

Chapter-III

Method

This chapter serves the purpose of providing evidence for the data collection process. It is based on structured methods involving systematic brainstorming, assessment and training. The decisive goal is to provide improved outcomes for the quality of life in adolescents with disabilities and their families. The predicament taken up for the present investigation was to study 'Effect of Psychosocial Intervention through Parents and Teachers Support among Adolescents with Cerebral Palsy and Intellectual Disability' the subsequent steps are:

- Operational Definitions
- Research Questions
- Objectives
- Hypotheses
- Research design
- Area
- Sample
- Tools
- Data collection procedure
- Analysis of data

A board group of adolescents with disabilities were selected to expose them to improvement and modification as it is the transition stage between childhood and adulthood.

Operational Definitions

Adolescents. Adolescents refer to boys and girls between 12-18 years of age, enrolled in an institute for the differentially abled, diagnosed with Cerebral Palsy co morbid with Intellectual Disability.

Cerebral Palsy (CP). Cerebral palsy is a neurological condition involving limited physical movement and flexibility. CP varying across the spastic (including monoplegia, diplegia, hemiplegia and quadriplegia), ataxic and athetoid types were considered for the study.

Intellectual Disability (ID). Intellectual disability is a condition involving limited cognitive abilities, affecting daily living skills and falling within the IQ range of 35-69.

Behavioural Issues. Behavioural issues are socially inappropriate and maladaptive behaviour patterns, as observed among adolescents with CP co morbid with ID.

Self-Esteem. Self-esteem is the qualitative appraisal of the adolescent's self-concept as perceived by the parent.

Psychosocial Intervention. Psychosocial intervention is a customized training module designed by the researcher, to manage the behavioural issues and enhance the adaptive behaviour patterns, focusing on anxiety management, behavioural modification, social skills development, self-esteem building, personality development exercises and teacher workshops.

Research Questions

- What are the predominant learning styles among adolescents with cerebral palsy co-morbid intellectual disability?
- What is the altitude of behaviour issues and self-esteem in the selected sample?
- Does evolving a customized psychosocial approach based on the learning styles as an intervention help in the management of behavioural tribulations and improvement of self-confidence in the selected sample?
- Does psychosocial intervention help in enhancing the self-esteem and management of behaviour problems in the sample?

Objectives

- To identify the predominant learning style among adolescents with cerebral palsy co-morbid intellectual disability through assessment.
- To assess the level of behavioural issues and self-esteem among adolescents with cerebral palsy co-morbid intellectual disability through parents and teachers assessment.
- To design a psychosocial intervention based on the learning style of adolescents with cerebral palsy co-morbid intellectual disability to manage their behavioural issues and improve their self-esteem through parents and teachers support.

- To assess the pre-post and follow-up effect of the psychosocial intervention on behavioural issues and self-esteem among adolescents with cerebral palsy co-morbid intellectual disability through parents and teachers assessment.

Purpose

The study was taken to enlighten parents and teachers in managing the adolescents efficiently for their betterment.

Hypotheses

Parent perception. The following hypotheses were framed to fulfill the objectives from the parent's perspective:

- There will be a significant decrease in Disruptive Behaviour among the adolescents from pre to post and post to follow-up phases as a result of Behaviour Modification.
- There will be a significant decrease in Self Absorbed Behaviour among the adolescents from pre to post and post to follow-up phases as a result of Behaviour Modification.
- There will be a significant decrease in Communication Disturbance among the adolescents from pre to post and post to follow-up phases as a result of Social Skills Training.
- There will be a significant decrease in Social Relation Problems among the adolescents from pre to post and post to follow up phases as a result of Social Skills Training.
- There will be a significant decrease in the Anxiety among the adolescents from pre to post and post to follow-up phases as a result of Herbert Benson Relaxation Response.
- There will be a significant improvement in the self-esteem among the adolescents from pre to post and post to follow-up phases as a result of Psycho-Education.

Teacher perception. The following hypotheses were framed to fulfill the objectives from the teacher's perspective:

- There will be a significant decrease in Disruptive Behaviour among the adolescents from pre to post and post to follow-up phases as a result of Behaviour Modification.
- There will be a significant decrease in Self-Absorbed Behaviour among the adolescents from pre to post and post to follow-up phases as a result of Behaviour Modification.
- There will be a significant decrease in Communication Disturbance among the adolescents from pre to post and post to follow-up phases as a result of Social Skill Training.
- There will be a significant decrease in Social Relation Problems among the adolescents from pre to post and post to follow-up phases as a result of Social Skill Training.
- There will be a significant decrease in the Anxiety among the adolescents from pre to post and post to follow-up phases as a result of Herbert Benson Relaxation Response.

Research Design

Informal Experimental Research- Before and After without Control Design was adopted. The experimental group were assessed during the pre-test phase, followed by the implementation of the intervention on the selected sample. The effect of the intervention on the adolescents was determined in the post-assessment phase, and its sustenance was examined in the follow-up phase.

