CHAPTER- III

RESEARCH METHODOLOGY

The present research was conducted on parents of children with IDD. This chapter provides a comprehensive overview of the research study's methodology in detail.

Research Approach: In the context of this research, a quantitative research approach was considered to be appropriate.

Research Design: In the present study, Quasi-experimental Time Series Research Design was adopted.

Table 1: Presentation of Research Design

Group	Pre-test Assessment at Baseline	Intervention 12 Sessions: 1 Per Week (45Minutes) 3 Months	Post-test 1 6th Month after intervention)	Post-test 2 9th Month after intervention)	Post-test 3 12th Month after intervention)
Experimental Group	OE_1	X	OE_2	OE_3	OE_4
Control Group	OC_1	-	OC_2	OC_3	OC4

Key:

OE_1 and OC_1- Pre-test of experimental group and control group prior to Administration of Parenting Skill Program

X- Intervention – Administration of Parenting Skill Program 12 Sessions:1 Session Per Week (45Minutes) for 3 months to parents in experimental group

OE_2 and OC_2- Post-test 1 of experimental group & control group at 6^{th} Month

OE_3 and OC_3- Post-test 2 of experimental group & control group at 9^{th} Month

OE_4 and OC_4- Post-test 3 of experimental group & control group at 12^{th} Month

Research Variables- The variables for the present study were as follows:

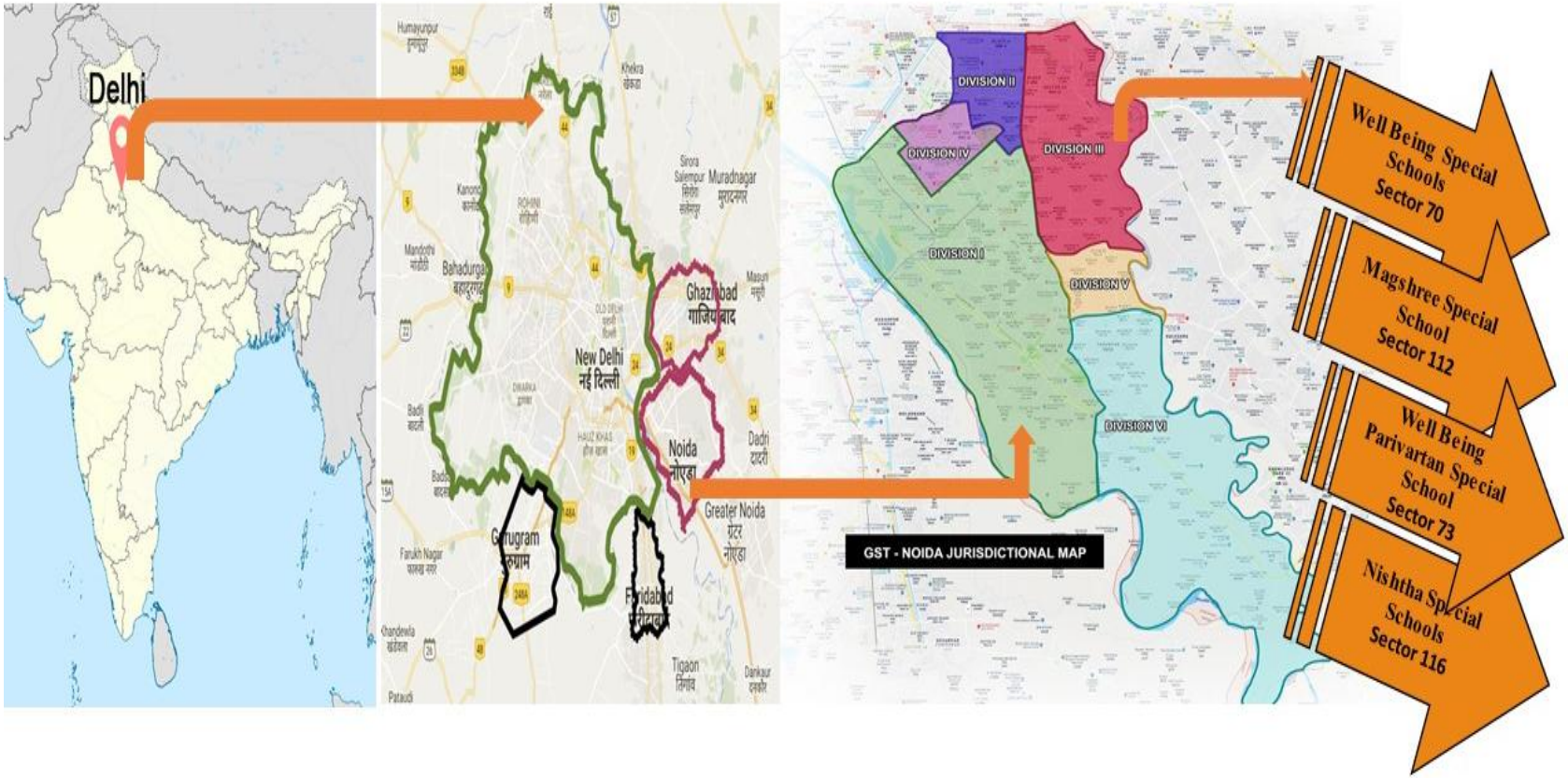
Independent Variable- Parenting Skill Program

