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Effect of Cognitive Behavior Therapy on Problem Solving and Stress Coping among Parents of Children with Mental Retardation

[1]Nabila Elsayed Saboula, [2]Safaa Ibrahem Shattla, [*3,4]Mervat Mostafa Arrab

[1,3]Community and Family Health Nursing Department,
[2]Psychiatric and Mental Health Nursing Department, Faculty of Nursing, Menoufia University, Egypt
[4]Nursing Department, College of Nursing, King Khalid University, Khamis Mushait, KSA
*Corresponding author: ibr4ever73000@hotmail.com

Abstract: **The birth of a child with mental retardation could lead to deep impact on families. Parents of those children are facing more stress and problems than parents of normal children. The aim of the study was to evaluate the effect of cognitive behavior therapy on problem solving and stress coping among parents of children with mental retardation. Study design: A quasi-experimental research design was utilized. Study setting: This study was conducted at Speech clinic (phonetics clinic), psychological and neurological clinic for children at Tanta University hospitals, Al-Gharbeia Governorate, Egypt. Study sample: A convenience sample of 31 parents of mental retarded child were included in the study. Study tools: three tools were administered to parents including Structure Interview Questionnaire, Problem Solving Inventory and Stress Coping scale. Results: The most common approach used by parents in solving problems was avoidance style and problem solving confidence. There was significant improvement in positive coping strategies, and there was significant decrease in negative coping strategies after intervention. Also, there was a highly significant relationship between total stress coping score and some socio-demographic data education, marital status, family history and parent reaction. Additionally, after intervention of cognitive behavior therapy mean total score of stress coping was increased compared to pre intervention.**

Conclusion: The results of this study support the idea that cognitive behavior therapy intervention is an effective intervention in improving abilities of problem solving and alleviate the stress among parents of children with mental retardation. Recommendations: Providing seminars and health education sessions regarding cognitive behavior therapy interventions in out-patient clinics to enhance parent's coping abilities and problem solving skills.

Keywords: **Cognitive Behavior Therapy, Problem Solving, Stress Coping, Parents, Mental Retarded Child.**

1. INTRODUCTION

Mental retardation first occurs in children under the age of eighteen years. It is a congenital or early onset lifelong impairment of cognitive adaptive functioning or everyday living skills. Mental retardation is detained or incomplete development of the mind with impaired developmental skills which affect the overall level of intelligence **(1, 2).** This kind of birth is one of the most stressful events among individual's life and need for continuing the care of those children **(3).** The effects on family unit can be economic, social, and emotional in nature **(4, 5).** Parents of children with mental retardation suffered from more negative effects such as greater feelings of restriction, more health problems, and higher levels of parental stress, anxiety, and depression. Parents find difficult to communicate with their children and sometimes unable to understand their needs that lead to higher levels of parenting stress **(6).** Mothers of children with mental retarded children experience more mental disorders, guilt, physical tiredness, low self-esteem, and exhaustion **(7).** Also, they have parenting stress, depression, higher levels of child-related stress, and anxiety more than other members of the family **(8).**

Parents of mental retarded children would benefit from learning the problem-solving process, which increase perceived personal control, problem-solving skills, decrease burden and depressive symptoms. Strengthening emotion focused strategies such as cognitive reframing and scheduling pleasant activities were also included to decrease the emotional impact associated with problems. **(9).**

There are seven prescribed steps that guided their problem-solving: first is evaluating outcomes from the previous week (except for the first week), second is selecting and defining a problem, third is establishing realistic and achievable goals for problem resolution, fourth is generating multiple solution alternatives (brainstorming), fifth is implementing decision-making guidelines, sixth is evaluating and choosing solutions, and seventh is implementing the caregiver-selected solutions **(9).**

long term stresses can affect adaptation ability, and reduce pleasure which results with depression (10). Adapting to mental retarded children passing with several stages, in the first stage family encounters with crisis such as anger and denial. Then family will experience guilt, depression and shame which affect their self esteem, at this point child will be under excessive care by family and finally child will be accepted by family. About 450 million parents of mental retarded child had a behavioral or mental disorders due to increase burden of mental disorders and a widening treatment **(11)**.