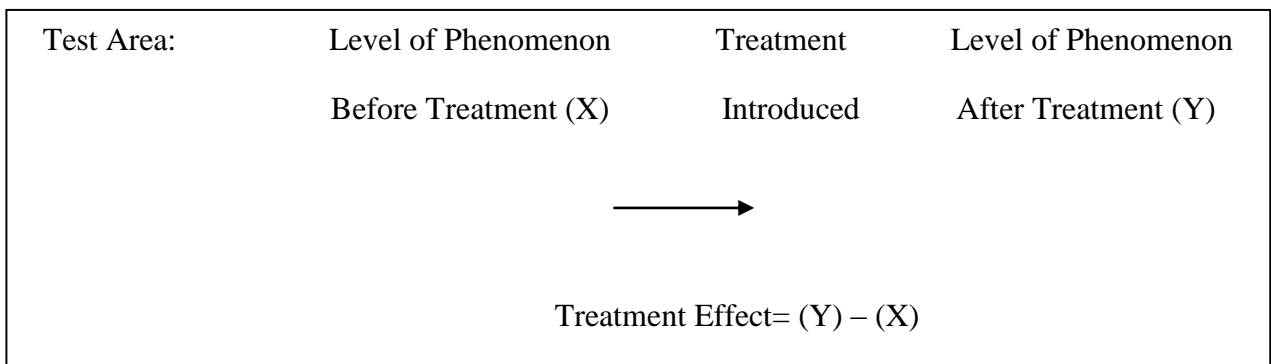


Figure 4. Before and After without Control Design (Adapted from Kothari, 2004)

Area

The research was conducted in Tamil Nadu (Chennai) in two well-established institutions for the differently-abled the National Institute for the Empowerment of Persons with Multiple Disabilities (NIEPMD) and the Spastic Society of Tamil Nadu (SPASTN). Both the Institutes are non-residential special schools following bilingual (English and Tamil) pattern of communication where parents accompany their wards.

Sample

The sample chosen for the current research is clinical, under the discipline of rehabilitation psychology. Formerly 50 samples were taken scrutinizing the individual case history records as well as observing them, followed by an assessment and screening process. Based on the inclusion and exclusion criteria, a total sample of 19 boys and 11 girls $n=30$ were selected using convenient sampling strategy for the final study. The sample were adolescents falling within the age range of 12-18 years. They were homogenous in their disability. Though the focus was to bring about an improvement in the adolescents, their limitations restrict them from providing reliable information for research. The pre-post and follow-up assessment scores were therefore obtained from parents and teachers and the effect of the intervention on the adolescents were analyzed thereafter.

Inclusion Criteria

- Cerebral Palsy with co-morbid Intellectual Disability.
- Boys and girls between the ages of 12-18 years.
- Boys and girls falling within the IQ range of 35-69.
- Boys and girls with Ataxic, Dystonic and Spastic types.
- Parents and teachers of the above said, boys and girls.
- Boys and girls with Monoplegia, Diplegia, Hemiplegia and Quarderplegia disabilities under Spastic Cerebral Palsy.

Exclusion Criteria

- Cerebral Palsy and Intellectual Disability as separate conditions.
- Other psychological or physiological illness.

- Boys and girls below 12 years and above 18 years.
- Boys and girls with an IQ below 35 and above 69.
- Parents and teachers who are not related to the boys and girls with cerebral palsy and intellectual disability.

Variables

Three variables were chosen for the study, one independent variable and two dependent variables. The independent variable is the psychosocial intervention; dependent variables are behavioural issues and self-esteem.

Tools

Informed Consent. The researcher used three consent forms to acquire legal permission for her data collection. The first form was known as the primary care-taker consent: given individually to both the parents. The second form was known as institutional consent given to the authorities of both the institutions. The third form was known as the special educator consent given to the teachers.

Case History Schedule. The researcher developed a case history schedule that was used to obtain socio-demographic information and Medical History. The schedule comprised of two forms: form A and B. Form A pertained to details of the adolescents whereas form B was for the parents.

Test of Non-Verbal Intelligence (TONI-4). Brown, Sherbenou and Johnsen established this test, in the year 2010 to measure intelligence, aptitude, abstract reasoning and problem-solving. The tool was non-verbal, language free and involves no performing activities. The test taker merely points, nods or blinks to designate the chosen response. The test can be administered for both children and adults with different disabilities, within the age range 6 to 90 years. The test has two equivalent sets: form A and form B with 60 items in each. Either form A or B can be used for assessment since they are considered as alternative forms serving the same purpose. The items in both forms are abstract/ figural (i.e. Pictures or cultural symbols); thus, educational, cultural, or experimental backgrounds will not adversely affect the test results. Each item incorporated one or more of eight salient characteristics:

Shape, Position, Direction, Rotation, Contiguity, Shading, Size and Movement. The average internal consistency of the test using co-efficient alpha is 0.96, test-retest reliability is between 0.86-0.89 and the inter score reliability is 0.99 showing good psychometric properties.

Swassing-Barbie Modality Test. Swassing and Barbie developed this tool in 1979. The purpose was to determine a student's primary learning style for receiving and retaining information through the means of Visual, Auditory and Kinesthetic Modalities. This assessment can be used from childhood through adulthood. The reliability The test-retest reliability coefficient was computed at 0.58 for the total test. The reliability coefficients for the separate scales are in the range of 0.61-0.67. There are three sub-tests: Visual, Auditory and Kinesthetic. The visual subtest is administered through physical demonstration to the sample. The auditory subtest is administered through vocalization of the shapes aloud to the sample. The kinesthetic subtest is administered through touch and feel mode without visualization. The scoring was done by taking the number of correct responses and adding them, the raw score followed by the calculation of percentage, dividing the total number of correct answers into each subtest total. The dominant modality was indicated by a difference of five percentage points above the other modality percentage score. The secondary modality was indicated by a five per cent difference above the third modality test. Based on the results, comments and study materials are provided to overcome their deficits. The strength of this test is that it is sample friendly and easy to explain, providing the teacher and student a general overview of the learning style.