Dependent Variables- Child's adaptive behavior**,** parental self-efficacy and mental well-being.

Research Settings: The present study was conducted in Noida, Delhi NCR, Uttar Pradesh. There are six divisions in Noida, out of which Division III was selected as research setting. In Division III, there are four schools for special abled children among which two schools were selected by randomly by lottery method and were allocated to experimental and control group which are described below.

Margshree Special School had a total of 210 registered children of which 120 children were identified as mild and moderate level of intellectual developmental disability. Three major services are provided by this school for children with IDD. These are physiotherapy, orthopedic services and exercise, vocational, food and residential facility to intellectual developmental disability children. The school has a total of 12 staff members including Principal, five special educators, one yoga teacher, and two gym trainers, one occupational therapist, one vocational therapist and one psychologist.

Well-being special school had a total of 180 registered children of which 105 children were identified as mild and moderate level of IDD. Various facilities like physiotherapy, vocational therapy, play therapy, food and residential facilities were provided to children having special needs. The school has a total of 11 staff members including Principal, six special educators, two gym trainers, one occupational therapist and one psychologist.



Map of Study Site – Noida, Uttar Pradesh

Figure No. 2

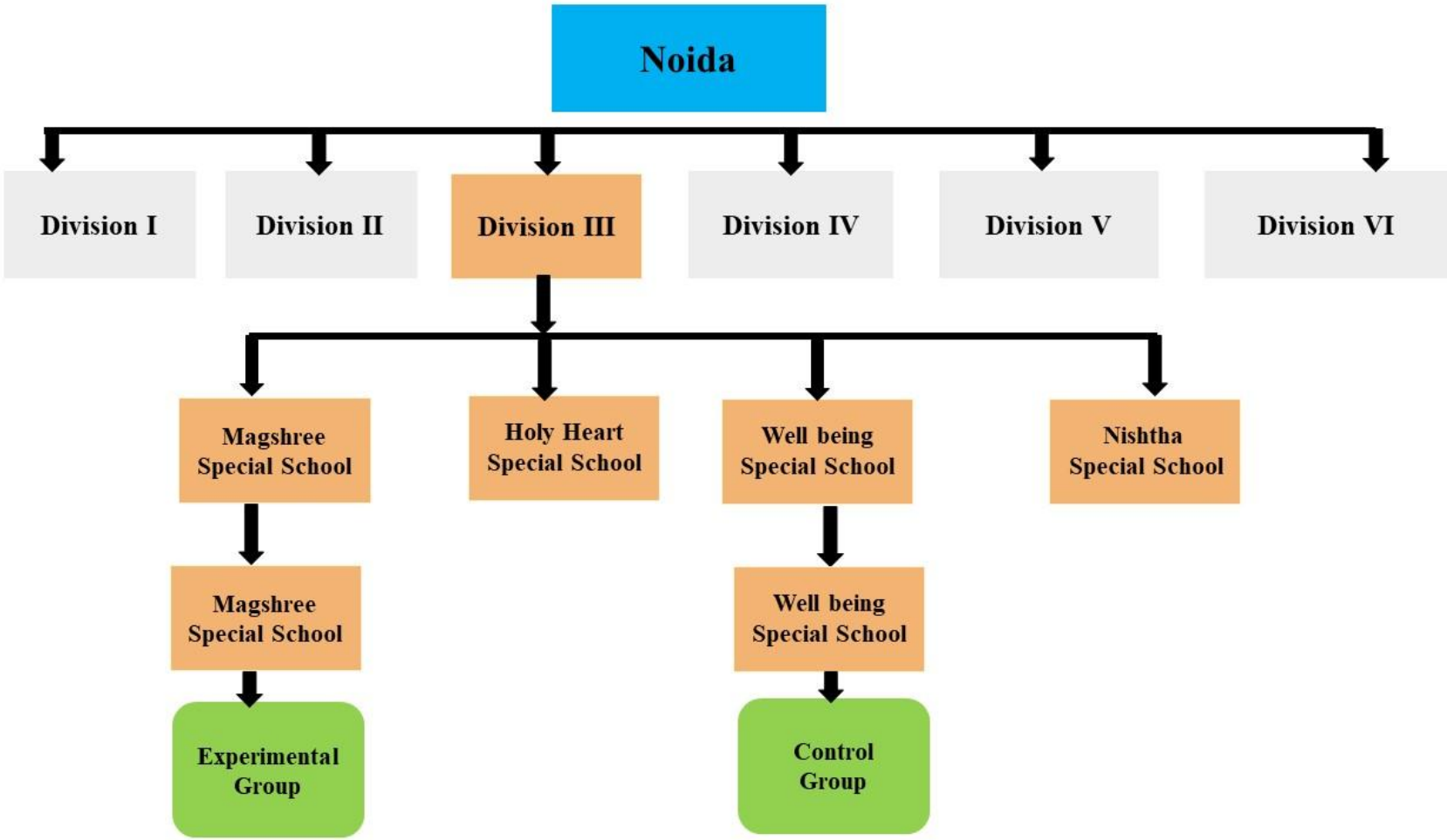


Figure No. 3 Schematic Diagram of Research setting

Population-

The population in this study was the parents of children with IDD (mild or moderate) who registered in in selected special schools of Delhi.

Sample- Parents of children having mild or moderate IDD and studying in Margshree special school and Well-being special school of Delhi, NCR were sample in this study.

Sample Size- The sample size was 160 parents of children with IDD. Any one parent, mother or father of each child with IDD was enrolled in study groups.

Sample size Calculation: Sample size was calculated on the basis of previously published literature (Adibsereshki N et al 2016)[99]. The mean ± SD was taken from the above stated article to achieve 80% power (β) at a 5% level of significance (α). Calculated sample size was 131. Considering chances of dropout, the researcher enrolled 160 parents having children with IDD, 80 in experimental and 80 in control groups.

The formula for sample size calculation was as follows:

$n = 2\ Sp^2\ [Z_{1-\alpha/2} + Z_{1-\beta}]\ 2 / \mu d^2$

$Sp2 = S_1^2 + S_2^2/2$

Where,

S_1^2: Standard deviation in the first group

S_2^2: Standard deviation in the second group

μd^2: Mean difference between the samples

α: Significance level

1-β: Power

Sampling Technique –

In the context of this research study, setting and sample were selected by simple random sampling technique.

There were 120 children with mild or moderate category of IDD in Margshree Special School. Out of these parents of eighty children were selected randomly and were allotted to experimental group. There were 105 children with mild or moderate category of IDD in Well Being Special School. Out of these parents of 80 children were selected randomly and were assigned to control group.

Selection criteria of the participants:

The study participants were selected considering the following criteria:

Inclusion Criteria:

Parents who were:

1. Having children with mild or moderate level of IDD
2. Willing to participate in the study.
3. Available at the time of data collection.
4. Knowing Hindi language.

Exclusion Criteria:

1. Parents who were already attending any other parenting skill program in any other place.

Data collection tools

Following tools were used in the study:

Tool 1: Socio-demographic proforma

Tool 2: Vineland Social Maturity Scale

Tool 3: Parenting Sense of competency Scale (PSCS)

Tool 4: Warwick-Edinburgh Mental Well-being Scale (WEMWBS)

Description of the tools:

Tool 1: Socio-demographic proforma (Appendix I)

A) **Related to Child-** Age in years, gender, relationship with parents, IQ score, level of intellectual disability, duration of attending special school.
B) **Related to Parents-** Father's age, mother's age, religion, area of living, family type, monthly family income, education and employment status of mother and father

Tool 2: Vineland Social Maturity Scale (VSMS) - Standardized tool

This tool was used to assess the adaptive behavior of children with intellectual developmental disability. It consisted of eight domains related to personal and social

skills such as self-help general, self-direction, self-help dressing, self-help eating, occupation, communication, socialization and locomotion,

Total items in the tool were 89. Scores were given based on the performance of child for each item given in the scale. The scores were assigned as 1 for “able to do task”, 0.5 for “able to do with assistance, 0 for “not able to do task”. The obtained scores were then added to find out social age using the formula **SQ=SA/CA*100.**

Where, SQ is social quotient, SA is social age and CA is chronological age.