Presence of early childhood disabilities effects negatively on child and their family in all developmental domains of life **(12).** Families with mentally retarded children may face a great psychosocial stress and physical which desires rent psychosocial strategies for coping **(11)**. Difficulty in accepting mental retarded children, parent's fatigue, parent's financial burden and medical treatment are problems facing parents with mental retarded children **(5).** Negative pressure of economic burden on parents' increases symptoms of anxiety which are positively associated with sensitive parenting **(13).**

Parents of mental retarded child carry out various coping strategies in response to stress. Coping strategies can be considered adaptive or maladaptive that is, (healthy or unhealthy), but as already stated, this assessment depends on the situation. Coping strategies which considered to be maladaptive include self-blame, substance abuse, avoidance, and denial **(14)**. Depression in the parent maximized when using these maladaptive coping strategies which negatively affect both parent and of mental retarded children **(15)**, as well as child neglect. Chronic the economic stress will lead the family members to engage in maladaptive coping strategies **(16)**.

Exposure therapy, problem solving skills, stress management training, assertiveness training, every one of these different therapeutically techniques used in cognitive behavioral therapy and more successful with the parents of mental retarded children and combined methods that help people change their negative trends of thought and consequent behavior **(17)**. Mechanism of CBT works with both cognitive interventions by modifying behavioral interventions and wrong thoughts by minimize the impact of painful emotions, face fearful situations and develops coping skills **(18)**.

A variety of treatment methods are beneficial for decreasing anxiety, stress, depression, enhancing mental health and improve problem solving abilities. (CBT) is well recognized for addressing these problems. Cognitive behavioral therapy is depending on the fact that emotions, cognitions, and behaviors extremely interact with each other and have a cause and effect relationship **(19)**.

The community mental health nurse plays an important role in teaching parents how to deal with their mentally retarded children in order to familiarize with their social situation. Thus, improving compliance, while decreasing the harmful effects of these disabilities will help the children and their parents in order to comply with the disease and also help them find the best solutions **(20)**.

The mental health nurse encourages parents of mental retarded child to use cognitive stress management training to help them recognize factors that affecting anxiety, stress and depression and have insight in order to replace rational thoughts and incompetent and unreasonable thoughts. Community mental health nurse had several effective intervention strategies to train parents of mental retarded child to carry out it to encourage development of healthy coping skills which contain, teaching healthy parenting practices while also providing connections to other parents and building community **(21)**.

Psychiatric nurse has a significant role of immediate intervention for decreasing anxiety, stress, depression’s symptoms, and making an instructive treatment programs to the parents of mentally retard children **(22)**.

1.1. Significance of the Study

Mental disorders in Egypt are highly prevalent, with perceptible discrepancies between governorates **(23)**. Mental retardation is one of the mainly frequently encountered and distressing disabilities among children in developing countries **(24)**. It constitutes a major problem in Egypt because it affects the quality of life of persons and the welfare of their families. The prevalence of mental retardation was 3.9% among Egyptian population **(25)**. The prevalence of childhood disability in Egypt was about 8.0 %, About 2.5 million children aged less than eighteen years with one or more physical or mental disabilities **(26)**.

Parents of mentally retarded children demonstrated higher levels of stress than children with normal status. The presence of stresses among parents of children with special needs are 44% which this amount among parents with normal children are 11% **(27, 7)**. Some strategies to reduce stress for the parents of children with special needs seems to be essential, such as training, coping skills, family counseling, inadequate social support and providing professional classes for the parents. Such interventions defined as mental health professionals to decrease tensions from home caregivers **(21)**. Therefore, this study examines the effect of cognitive behavior therapy on problem solving and stress coping among parents with mental retarded children.