Developmental Behaviour Checklist (DBC- Parent and Teacher version, Second Edition). It was developed by Einfeld and Tonge in the year 2002 to assess Behavioural and Emotional problems of children, adolescents and adults with Developmental and Intellectual Disabilities. This test was designed for clinical practice, assessments, monitoring of intervention and research. Both parent and teacher versions of the scale were administered. The above two forms cater to the age range of 12 -18 years and hence were chosen for the present study. The DBC-P form is a 96-item questionnaire completed by the person fulfilling the primary caregiver role. The DBC-T form is a 94-item questionnaire to be filled by the teachers who have known the person for at least two months. The test is divided into five domains: Disruptive Behaviour, Self-Absorbed Behaviour, Communication Disturbance,

Anxiety and Social Relations. Each item is rated along a three-point Likert scale with '0 not at all true,' '1 somewhat true', and '2 very true' the test-retest reliability of both DBC-P and DBC-T was .83 and .76 respectively. The inter-rater reliability of DBC-T was found to be .60. Content, construct, concurrent, and criterion group validity was established. The test also provides graphical representation for easy understanding.

Rosenberg Self-Esteem Scale. It was developed by Rosenberg in the year 1965 to measure the global self-worth by measuring both positive and negative feelings about the self. This 10-item scale was an attempt to achieve a one-dimensional measure of Global self-esteem. The scale can also be modified to measure 'State Self-Esteem' by asking the respondents to reflect on their current feelings. The internal consistency was found to be ranging from .77 to .88. And the test-retest reliability ranges from .82 to .85, with a criterion validity of 0.55. It is a four-point scale with 'strongly agree, agree, disagree, and strongly disagree' as the options. The score range is between 15 and 30. This scale has been modified to suit the needs of the sample.

Procedure

At the onset of the research 50 adolescents diagnosed with Cerebral Palsy co morbid Intellectual Disability were screened from the selected institutions by using convenient sampling. After the screening process, 30 adolescents, their parents and teachers, were selected for the final study. Informed consent was obtained before data collection. The participants were briefed on the research and the data was collected using Case History Schedule, Developmental Behaviour Checklist (Parent and Teacher Versions) and the Rosenberg Self-Esteem Scale (modified). After the pretest, the psychosocial intervention was given for 8 months under the supervision of the researcher and allowed two months of practice without the researcher's supervision. The post-test was assessed after two months and the follow-up was done one month later.

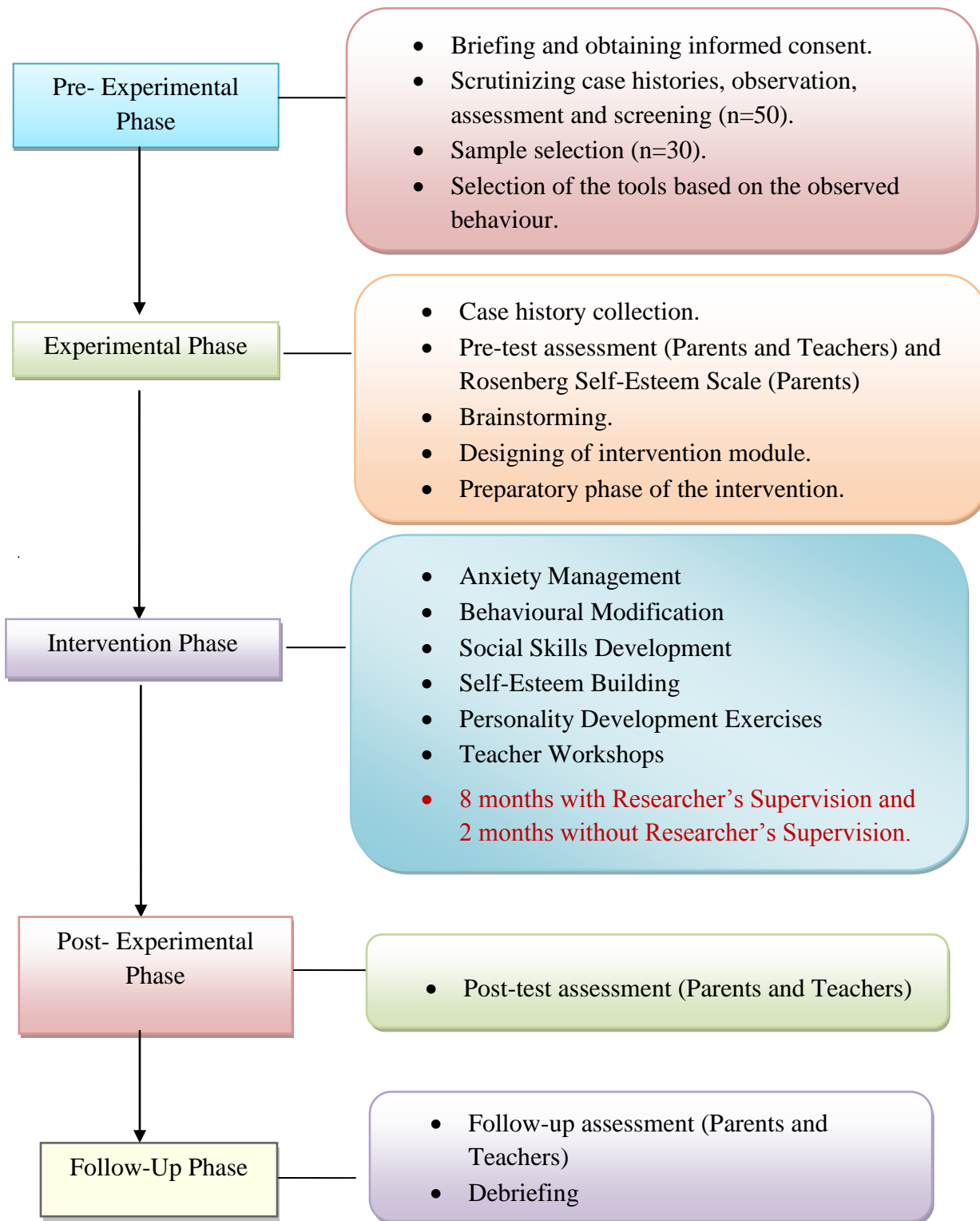


Figure 5. Flow Chart

Phase 1- Pre-Experimental Phase

The purpose was to understand the functioning of the institution, mainly the services provided to the adolescents. Fifty case files were scrutinized, 30 samples were selected followed by rapport building with parents, teachers and adolescents. The selected sample was briefed on the purpose of the research and the informed consent was obtained. The adolescents were then observed by the researcher to identify their behavioural issues, based on the observation, appropriate tools were selected.

