group II who received PRT.

IV.3. Multiple Comparisons of Emotional Problems Scores of Mentally Challenged Children in Group I, II and Control Group in Pre-test and Post-test

N=150

Group	Assessments	Mean	SD	ANOVA Repeated Measures		Comparison	Bonferroni t-Test	
				F value	P value		MD	P value
Group I	Pre-test	18.92	3.24	382.940	<0.001			
	Post-test 1	16.68	2.68			Pre-test vs Post-test 1	2.24	<0.001
	Post-test 2	13.14	2.52			Pre-test vs Post-test 2	5.78	<0.001
	Post-test 3	11.94	2.44			Pre-test vs Post-test 3	6.98	<0.001
Group II	Pre-test	19.36	4.19	32.217	<0.001			
	Post-test 1	18.70	3.91			Pre-test vs Post-test 1	0.66	1.000
	Post-test 2	18.10	3.58			Pre-test vs Post-test 2	1.26	0.577
	Post-test 3	17.30	3.35			Pre-test vs Post-test 3	2.06	0.041
Control group	Pre-test	19.24	3.99	-	-			
	Post-test 1	19.24	3.99			Pre-test vs Post-test 1	0	1.000
	Post-test 2	19.24	3.99			Pre-test vs Post-test 2	0	1.000
	Post-test 3	19.24	3.99			Pre-test vs Post-test 3	0	1.000

Group I - FT Group II -PRT * = $P < 0.05$ –Significant ** = $P < 0.001$ - significant

The repeated measure ANOVA F-test (table 47) shows that mean emotional problem scores decreased gradually from Pre-test to Post-test 1, Post-test 2 and post- test 3 among children group I and children in group II ($p < 0.001$). Post Hoc multiple comparisons using Bonferroni t test showed that, the reduction of mean emotional problems of children in group I who received FT was higher in Pre-test vs. Post-test 1 (2.24), Pre-test vs. Post-test 2 (5.78) and Pre-test vs. Post-test 3 (6.98) compared to the children in group II who received PRT and children in control group. The result indicated that there was a highly significant reduction in emotional problem scores of mentally challenged children who received FT compared to children who received PRT ($p < 0.001$). Hence FT was highly effective in reducing the emotional problems among mentally challenged children compared to PRT.

IV.4. Multiple Comparisons of Behavioral Problems Scores of Mentally Challenged Children in Group I, II and Control Group

N=150

Group	Assessments	Mean	SD	ANOVA repeated measures		Comparison	Bonferroni t-test	
				F value	p value		MD	P value
Group I	Pre-test	15.94	4.71	320.491	<0.001			
	Post-test 1	14.06	4.35			Pre-test vs Post-test 1	1.88	0.181
	Post-test 2	11.76	4.11			Pre-test vs Post-test 2	4.18	<0.001
	Post-test 3	10.76	4.01			Pre-test vs Post-test 3	5.18	<0.001
Group II	Pre-test	19.30	6.22	22.539	<0.001			
	Post-test 1	18.88	5.78			Pre-test vs Post-test 1	0.42	1.000
	Post-test 2	17.84	5.17			Pre-test vs Post-test 2	1.46	1.000
	Post-test 3	17.68	5.12			Pre-test vs Post-test 3	1.62	0.895
Control Group	Pre-test	17.04	6.07	-	-			
	Post-test 1	17.04	6.07			Pre-test vs Post-test 1	0	1.000
	Post-test 2	17.04	6.07			Pre-test vs Post-test 2	0	1.000
	Post-test 3	17.04	6.07			Pre-test vs Post-test 3	0	1.000

Group I - FT Group II -PRT * = P<0.05 –Significant ** = P<0.001- significant

The repeated measure ANOVA F-test (table 49) shows that mean behavioral problem scores decreased gradually from Pre-test to Post-test 1, Post-test 2 and post- test 3 among children group I and children in group II ($p<0.001$). Post Hoc multiple comparisons using Bonferroni t test showed that, the reduction of mean behavioral problems of children in group I who received FT was higher in Pre-test vs. Post-test 1 (1.88), Pre-test vs. Post-test 2 (4.18) and Pre-test vs. Post-test 3 (5.18) compared to the children in group II who received PRT and children in control group. The result indicated that there was a highly significant reduction in behavioral problem scores of mentally challenged children who received FT compared to children who received PRT ($p<0.001$). Hence FT was highly effective in reducing the behavioral problems among mentally challenged children compared to PRT.

IV.5. Multiple Comparison of Social Problems Scores of Mentally Challenged Children in Group I, II and Control Group in Pre-tests and Post-tests

N=150

Group	Assessments	Mean	SD	ANOVA repeated measures		Comparison	Bonferroni t-test	
				F value	p value		MD	P value
Group I	Pre-test	7.34	2.15	123.728	<0.001			
	Post-test 1	6.34	2.04			Pre-test vs Post-test 1	1.00	0.037
	Post-test 2	5.00	1.69			Pre-test vs Post-test 2	2.34	<0.001
	Post-test 3	4.22	1.20			Pre-test vs Post-test 3	3.12	<0.001
Group II	Pre-test	7.54	2.02	18.273	<0.001			
	Post-test 1	7.18	1.52			Pre-test vs Post-test 1	0.36	1.000
	Post-test 2	6.78	1.27			Pre-test vs Post-test 2	0.76	0.74
	Post-test 3	6.28	1.03			Pre-test vs Post-test 3	1.26	<0.001
Control Group	Pre-test	7.84	2.11	7.938	<0.001			
	Post-test 1	7.64	1.98			Pre-test vs Post-test 1	0.20	1.000
	Post-test 2	7.54	1.93			Pre-test vs Post-test 2	0.30	1.000
	Post-test 3	7.42	1.95			Pre-test vs Post-test 3	0.42	1.000