Table 2 Interpretation of social quotient as per ICD 10

Classification of SQ	**SQ Range**
Above Average	Above 110
Average	90-110
Borderline	71-89
Mild	50-70
Moderate	35-49
Severe	21-34
Profound	Below 20

Note: The child's adaptive behavior was identified based on the social quotient score.

Tool 3: Parenting Sense of competency Scale- Standardized tool

It is a 6-point Likert scale to measure the parental self-efficacy. The total items in the tool were seventeen. Eight items (Item 1, 6, 7, 10, 11, 13, 15, and 17) were positive, ranged from one (strongly disagree) to six (strongly agree) and nine items (Item 2, 3, 4, 5, 8, 9, 12, 14, and 16) were negative for which scores were reversed. The total score ranged from 17 to 102. The score was interpreted as higher the score higher the sense of parenting competence.

Tool 4: Warwick-Edinburgh Mental Well-being Scale (WEMWBS)- Standardized tool

It is a 5-point Likert scale to assess the parental mental well-being. The total items were 14, having the responses like None of the time =1, Rarely=2, Some of the time=3, Often =4 and All of the time =5.

Table 3 Interpretation of Parental Mental Well-Being scoring

S.No.	Level of Parental Mental Well-Being.	Score Range
1	Very low parental mental well-being.	**0-32**
2	Below average parental mental well-being.	**32-40**
3	Average parental mental well-being.	**40-59**
4	Above average parental mental well-being.	**59-70**

Validity of the tools

Content validity of tools was established by obtaining the suggestions from the seven validators. The tools and intervention were sent along with the research objectives and criterion checklist to validators from different disciplines - pediatric nursing, psychiatric nursing, psychology, community health nursing, medical-surgical nursing. Expert's suggestions were incorporated and tools were finalized.

Content Validity- The validity of the assessment tools was evaluated for socio-demographic profile (CVI-0.93), the child's adaptive behavior (CVI-0.96), parental self-efficacy (CVI-0.98), and parental mental well-being (CVI-0.97).

Translation of tool

The validated tools viz parental self-efficacy and mental well-being were translated into Hindi and submitted for validation to two Hindi experts. Modifications were incorporated based on the suggestions provided by these experts. Furthermore, re-translation into English was performed by another expert to ensure language validity.

Reliability:

To check the reliability, Hindi tools were given to twenty parents of children with IDD. It was carried out in Greater Green Valley Special School, Greater Noida.

Table 4: Reliability for tool

S.no	Tools	Methods	Statistical test Applied	Value (r)
1	Vineland Social Maturity Scale (VSMS)	Test -retest	Karl Pearson's correlation	(r= 0.81)
2	Parenting Sense of competency Scale	Test -retest	Karl Pearson's correlation	(r= 0.84)
3	Warwick-Edinburgh Mental Well-being Scale (WEMWBS)	Test -retest	Cronbach's alpha	(r= 0.89)

Pretesting of tools:

The tools were tried out on ten parents of children with IDD and were found to be appropriate for the study. The tools were untestable and clear to participants and it took 45 minutes for them to fill the tools.

Description of Parenting Skill Program

Parenting Skill Program is a social skill training program developed by researcher. This program was created by referring to previous research studies, literature, and discussion with various experts in field. The investigator attended certified training sessions on parenting skill program from the Shanti Home Rehabilitation center of Greater Noida. It is a systemically planned, intervention consisted of 12-week sessions. It was based on the various behavioral techniques to help the parents to develop necessary skills so that they would be able to bring modification in their own child's behavior, improve their own self-efficacy and mental well-being. Duration of each session was 45 minutes. Under the guidance of the trainer, the investigator also developed various activities for the parents.