Due to the dearth of standardized tools needed for the current study in the Indian context, foreign tools were selected. Expert opinion was obtained to determine the relevance and usability of the tools in the current study. The researcher approached 4 professionals for validating the tools before data collection which included a Psychiatrist, Clinical Psychologist, Pediatrician (specialized in Cerebral Palsy) and a Special Educator.

Based on the intelligence quotient, level of intellectual ability, gross motor functioning and learning styles the sample were selected and classified. These scores were derived based on the report given by respective subject expert. Test of Non-Verbal Intelligence (Toni-4) that was structured as form A (60 items) form B (60 items). The test has two modes of instructions oral and non-verbal. In the present study, oral instructions were used since the sample had no hearing or speech difficulties. The correct response was marked as (1), and the wrong response as (0). The first six items of the test (form A and B) were trial items that were not scored. As the test progressed, it became complex. The test was terminated after 3 continuous wrong responses. The raw score was the number of correct responses. It was later converted into age equivalents (mental age) using the conversion table in the test manual. Age equivalent scoring format was applied because the sample in the study was school-aged subjects. Though the forms are considered as alternatives, both were used in the present study for the following reasons.

Both form A and B can be used for research purposes and periodic re-evaluation. In case the examiner feels the test results are unsatisfactory due to distraction, confusion etc, the test can be discontinued and restarted in the next session using the alternate form. After computing the IQ scores, they were interpreted using the International Statistical Classification of Diseases and health related problems 10th revision (ICD-10 by WHO, 2016) this classification was applicable for the present study since the samples are intellectually disabled with emotional and behavioural disturbances.

Table 1

Intelligence Quotient Classification (Adapted from International Statistical Classification of Diseases and Related Health Problems, ICD-10, World Health Organization, 2016)

Sl. No	IQ range	Interpretation
1	50-69	Mild
2	35-49	Moderate
3	20-34	Severe
4	Under 20	Profound

The second assessment was done using; the Gross Motor Function Classification System (GMFCS) for Cerebral Palsy. It is based on self-initiated movement, with emphasis on sitting, transfer and mobility. Distinctions were based on functional limitations, the requirement for hand-held mobile devices and to a much lesser extent quality of movement. This classification is divided into five age groups. They are 0-2, 2-4, 4-6, 6-12 and 12-18 years. Each age group is classified under five levels.

Table 2

Gross Motor Functional Classification System (Adapted from CanChild Centre for Childhood Disability Research, 2007)

Levels	Description
1	Able to perform all physical activities with limited balance, speed and co-ordination
2	Limitations in gross motor functioning.
3	Limitations in walking and physical activities.
4	Self-mobility with limitations; may use powered mobility.
5	Transported in a manual wheelchair

In the present research, the fifth age group (12-18 years) was applicable, and among the five levels' second and third levels were appropriate. All the 50 samples underwent screening. The sample selected for the final study was a combination of Spastic Cerebral Palsy with Mild and Moderate Intellectual Disability trainable group.

The third assessment was done using Swassing Barbie Modality Test. The first indicator is the visual test. Each sample was presented with cut-outs of different shapes to view. The first series of cut-outs was given as a sample to see if he/she understood the instructions given. The shapes were placed in front of the sample and given approximately 20 seconds to view and it was removed. The sample was asked to rearrange the shapes in the order presented. Testing continued until the sample gave an incorrect response in two consecutive sequences.

The second indicator is the auditory test. Each adolescent was instructed to listen carefully to the series of shapes and arrange accordingly to what he/she heard using the cutouts. The sequences were read aloud, and he/she used the shapes to rearrange the sequence. The testing continued until the sample made an error in two continuous sequences.

The third indicator is the kinesthetic test. Each adolescent was instructed that he/she would have to close his/her eyes and feel the sequence of the shapes with the hands, and then rearrange the pattern of shapes. Each individual was asked to close their eyes and use the dominant hand, to feel the shapes for approximately 20 seconds.

Each adolescent was instructed to open his/her eyes and rearrange the sequence with the shapes. Testing continued until the sample made an error in two consecutive sequences. The total number of correct responses and percentage for each test was recorded. The dominant modality was indicated by a difference of about 5% above the other modality percentage scores. The secondary modality was indicated by a 5-point difference above the third modality percentage scores.

Phase-2- Experimental Phase

The Case History Schedule, Developmental Behaviour Checklist- Parent version and Self-Esteem scale were administered using face to face interview method on parents. The researcher orally translated the questions in the local language along with the ratings to collect

the data. Though self-administered tools were selected, interview mode of execution was adopted for the following reasons, considering the majority of the cases. The interview method was adopted as presented in the DBC test manual and owing to the educational background of the parents.

The Developmental Behavioural Checklist- Teacher Version was used to collect data through interview mode. The test was scored and interpreted.