1.2. Aim of the study

The aim of the present study was to evaluate the effect of cognitive behavior therapy on problem solving and stress coping among parents of children with mental retardation.

1.3. Research Hypotheses

- Parents of children with mental retardation who receive cognitive behavior therapy will improve problem solving score post intervention than pre intervention.
- Parents of children with mental retardation who receive cognitive behavior therapy will have a better stress coping score post intervention than pre intervention.

2. SUBJECTS AND METHODS

2.1 Research design

A quasi-experimental research design (one group pre /post test) was utilized to achieve the aim of the study.

2.2. Research setting

The present study was conducted at Speech clinic (phonetics clinic), psychological and neurological clinic for children at Tanta University hospitals, Al-Gharbeia Governorate, Egypt.

2.3. Research sample

- The study subjects consisted of all registered parents with mental retarded children (31) who present in speech clinic, mental and neurological clinic for children during period of data collection (6 months) from 15 July 2017 to 15 January 2018. For purposes of the study, parents which refers to individual who assumes responsibility of caring for mental retarded child. The age of the children ranged from 3 to 11 years. All children in the study were raised in two-parent families. Parents of children with mental retardation participated in the study if their children had a clinical diagnosis performed independently by an expert psychiatrist using DSM-5 criteria and their IQs were assessed by a psychologist.

-The study sample was recruited within six months from the selected settings.

-The total number of parents of mental retarded children who were attending the follow up with their children was 31 (14) parents from Psychological and neurological clinic for children and (17) parents from speech clinic at Tanta University.

2.4. Tool of the study:

Based on the review of the related literature, three tools were utilized by the researchers as the following:

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2.4.1. Tool 1: Structure interview questionnaire: -

It is a brief socio-demographic questionnaire was used to obtain basic information about the parents and their children as parent's age, sex, marital status, occupation, education, family income, family history of illness, reaction for mental retardation detection, age of mental retardation detection and child age, sex, order in the children and siblings number.

2.4.2. Tool (III) Problem Solving Inventory scale:

This scale (PSI) developed by **(28)**, modified by **(29)**, and applied by **(30)**. It contained 32-item that designed to measures the individual's perceptions regarding one's problem-solving abilities and problem-solving style in the everyday life. It measures a person's appraisals of one's problem-solving abilities rather than the person's actual problem-solving skills.

It consisted of three subscales: 1) Problem-Solving Confidence (PSC 11 items) assesses self-perceived confidence, belief and self-assurance in effectively solving problems. Higher scores on PSC are associated with lower levels of problem-solving confidence. 2) Approach-Avoidance Style (16 items) assesses whether individuals tend to approach or avoid problems. Higher scores reflect a style of avoiding rather than approaching problems. 3) Personal Control (PC 5 items) assesses elements of self-control on emotions and behavior. Higher scores on PC reflect a more negative perception of personal control on one's problems. All items are scored on a six-point Likert scale, ranging from 1 = Strongly Agree to 6 = Strongly Disagree. A total score can be calculated as a general index of problem-solving appraisal that ranges from 32 to 192. Lower scores on each factor and on the total PSI score are considered more functional.

2.4.3. Tool II: Stress coping scale: -

This scale is an Egyptian standardized scale developed and tested by **(31)**. It is self-report scale was designed to record attitudes and behaviors that parents develop in response to problems or difficulties, examine parent coping strategies and determine if any one strategy is used more than another. It a 3-point Likert, which are: (3) yes (used that strategy frequently), (2) sometimes, (1) no (not used that strategy). The Stress coping scale contained 35-items that been divided into two broad coping pattern, positive coping strategies and negative coping strategies.

1) **Positive coping strategies** contained 20- items divided into 4 subscales: seeking out information and acquiring social support, reframing and planning, acceptance, turning to religion and seeking spiritual support.