Parenting skill training consisted of 12 sessions. They were as follows

Table: 5

Session	Content	Aim
Session 1	Introduction and Psycho education	a) To build the rapport with parents b) To maintain socialization/cohesiveness with them c) To aware the parents regarding intellectual developmental and disability. d) To motivate parents to continue attending the parenting skill program.
Session 2	Guidelines for teaching and improving the	a) To introduce the behavior and behavioral management techniques

	behavior of children with IDD	
Session 3	Fine Motor Activities	a) To help the parents to improve the fine movement, concentration, eye-hand coordination of their children with intellectual developmental disability.
Session 4	Fine Motor and concentration Activities	a) To improve hand-eye coordination of their children with ID.
Session 5	Best ways to increase sitting tolerance and cooperation of your child	a) To help the parents to teach their child with intellectual developmental disability various waiting skill (visual waiting, verbal waiting and gestural waiting).
Session 6	Gross Motor Activities to build physical strength	a) To assist parents in enhancing the motor skills of their children with ID.
Session 7	Gross Motor Activities to improve adaptive skills	a) To improve every day functions of their children with ID.
Session 8	Gross Motor Activities for maintaining the balance and coordination	a) To improve the balance and coordination of body movements and eye- hand coordination, concentration of their children with

		ID.
Session 9	Speech activities	a) To improve the speech ability and facial muscle strengthening of their children with ID.
Session 10	Feeding Activities	a) To improve the adaptive skills (feeding), concentration and hand coordination skill (gripping) of their children with ID.
Session 11	Practical session of Dressing Skill	a) To improve the dressing skills of child with intellectual developmental disability
Session 12	Wrap up session	a) To summarize lessons learned and motivated the parents to continue the activities learnt.

Content Validity of Parenting Skill Program

The validity of parenting skill program was established by two psychologists, and five experts in nursing field. Recommendations were incorporated and changes were implemented in the program. After modification, it was again given to experts for final validation.

Content Validity- The validity of the parenting skill program was (CVI-0.93).

Ethical Consideration-

1. Ethical permission was taken from ethics committee of Swami Rama Himalayan University.
2. Administrative permission obtained from the director/principal of special schools.
3. Written informed consent obtained from parents after explaining the purpose of the study.

Pilot testing

The pilot study was carried out in Greater Green Valley Special School, Greater Noida. Data were collected from twenty parents of children with IDD through simple random sampling technique. The result showed that intervention was effective in experimental group. The study was found to be feasible.

Data Collection Process:

Before data gathering process, administrative permission was taken from administrative authority of special schools. Based on school record, researcher identified the children with mild or moderate level of ID. A special educator and researcher called parents via telephone to inform them. Prior to the data collection, the researcher introduced self to the parents and also described the goal and reason for conducting research which helped in establishing a good rapport with the parents.

Subsequently, parents were informed that data collected from them will be used for study purpose only. Written informed consent was obtained from parents of children with IDD in experimental and control groups.

Afterwards, researcher conducted a structured interview with the parents to assess the child's adaptive behavior, parental self-efficacy and mental well-being by using demographic proforma and Vineland Social Maturity Scale, parenting sense of competence scale and Warwick-Edinburgh mental well-being scale of both experimental and control group.

Parents were given 40-45 minutes to fill assessment tools. All the parents could read and understand Hindi or English language and filled the questionnaire by themselves by following the instruction on the questionnaire. The researcher assisted the parents by explaining the question to those who wanted some clarification in any item of the questionnaire.

After pre-test, the researcher administered Parenting Skill Program to parents in experimental group covering one session per week for 45 minutes for duration of three months in seminar room of the school. It was informed to parents that they would have to come to school and attend the sessions and learn the activities taught by researcher and perform them at home independently. Parents were asked to practice the sessions and do the assigned home work on certain activities. Telephonic reinforcement was given on weekly basis to keep the continuity of the program.

Parents in control group came to school only for pre- and post-intervention assessment.

Parenting skill program was consisted of twelve sessions as described below:

Session 1: Psycho education

This session was conducted by researcher in the first week of intervention through lecture cum discussion and power point presentation. Researcher explained about parenting and its aim, common parenting mistakes to be avoided, effective way of parenting, guidelines to teach the children with IDD, introduction to intellectual developmental disability to parents. Researcher asked the parents to identify the strengths and deficits of the child, and rate the problematic behavior. Researcher also demonstrated the deep breathing exercise to parents and asked them to demonstrate the same to researcher. The parents were instructed to practice deep breathing exercise at home every day for at least 10 minutes.

At the end of this session, researcher clarified their doubts regarding the session.

Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home.