Brainstorming involved three steps such as identification of the behavioural deviance, construction of training module and preparatory phase. Appropriate modules were developed to manage the identified issues. The intervention package was designed according to the needs consisting of audio, visual and kinesthetic methods. Post-development, the intervention was applied in a preparatory phase to understand the effectiveness and to make necessary modifications thereafter. The preparatory phase included tasks such as

General comprehension. The following tasks were included under the general comprehension exercise:

- Identification of self's photograph among peers.
- Recognition of primary and secondary caretakers.
- Identification of his or her objects.
- Association of objects and its uses through pictorial cards.
- Comprehension and sequencing of 'Hare and the Tortoise' story using pictorial

representation.

It was a platform to have a general understanding of the sample's preliminary aptitude. The researcher designed this package into visually supporting aids such as flashcards, images and objects which were taken from the sample's familiar background. This preparatory phase was an outline along with the pre-test scores that gave an overall idea to construct the actual intervention package.

Psychosocial Intervention

In the present study, the intervention was provided to all the 30 adolescents, including parents and teachers for 8 months. It was divided into 4 days per week, 2 days in each

institution. The module was tailor-made by the researcher considering the pre-test results, preparatory intervention, variables and needs of the sample. The parents, teachers and adolescents underwent 32 sessions each.

The researcher framed the package into six significant topics such as Anxiety Management, Behavioural Modification, Social Skill Development, Self-Esteem Building, Personality Development and Teacher Workshop.

Need-based training program. It guides the adolescents to lead a healthy state of being. It is applied in case of any mental disturbances and the occurrence of negative behaviours. It was framed taking into consideration the Developmental Behavioural Checklists (Parent and Teacher-versions) and the Rosenberg Self-esteem Scale. The Developmental Behavioural Checklists were found to be interrelated to each other as there is not much of a difference found in the items of parent and teacher versions. The only difference is that it is taken from two perspectives such as behaviour of adolescents at home and at school respectively. This package focuses on the entire sample, including adolescents, parents and teachers. The components for the intervention were uniform, but the approach of implementation differed. Since there was interlink among the items selected for management through intervention, the researcher had merged the items to avoid repetition.

The intervention program began with an orientation that aimed to portray a detailed framework to give awareness on the adolescent's health, essence and intention of the intervention package. It was a platform for them to increase their knowledge about their adolescent's physical and mental condition and to train them in a positive upbringing method. The researcher had covered the clinical aspects of Cerebral Palsy and Intellectual Disability.

Intervention module based on learning styles. It is a known fact that human beings use different modes to learn based on their strength, comfort and accessibility to resources. In case of disability, learning takes place at a slow pace, mostly with assistance. An adolescent is taught through his or her dominant learning style, i.e. Visual, Auditory, and Kinesthetic or a combination. The intervention was designed holistically to cater to adolescents distributed among all three learning styles. As they fell under different categories, the application of the exercises was carried out based on the dominant learning style of specific individuals. For

example, in the exercise focused on managing fussy eating, the visual learners were trained using pictorial pluck cards, the auditory learners were given oral instructions whereas kinesthetic learners were instructed to model learn and imitate from their parents to eat by themselves. After the initial instructions, all three categories were trained to practice eating on their own, with appropriate reinforcements.

Module for Psychosocial Intervention

The module for psychosocial intervention was developed as follows:

Anxiety Management. This module was evolved to manage anxiety reactions of avoiding eye contact, constant crying, being upset, fearful, impulsive, irritable, noisy and boisterous.

Enhancing eye contact. The importance of maintaining eye contact during communication was established using pictorial pluck cards. The adolescents were provided practical training for maintaining eye contact through two activities, namely ‘staring’ and ‘swinging’. In ‘staring’ exercise an eye-shaped sticker was placed on the forehead of the researcher, instructing the adolescents to look straight into the sticker while conversing. The ‘swinging’ activity was between the parents and the adolescents, wherein they hold their hands, sitting or standing opposite to each other while swinging forward and backward, with their eyes locked on each other.

Managing crying spells. The significance of managing emotions and expressing them in an appropriate manner was impressed upon the sample through discussion sessions. Pictorial pluck cards were used to sensitize them on different emotions and the relevance of expressing them in particular situations. As an activity, the adolescents were presented with worksheets showing different emotions, where the adolescents were asked to identify them and order them as appropriate to specific expressions.

Handling distress. The aim of this section of the intervention was to reduce the emotional distress faced by adolescents, in handling their mood swings. An understanding of the causes of stress and effective ways of managing it, necessity of time management and suggestions for managing time efficiently were developed in the sample. They were involved

in a stress reduction task, where they were instructed to squeeze a smiley ball for two consecutive minutes as a means of venting out their stress.

Instilling patience. Parents were educated on the underlying causes of impatient behaviour among the adolescents and were equipped with different ways of cultivating patience. A chance activity was used, where the adolescents were randomly distributed with material reinforcements, as a training to wait for their turn to receive the same. Impatience and restlessness were negatively reinforced by holding back their reward.

Managing fear. To help the adolescents be rid of their fear and irritation and for the parents to handle the shared emotions, they were subjected to Herbert Benson relaxation technique, a guided breathing exercise. The parents and adolescents were seated comfortably in a quiet atmosphere with their eyes closed. They were requested to relax the muscles of the body beginning from the feet and moving upward to the face. They were to breathe through the nose and become aware of the inhaling and exhaling process slowly and naturally. The exercise was continued for 5 to 10 minutes. They were to be seated feeling relaxed and calm with eyes closed for a few minutes, and slowly open the eyes continuing to feel peaceful, have a passive attitude and allow relaxation to occur at its own pace.

Controlling boisterousness. The habit of the adolescents, making of unwanted noises was focused upon in this part. The meaningless sounds made by them not only agitate the adults around them but also disturb their fellow mates which were explained to the adolescents. The parents were educated to use 'ignorance' as a strategy for reducing this behaviour. They were suggested not to pay attention to these calls made by the adolescents and in cases of repeated boisterousness were asked to use negative reinforcement.