Seeking out information and acquiring social support is the family's ability to actively request for knowledge that help them to understand their problem in order to manage it. *Reframing and planning* assesses the family's capability to redefine stressful events in order to make them more manageable and planning for solution. *Acceptance* is the family's ability to accept problematic issues that minimize reactivity and accept help from community resources and from others. *Seeking spiritual support* is finding comfort in a higher belief system (e.g., participating in religious or spiritual activities).

2) **Negative coping strategies** contained 15- items divided into 3 subscales: denial, avoidance and withdrawal, and self – blame. Each subscale from positive or negative strategies included 5 items. All items positive not include any negative items.

Scoring system for all scale according to those answers ranges from 35 to 105, with 105 indicating the highest possible score and 35 indicating the lowest score while scoring system for positive strategies only ranged from 20- 60 and for negative strategies ranged from 15- 45. The higher scores in one subscale indicating a greater intensity use of that coping strategy and the lower score indicated the lower using or not use that type of coping strategies.

2.5. Pilot study: it was carried out before starting data collection to estimate the time required for filling out the tools and also to check its clarity and applicability. A total of 10% of the sample were recruited (3 parents) for the pilot study according to the criteria of selection. Necessary modifications were done accordingly. The pilot subjects were excluded from the total sample of the study to assure stability of the result.

2.6 Ethical consideration: the agreement for participation of the parents was taken after the purpose of the study was explained to them. Before data collection, the subjects were informed about the aim and nature of the study and what would be done with the results. They were given an opportunity to refuse to participate and they could withdraw at any stage of the study. The information would remain confidential and used for the research purpose only. After full explanation of the aim of the study a written consent form was signed by the parents before participation in the study.

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2.7. Approval: The official permission was obtained from the authorized personnel from the various settings for data collection. All of the authorized personnel provided with the needed information about the study.

2.8. Data collection:

- Reviewing the related and available literature to acquire the needed knowledge to conduct the study and prepare the necessary tool.
- The tools tested for their validity and reliability.

2.8.1. Validity of the tools: all tools were tested for their face and content validity by group of five experts in the field of psychiatric, community, pediatric nursing staff. The required modifications were done accordingly to ascertain relevance and completeness**.** The tools proved to be valid.

2.8.2. Reliability of the tools: it was measured by test–re-test reliability for testing the internal consistency of the tools. It applied by the researchers. The tools were administered to the same parents under similar conditions two times, fifteen days apart. The subject's answers from the repeated testing were compared (Test- Re -test reliability). Those subjects were excluded from the study sample. The tools revealed strongly reliable. Cronbach's alpha was computed for each subscale of tool II, resulting in an overall alpha reliability of 0.86 for the first half and 0.87 for the second half, and tool III strongly reliable at 0.89.

2.9. Study Procedure:

Data collection for this study was carried out in the period from 15 July 2017 to 15 January 2018 .The researchers collect the data during the morning at two days/week from 10 AM to 11.30 AM. The sample was composed of 6 groups each group consisted of 5 / 6 parents according to their setting ,three groups from psychological and neurological clinic for children) and three groups from speech clinic of Tanta University hospital). The period of the program (cognitive behavior therapy) was 10 weeks or 10 sessions for each setting, each session takes from 60 minute plus two weeks for each setting separately one week for orientation and pretest and one week for post test. It was separated and was not at the same time, so the implementation of the sessions was achieved within 6 months. It was flexible depending on parent's feasibility and needs.

Methods of teaching used while implementing the program were brain storming, lecture, discussion, providing example, video, role play, pictures and booklet were used as media. At the end of each session summary, feedback and further clarifications were done for vague items.

Implementation of the study passed into three phases (pre assessment phase ,intervention phase and post assessment phase or evaluation phase)

2.9.1. Pre assessment phase

A comfortable, private place was chosen for the interview .Orientation was done regarding our names, purpose, significance, content and procedure of the therapy .Using simple terms with parent and encourage them to express their feelings .The consent was taken from parents. Parents were interviewed and evaluated separately through filling the pre-test questionnaire.