Session 2: Guidelines for teaching and improving the behavior of children with IDD.

This session was conducted by researcher on 2nd week of intervention through lecture cum discussion and power point presentation. Researcher explained about behavior, guidelines for teaching and improving the children with IDD, environmental factors and techniques, applied behavioral consequences and behavioral management techniques. Furthermore, researcher demonstrated the activities to parents such as beading activity-beads into stands, plastic thread, attach cloth pins on tough paper, baby scissor stroke, pasting the cut color paper, match box activities, put ear buds into packets, beans activity.

Then, parents practiced same activities with their children who had IDD. Researcher also demonstrated the deep breathing exercise to parents and asked them to demonstrate the same to researcher. The parents were instructed to practice deep breathing exercise at home every day for at least 10 minutes as well as beading activities with their child who had IDD. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Additionally, researcher explained a brief reflection on the next session.

Session 3: Fine Motor Activities

This session was conducted by researcher on 3th week of intervention. Researcher demonstrated the fine motor and eye hand coordination activities to parents such as coloring with crayon by using stencils, coloring with crayon by thick margin, transferring marbles/boiled chana (Chickpea) into next bowel, picking up cotton beads with cloth clip, tying laces, putting bindi on dots, match bindi with color dots, put pins/match stick on thermos coal sheet, align the ice-cream strips. Researcher also demonstrated the deep breathing exercises to parents and asked them to demonstrate the same to researcher. This session was conducted through a combination of group discussion, experience sharing, modeling, behavioral management techniques were used to delivered the session. The parents were instructed to practice fine motor and eye hand coordination activities with their children who had IDD as well as practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts

regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home.

Session 4: Fine Motor and concentration Activities

This session was conducted by researcher on 4th week of intervention. Researcher started the session by practicing the deep breathing exercises with parents then, researcher explained and demonstrated the fine motor and concentration activities such as sorting Channa (Chickpea) or rajma (Kidney bean), grip thick crayon (scribbles), put marbles on holes, insert cotton ball on vegetable baskets, take beads with spoon and fill the tray, put coins into hut/coin box. Behavioral management techniques were utilized to deliver the session. Furthermore, the value of reinforcement was emphasized in order to encourage positive behavior and reduce negative behavior. The parents were instructed to practice fine motor and concentration activities with their children who had IDD as well as practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Furthermore, researcher wrapped up the session by giving summarization and also planned the next session with the parent.

Session 5: Best ways to increase sitting tolerance and cooperation of your child.

This session was conducted by researcher at 5th week of intervention through lecture cum discussion and power point presentation. Researcher started the session by practicing the deep breathing exercises activity with the parents. Then, researcher explained to parents about best ways to increase sitting tolerance and cooperation of your child though the

group discussion, power point presentation. After that session was continued by demonstrating the activities to parents to improve concentration and creativity skills of child with intellectual developmental disability such as number activities (put sticks into box), dot matching, count the paper pins and hang the clip, putting thread into basket, scrap book activity. The parents were instructed to practice concentration activities with their child who had IDD as well as practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Furthermore, researcher wrapped up the session by giving summarization and also planned the next session with the parent.

Session 6: Gross Motor Activities

This session was conducted by researcher at 6th week of intervention. Researcher initiated session by practicing the deep breathing exercises activity with the parents and continued by demonstrating the activities to parents such as walk, walk and stop, clapping slow fast, moving legs- slow/fast, moving arms slow/fast, circle activity in/out. After that parents were asked to practice the same activities on their child with intellectual developmental disability. This session was taught through the behavioral management techniques, discussion and power point presentation and demonstration. The parents were instructed to practice gross motor activities with their intellectual developmental disability children as well as practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep

breathing exercise at home. Furthermore, researcher wrapped up the session by giving summarization and also planned the next session with the parent.

Session 7: Gross Motor Activities to build physical strength and to improve adaptive skills

This session was conducted by researcher and done at 7th week of intervention through lecture cum discussion and power point presentation. Researcher started the session by practicing the deep breathing exercise with the parents continuing by demonstrating gross motor activities such as the jumping, foot mat activities, beer walk activity, frog jump activity, roll over and put the ball into basket for building physical strength. Additionally, researcher also demonstrated the activities to improve the adaptive skills viz catch the hanging ball, hit the hanging ball, air pump, hit the plastic bottles with bat, put ball into bucket, deep breathing exercise for the parents. The parents were instructed to practice gross motor activities to improve adaptive skills with their children who had intellectual developmental disability children. Additionally, they were advised to practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Furthermore, researcher wrapped up the session by giving summarization and also planned the next session with the parent.