Behavioural Modification. The behaviour modification module was evolved to manage the issues of being aloof, abusive, impulsive, stubborn, attention seeking, jealous, giggly, unrealistically happy, preoccupied, ignorant of danger, repetitive in behaviour, fussy eating and with uncontrolled bowel and urination.

Managing aloofness. Adolescents resort to isolation or withdrawal to avoid social anxiety. The parents were instructed to be instrumental in bringing about a change through dialogue. They were further trained to get involved with the adolescent through play activities

using building blocks, origami, drawing and painting. This benefitted in exchanging their thoughts and feelings thereby strengthening their bondage.

Redirecting negative behaviour. This part of the intervention was designed aiming at redirecting negative behaviours into positive ones, such as training them on appropriate social interaction, avoiding use of obscene language, restricting physical harm to self and others and avoiding unhygienic practices. Awareness was created in the parents on how children would model learn their habits and also learn by observation from the way they parent their child. Videos on parenting and child care were used for bettering the understanding.

Creating routine and discipline. The purpose was to foster a sense of discipline in the adolescents. The researcher prepared a daily schedule for the adolescents that they had to follow throughout the day. The schedule was a double-sided chart with cartoon images of the different daily activities, hence making it attractive to the adolescents. The parents were asked to encourage and insist their wards on maintaining the schedule, so as to inculcate a systematic and disciplined routine.

Increasing attention span. To train the adolescents to sit in a place and pay attention, they were presented with a cartoon video. The attention span was increased by initially presenting the video for about thirty seconds and gradually playing it till about ten minutes. They were also presented with a stroop task where different letters were written on the blackboard using different colour chinks as the adolescents identified the letters and the colors. The parents were involved in a group discussion on teaching methods, learning methods, providing appropriate work, avoid pressure and the use of reinforcements to encourage learning.

Handling iterated behaviours. As an outcome of stress and discomfort, the adolescents repeat certain behaviours such as blinking of the eyes, twitching of facial muscles, etc., which they were trained to avoid. The adolescents were educated on controlling such behaviours by making them observe it on a mirror to realize how it looks. They were also educated on handling anxious and stressful situations better by being more confident.

Managing fussy easting. To help the adolescents overcome difficulties in eating, they were encouraged to closely observe the eating style of the parents, practice self-eating,

promote independence and inculcate clean eating habits. Pictorial pluck cards were used for showing clean and healthy eating habits to the adolescents. During lunch, the parents and adolescents were made to sit in a circle and eat as a group, so that the adolescents can observe their parents and also practice eating by self. The parents were also given a customized food chart to help them maintain a healthy and balanced diet.

Reducing preoccupied behaviour. To reduce the preoccupation of the adolescents with unproductive activities, parents were asked to spend quality time with them and engage in more productive tasks. A sequencing process was adopted using positive and negative reinforcements to reduce obsession with electronic gadgets such as mobile phones, television, etc., gradually decreasing the duration of use.

Managing tantrums. Throwing tantrums can be developed due to genetic influences and personality or due to model learning. To develop further understanding on the cause, parents were asked to introspect on their behaviour as an adolescent and also to relate to the way they express their emotions with their spouse. They were then instructed to observe the adolescent's tantrums and relate to the similarities and differences with their behaviour. Parents were then educated on dealing with their wards in an effective manner with the help of a video.

Reducing impulsiveness. Impulsivity and restlessness appear as an expression of inability to communicate their thoughts and emotions, hence enhancing communication skills were taken up as a means of reducing impulsivity. The parents and adolescents were made to sit in pairs and communicate with one another. They were given clear instructions that they should wait for their turn when communicating and not rush to answer. They were asked to observe the content of the conversation clearly and respond appropriately. This activity was also supported by a video on communication skills and handling emotions.

Managing jealousy. In order to avoid feelings of jealousy in the adolescents, intervention was more focused on bringing change in the parents' behaviour. They were educated on handling their children equally and avoid discrimination between children by any means. They were also instructed to avoid comparison between siblings and peers.

Adolescents were encouraged to be more confident about self and not compare self with others. The parents were also presented with a video on parenting.

Managing inappropriate giggles. Similar to being boisterous, these adolescents also show inappropriate giggling or laughing behaviour. Following the activity on emotional intelligence, adolescents were again explained on the importance of showing appropriate emotional expression. Adolescents were asked to regulate their expression of emotions, and reduce inappropriate laughing and giggling behaviour. As the adolescents show such behaviour as a way of gaining attention, parents were asked to ignore such behaviours and also appreciate the adolescents when they refrain from such behaviour.

Managing masturbation. Though psychologically the adolescents might be of a lesser age, physically they are mature and have the need for fulfillment of their physical pleasure. As a means of fulfilling this, they resort to masturbatory behaviour, most often without the knowledge of the parents or in some cases with the objection of the parents. Parents were presented with a video on sensitizing them on this information, making them understand the dynamics of the needs of the adolescents and their fulfillment. The adolescents were also educated on maintaining healthy practices.

Managing poor sense of danger. The purpose of this task was to instill in the adolescents a sense of danger and the necessity to stay away from harmful objects and situations. They were presented with a series of tools that might inflict harm, such as a hammer, knife, axe, etc. To touch and feel under supervision and were educated on avoiding use of such items. Pictorial pluck cards were used to explain situations of danger and how the displayed tools could be operated to cause harm to them or to others. Though the adolescents were agitated when presented with these stimuli, they were encouraged to involve in the activity.