Group I - FT Group II -PRT * = P<0.05 –Significant ** = P<0.001- significant

The repeated measure ANOVA F-test (table 51) shows that mean social problem scores significantly decreased gradually from Pre-test to Post-test 1, Post-test 2 and post- test 3 among children group I and children in group II ($p<0.001$). Post Hoc multiple comparisons using Bonferroni t test showed that, the reduction of mean social problems of children in group I who received FT was higher in Pre-test vs. Post-test 1 (1.00), Pre-test vs. Post-test 2 (2.34) and Pre-test vs. Post-test 3 (3.12) compared to the children in group II who received PRT and children in control group. The result indicated that there was a highly significant reduction in social problem scores of mentally challenged children who received FT compared to children who received PRT ($p<0.001$). Hence FT was highly effective in reducing the social problems among mentally challenged children compared to PRT.

IV.6 Multiple Comparison of Attitude among Mothers of Mentally Challenged Children in Pre-test and Post- tests

N=15

Group	Assessments	Mean	SD	ANOVA Repeated Test Measures		Comparison	Bonferroni t-test	
				F value	p value		MD	P value
Group I	Pre-test	42.52	6.62	295.447	<0.001			
	Post-test 1	38.00	5.92			Pre-test vs Post-test 1	4.52	<0.001
	Post-test 2	28.48	3.36			Pre-test vs Post-test 2	14.04	<0.001
	Post-test 3	26.08	3.47			Pre-test vs Post-test 3	16.44	<0.001
Group II	Pre-test	40.92	7.38	109.793	<0.001			
	Post-test 1	38.88	6.96			Pre-test vs Post-test 1	2.04	0.853
	Post-test 2	38.02	6.82			Pre-test vs Post-test 2	2.90	0.225
	Post-test 3	37.58	6.51			Pre-test vs Post-test 3	3.34	0.101
Control Group	Pre-test	43.31	6.79	-	-			
	Post-test 1	43.32	6.79			Pre-test vs Post-test 1	0	1.000
	Post-test 2	43.32	6.79			Pre-test vs Post-test 2	0	1.000
	Post-test 3	43.32	6.79			Pre-test vs Post-test 3	0	1.000

Group I- FT group II –PRT **significant at p value <0.001 *significant at p value<0.05

The repeated measure ANOVA F-test (table 53) shows that mean attitude scores among mothers of mentally challenged children significantly decreased gradually from Pre-test to Post-test 1, Post-test 2 and post- test 3 among children group I and children in group II ($p<0.001$). Post Hoc multiple comparisons using Bonferroni t test showed that, the reduction of mean attitude scores among mothers of children in group I who received FT was higher in Pre-test vs. Post-test 1 (4.52), Pre-test vs. Post-test 2 (14.04) and Pre-test vs. Post-test 3 (16.44) compared to the children in group II who received PRT and children in control group. The result indicated that there was a highly significant reduction in attitude scores among mothers of children who received FT compared to children who received PRT ($p<0.001$). Hence FT was highly effective in reducing the unfavorable attitude among mothers of mentally challenged children compared to PRT.

There was a significant correlation between emotional and behavioral problems during Pre-test ($r=0.413$) which indicates that as emotional problems increased, the behavioral problems also increased. The correlation between behavioral problems and mother's attitude during Pre-test (0.337) showed a significant fair positive correlation which indicates as behavioral problems increased the unfavourable attitude of mothers increased in control group. There was a significant association between the emotional problems of mentally challenged children and their age ($p=0.031$), gender ($p=0.050$), mother's educational status ($p=0.003$) and duration of schooling for the child ($p= 0.048$). The children in the age group of 12-17 year showed more emotional problems compared to 6-11 years. The children of mothers had higher secondary education showed less emotional problems compared to mothers had primary and secondary education. The emotional problems were higher in the children had longer duration of schooling. There was a significant association between the behavioral problems of mentally challenged children and their type of family ($p=0.031$), birth order of the child in the family ($p=0.004$), and duration of schooling for the child ($p= 0.006$). The behavioral problems among were more in children belonged to nuclear family. The first child in the family showed more behavioral problems in Pre-test. The children who had longer duration of schooling showed more behavioral problems in Pre-test. There was a significant association between the social problems of mentally challenged children and their type of family ($p=0.011$). The social problems were more in the children belonged to joint family.

V. Conclusion

The present study found that the level of emotional, Behavioral and social problems of mentally challenged children and unfavorable attitude of mothers reduced after the FT and PRT. The mean difference between Pre-test and post-test 3 scores of children in group I was higher than group II and control group. So, the FT was significantly more effective in reducing the emotional, Behavioral and social problems of mentally challenged children and improving the mother's attitude. The FT and PRT Techniques can be utilized by nurses working in all health care settings to improve the parent child relationship and reducing the problems of children with special needs. These therapies will enable the children and the family to lead a quality life, by that the community and the country will get benefited.

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