Session 8: Gross Motor Activities for maintaining the balance and coordination

This session was conducted by researcher on 8th week of intervention through lecture cum discussion and power point presentation. Researcher started session by practicing

deep breathing exercise by researcher and parents. After that researcher demonstrated the activities related to maintaining the balance and coordination to parents such as transfer the cushion from chair to sofa, racing, tunnel walk, alternate foot walk, stalking the chairs, find out the object from flour/rice, put the toys into basket. Later, parents performed these activities on child with intellectual developmental disability. The parents were instructed to practice gross motor activities with their children who had intellectual developmental disability children as well as advised to practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Furthermore, researcher wrapped up the session by giving summarization and also planned the next session with the parent.

Session 9: Speech activities

This session was conducted by researcher on 10th week of intervention and started by practicing the deep breathing exercise by researcher and parents. After this, researcher demonstrated the activities to parents such as blowing activity- blow the tear paper, take straw and blow the tear paper, blow the whistle (Citi), blow the bottle with pipe, blow out the tear paper through funnel with straw, blow the gloves, blow the thermos coal glass, blow the drop until it gets dry. The parents were instructed to practice speech activities with their children who had intellectual developmental disability children. Additionally, they were advised to practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session.

Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Additionally, researcher wrapped up the session by providing a brief summary of the upcoming session.

Session 10: Feeding Activities

This session was conducted by researcher on 10th week of intervention through demonstration, power point presentation, role play and discussion. It was started by practicing the deep breathing exercise by research and parents. After this, researcher demonstrated the activities to parents such as task analysis of using spoon to eat which includes the steps pick up the spoon, put spoon into the food in the bowl, fill food onto the spoon, lift spoonful of food from the bowl, put the food onto the mouth. After this, parents were asked to perform the same task with their child who had IDD. The parents were instructed to practice feeding activities with their children who had intellectual developmental disability children as well as were advised to practice deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Additionally, researcher wrapped up the session by providing a brief summary of the upcoming session.

Session 11: **Dressing Skill activities**

This session was conducted by researcher on 11th week of intervention through lecture cum discussion, power point presentation and video clip. Researcher started the session by giving the demonstration on dressing such as removing clothes (Backward Chaining)

which is followed by the six steps such as step 1 stand behind the child, step 2 places his hands on the pant on both hips, step 3 place your hands on his hands, step 4 place your hands on the top of his hands to pull down the pant by saying simultaneously 'remove pants' step 5 when it reaches the ankle help him to talk out the legs one by one step 6 gradually reduce physical help. Say only 'remove pants.'

Researcher also demonstrated to parents the steps of "Puts on elastic nicker" (Forward Chaining) which consisted of six steps such as Step 1 hold the nicker by both hands, step 2 holds the nicker with both hands and puts one leg through, step 3 holds the nicker and puts both legs one after the other, step 4 holds the nicker, and puts one leg, pulls nicker up to knee, step 5 holds the nicker, puts through the legs, pulls up to knee and then to the hip, step 6 holds the nicker, puts through the legs, pulls up to knee, then to hip and waist.

The parents were instructed to practice one aspect of dressing (taking off shoes, a jacket, socks or a shirt) with their children who had IDD as well as deep breathing exercise at home every day for at least 10 minutes. At the end of this session, researcher clarified their doubts regarding the session. Telephonic reminder was also given to parents by researcher every week for practicing deep breathing exercise at home. Additionally, researcher wrapped up the session by providing a brief summary of the upcoming session.

Session 12: This session was conducted to review the progress and to see the lessons learned by the parents. Parents shared their experiences of practicing activity learnt during all sessions with their children. Researcher motivated the parents to continue

practice of all activities learnt during previous sessions at home. At the end of last session, feedback was taken from parents.

Post-intervention assessment of child's adaptive behavior was conducted using structured interview method with the parents in both the groups by administrating the Vineland Social Maturity Scale and post intervention assessment of parental self-efficacy and mental well-being of parents in both the groups was done by distributing the tools viz. Parenting sense of competency scale and Warwick-Edinburgh Mental Well-being Scale to parents at 6^{th} month, 9^{th} month and 12^{th} month. There was no dropout in both the groups.