Managing attention-seeking behaviour. Attention-seeking behaviours were used by these adolescents for both grabbing the attention of their parents and teachers and as well to disturb them when they are involved in other activities. A group discussion was held with the parents and adolescents to understand this behaviour of them, and to explain to them on how the parents felt when they showed inappropriate attention seeking behaviour. The adolescents

were trained to use more appropriate ways of expressing their needs and calling for help. When the adolescents showed such attention-seeking behaviour, the parents were asked to ignore them and negatively reinforce where necessary.

Controlling bowel movement and urination. Inability to regulate their bowel movement and urinary continence, the adolescents tend to soil their clothes often, the management of which is focused here. As this inability to control the bowel movement is an outcome of their physical condition, they were trained in a way so as to avoid soiling their clothes rather than controlling the excretory behaviour. They were insisted that they use the washroom once in every half-an-hour, provided they had the urge to do so or not. They would hence be able to empty their bladder periodically, avoiding incontinence later.

Reducing stubbornness. The adolescents are usually stubborn in getting their needs and wants fulfilled. They throw tantrums and physically abuse their parents when refused, which was explained to them as being inappropriate. They were suggested on communicating their needs and wants clearly through verbal and non-verbal means and also accept the rationalization offered by the parents. Parents were educated on using apt methods of responding to their wards, using ignorance, positive and negative reinforcements when needed.

Social Skill Development. This module aims at managing social skill deficits like showing inappropriate feelings, avoiding company of peers, maintaining inappropriate proximity while conversing, talking too fast, isolating self and avoiding physical touch.

Managing emotional expression. The importance of the appropriate expression of emotions was reiterated to the adolescents through discussion. Parents and the adolescents were engaged in a one-to-one conversation where they were directed to express each other's emotion through verbal and non-verbal cues. The adolescent and the parent had to identify the emotion conveyed by the other partner and understand it. Adolescents were asked to express the way they feel by depicting their emotions through drawing smiley on paper.

Enhancing relationship with peers. These adolescents desired being with adults who would attend to and care for them, rather than being with peers of their age. Intervention was aimed at enhancing their confidence level and encouraged them to mingle with similar other

individuals of their age. Pictorial pluck cards were used to explain friendly relationships to the adolescents. In order to help the adolescents to model learn friendship and friendly conversation, the parents were involved in general conversation with other parents which the adolescents observed. They were then subjected to involve themselves in conversation with their peers, being more friendly and jovial.

Maintaining proximity. The adolescents have a habit of being physically too close to the person they communicate with. In order to teach them social skills, they were demonstrated with ways of being socially pleasing such as maintaining a minimal distance from the other person, keeping a straight posture when talking, refrain from physical contact, avoid fidgeting and intentional distraction.

Talking at a normal pace. Due to their anxiety, the habit of speaking with an urgency to finish what they want to convey was seen among most adolescents. They would hence talk at a fast pace, speaking quickly to deliver their content. To overcome this, the adolescents were given time to individually come to the front and address the others, during which they were insisted on speaking at a slow pace, with required pauses and body language. Adolescents who had difficulty verbalizing were asked to express through gestures and actions.

Handling loneliness. As part of social skills, it is important for the adolescents to fight loneliness and form better bonding with her peers. In order to make them comfortable with their peers, they were initially subjected to an activity engaging together in activities such as solving puzzles, drawing, coloring, etc with the support of their parents. They were then later divided into smaller groups among themselves and given activities such as clay modeling, craft making and playing simple games such as passing the parcel. This helped them mingle with their peers and form a bonding.

Accepting physical touch. The adolescents have a difficulty in accepting physical touch, because of which they avoid being comforted by touch or cuddled by their parents. To help them overcome this difficulty they were systematically exposed to physical touch, from the parents and from their peers, making them comfortable with minor touches initially and

then with more intimate touches such as hugs and cuddles. Though the adolescents felt uneasy at first, they gradually settled and later felt comfortable.

Self-Esteem Building. This module was evolved to initiate the development of self-worth in adolescents through activities involving the parents in way for a healthy relationship. At the outset the parents were seated in front of the adolescent facing each other. The parents were to recall the strengths and weaknesses of their ward by writing it down, which they further discussed upon.

The investigator chanced on the insight of creating a colorful and appealing to the parent. The box was placed in a convenient place at home. The parent was instructed to drop positive notes on the adolescent every time it occurred for a period of 60 days. The box was brought back to the institute on the completion day and opened before the group and each adolescent's note was read out aloud receiving applause. The observation was recorded, revealing a remarkable change in the level of satisfaction, happiness boosting the self-esteem in the adolescents and the parents.

Personality Development Exercises. Additionally, some part of intervention involved one-to-one counselling sessions, with all the parents, teachers and adolescents individually. The behavioural issues which were identified based on investigation and observation, counselling led to the identification of certain minor issues such as stress, anger and inability to work in a team.

The major challenge faced by the female parent was conflict with the spouse in terms of not sharing responsibility in taking care of the adolescent. The entire burden of nurturing the ward was loaded on the mother in addition to the household chores and other tasks. In case of the adolescents, it was seen that most adolescents experienced sibling discrimination, where the adolescent with the physiological and psychological challenges was compared with the adolescents without any challenges. The challenged adolescents were often asked to model learn from the unchallenged sibling who were given credit for their abilities. Both these situations caused stress, frustration and helplessness in the parent and adolescent, which was often expressed as anger, crying spells and other forms of unacceptable behaviours.

The above said challenges were aimed at being dealt with using the following games and activities, so as to relieve them of stress and frustration.

Stress reduction. Parents of adolescents were involved in a ‘paper wrinkling’ activity. They were asked to write down experiences that caused anger or frustration in them, which helped them to vent out their anger. They were then asked to crush the paper with vigor and dispose it, so as to express the remaining unvented anger on the paper. Parents were advised on following this whenever there was a need.

Enhancing bonding. The bonding between the adolescents and adults were enhanced through this activity named ‘bowling basket’, also to make them understand that the parents were ready to spend time with them as well and not only the siblings. The parent and the adolescent played as a pair, where one of them were handed a basket and the other one had to throw a ball into the basket. Both the partners had to work mutually, hence enhancing coordination and cooperation.

Boosting memory. This activity demanded the parents and adolescents to play as a group, the activity titled ‘stress for successes. They were divided into groups, parents and adolescents mixed, to form a total of six groups. They were asked to pass a ball randomly, where they had to remember the order in which it was passed. On completion of one turn of passing, they had to recreate the same order of passing, hence training them on their memory.

Improving team skills. The adolescents and parents played this game as a huge group. Chairs were arranged in a room and the parents and adolescents had to move in between the chairs as the music played. Once the music stopped, they had to find chairs for themselves, which encouraged them to move around and also motivated them to play as a group rather than being focused in fulfilling their own needs.

Enhancing motivation. Self-motivation which this group largely lacked was enhanced through this activity, the ‘music and the hat’. The adolescents and parents played together in two groups. They were provided with a hat which they had to pass around by wearing it on their heads, as the music played. When the music was stopped, the adolescent or the parent wearing it was asked to perform any activity based on the instruction such as singing a rhyme,

dancing, reciting a story, demonstrating a greeting, etc. This activity though a fun task motivated the adolescents to open up.

Time management. Time management among these adolescents was a challenge faced by most parents. The effective management of time was instilled in the adolescents through this activity named the ‘curious clock’, where they were presented with outlines of a clock on paper. They were asked questions on when and how quickly they would do certain tasks, for which they were asked to draw the time and show the duration they would take to complete it.

All these activities were also substantiated by the use of videos which portrayed the above said ideas and helped in enhancing their learning.

Teacher Workshops. The teacher workshops were organized with the aim of educating the teachers with various strategies of handling the adolescents. Though most of the teachers were already exposed to such populations, few strategies were new to them whereas few strategies were already being practiced by them. The workshops were conducted in a very lively manner by the use of games such as magic hat, stress for success, through group discussions, demonstrations and videos. The teachers found the workshops useful and which provided them a relaxation as they were mundanely exposed to the pressure of handling children with challenges.

Regulating classroom behaviour. Maintaining these adolescents to follow disciplined classroom behaviour is a highly challenging task owing to their disability condition and other behavioural deviations. In order to help teachers, regulate behaviour in class, they were suggested on following measures such as setting an expectation of the behaviour to be displayed in class, changing the physical setting of the classroom to make navigation easier, setting clear guidelines of what the consequences would be if expectation were broken and the like. Teachers were also insisted on maintaining calm and composed emotional state, avoiding losing their temper and by following the guidelines established strictly.

Encouraging positive change. Any individual would expect encouragement from elders, whereas this population is one which expects a higher standard of acknowledgement and encouragement from the adults around them. As a means of encouraging positive change, teachers were instructed to acknowledge and encourage any improvement in the adolescents’

abilities or habits with verbal as well as material appreciation. They were asked to both appreciate the adolescent in the presence of the peers and to be encouraged in the presence of the parent. They were asked to let the adolescent to perform simple tasks of self-care on their own and to provide assistance only when required or asked for.

Improving teacher skills. The teacher as a role model and guide to the adolescents require possessing certain skills and practicing certain habits so as to enhance the teaching-learning process. Introspection was used as a tool to explore the strengths and weaknesses of the teachers, to assess their abilities by themselves and from the perspective of the group through discussions. They were hence able to develop an awareness of characteristics they had to strengthen and those they had to develop, which shaped them into better teachers.

Physical touch. The importance of physical touch was explained to the teachers through psycho-education, where the underlying biological mechanism as well as the psychological interpretation of touch was explained. They were suggested on using appropriate tokens of physical touch as a means of acknowledging, appreciating and motivating the adolescent. It was instilled in them that physical touch would not only serve as a means of non-verbal communication, but also enhance the bonding between the teacher and the wards.

The complete assessment was coupled with reinforcements to keep up the motivation and enthusiasm. The attendance of the adolescents was formally recorded throughout the intervention period to maintain regularity and genuineness of the procedure. In addition to the pre-test, post-test and follow-up assessment, a journal was also maintained to keep track of the developments and changes in the adolescent's behaviour. The parents and the adolescents were trained on the intervention modules for a period of eight months by the researcher. They were then instructed to practice the exercises on their own without the supervision of the researcher. Continual feedback was collected from the teachers and parents, welcoming both positive and negative comments.

Post-Experimental Phase

The sample was subjected to post-test assessment on the Developmental Behaviour Checklist-Parent Version, Teacher Version and the Self-Esteem Scale respectively. The post-

test assessment was conducted after the ten-month intervention period, eight months of training under supervision and two months without supervision.

Follow-up Phase

The follow-up assessment was conducted quantitatively, by the use of questionnaire and qualitatively, on one-to-one interaction, after a period of one month to ensure the retention of the change brought about by intervention. The follow-up phase also involved collection of feedback through a bilingual feedback form, where responses of the teachers and parents were recorded. The sample was then debriefed on the advantages of the intervention and the benefits of maintaining the learning through practice of the exercises.

Statistical Analysis

The comparison of the pre, post and follow-up stages was analyzed using the Repeated-Measures One-Way Analysis of Variance (ANOVA), performing pair-wise comparison of the within-group condition, using the Sidak Method of the post hoc analysis. The results were illustrated using line graphs to pictorially represent the changes that happened during the different phases. Statistical analysis was done using the Statistical Package for Social Sciences, version 20.0.

The statistical analysis and tabulation of the research data is discussed in the subsequent chapter.