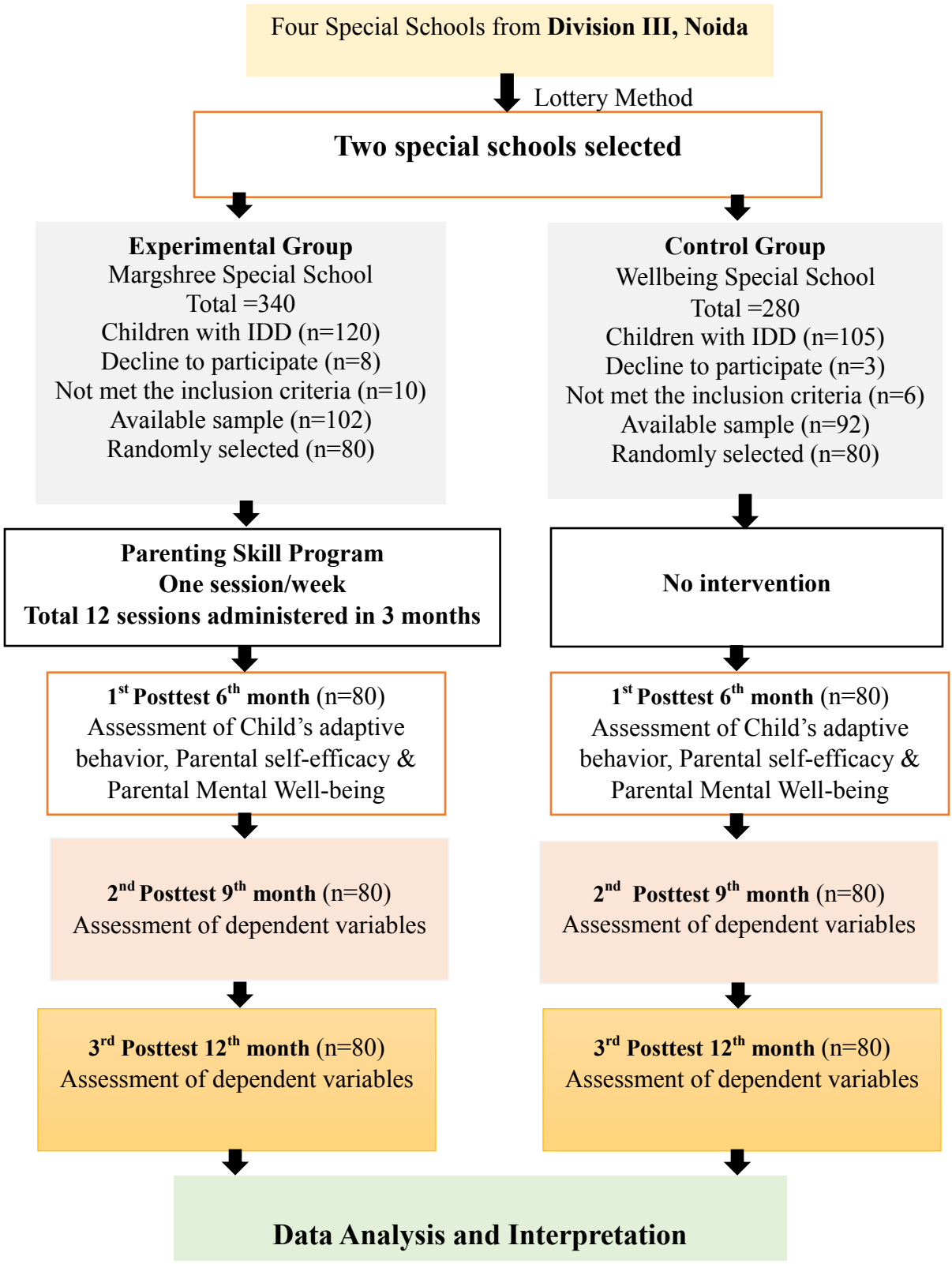


Figure No 4: Flow chart of data collection process

Plan of data analysis and interpretation-

It was planned to use descriptive statistics viz. frequency, percentage, mean, standard deviation, mean difference and inferential statistics viz. Mann Whitney U test, Chi-square test, Fischer exact test and Friedman test for data analysis. Further, the correlation between the variables was calculated by using the two-tailed Spearman correlation formula.

Summary-

This chapter dealt with the methodological strategies adopted in the study.