2.9.2 Intervention phase: (Cognitive behavior therapy intervention)

CBT is a short-term therapy that focuses on how people's thoughts affect their emotions and behaviors. Understanding this concept helps people learn how to combat negative thinking, reduce their stress and deal with mental health problems.

It is composed of 10 sessions; in each session the related content was discussed. Each session was hold for one hour. It was performed as follows: In general, the session is about three parts, first part contains techniques of stress management, second part includes relaxation exercises and third part includes problem solving techniques.

Content of the sessions: -

First Session: this session includes, definition of mental retardation, factors contributing to it, signs and symptoms, needs of mental retarded Childs (physical and emotional) and behavioral problems during adolescent were discussed. Then the booklet was distributed to the parents.

International Journal of Novel Research in Healthcare and Nursing
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Second Session: this session contains, awareness with stress describe the factors of causing stress, response to factors of causing stress, awareness of the physical effects of stress, its consequences on muscles groups and awareness of automatic thoughts and physical sensations.

Third Session: in this session the first step was, described the relationship between thoughts, emotions and behaviors. Second step: help parents to identify negative irrational thinking and cognitive distortions by instruct the parents to stop at least five times a day and write down his thoughts and how he's feeling at those moments. During this session, the researchers encourage the parents to note those thought and discussed with them to help them to recognize negative thoughts. Third step: help them to change and replace those thoughts into positive and logical ones and teach him how to reframe negative thinking. For example, the parent might say, "I've never done it before." The researcher would reframe that thought to, "It's a chance for you to learn something new."

Fourth Session: This session was concerned with teach the parents to deal effectively with stress and help them to identify the nature and importance of relaxation techniques on reducing stress.

Fifth session: it included the progressive muscle relaxation technique (active and passive progressive relaxation). Also steps of deep breathing. Teach the parents how to take deep, healthful breath.

Sixth session: This session was included the guided imagery, meditation and visualization techniques and recognize the four major requirements of successful meditation include; a quiet place, a comfortable position, an object or thought to focus on and the use of imagination and positive thinking in an effort to reduce the body's response to stress through creating a positive mental picture.

Encourage the parents to illustrate their problems, ways of solving selected and sharing their experience with each other through group discussion and asked them to express the inner feeling toward their problems either positively nor negatively.

Seventh session: This session also included the problem-solving skills by help the parents learn how to tackle problems in healthy ways. Instead of denial and ignored it. The researchers teach the parent to make a list of steps to solve a large problem instead of becoming overwhelmed by it.

Encourage the parent to recognize the core components of problem-solving therapy as, addressing problem orientation, clearly defining problems, brainstorming and evaluating solution and taking Action.

Eighth Session: revision and clarification for the previous sessions and repetition for any procedure needed. The researchers encouraged participants to ask questions about the information given in the previous sessions and asked them to give their feedback about the program and its benefits to them.

2.9.3. Evaluation phase:

It is a termination phase after completing program, post-test for and problem solving stress coping were administrated in order to determine the effectiveness of the intervention.

3. Statistical analysis

Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 22. Graphics were done using Excel program. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student t- test for comparison between two means, and analysis of Variance (ANOVA) for comparison between more than two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square ($\chi 2$) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used if the table has four cells, and Likelihood Ratio (LR) if the table has more than four cells. Level of significance was set as P value <0.05 for all significant tests.

3. RESULTS

Table (1) shows that, the majority of maternal age 51.6 % are between 30 - <40 years with mean age 34.1±6.3 while mean father age are 40.2± 7.2. Less than half of parents (48.4%) are secondary education. As regards marital status the majority of study sample (71%) are married, more than half of study sample (58.1%) have insufficient family income. As regards family history of mental retardation, more than one third of study sample (38.7 %) have no family history of

mental retardation, one quarter (25.8 %) have family history of mental retardation from mother and 35.5 % have from father. About one third of parents (32.3%) react to their mentally retarded children by fear and anxiety, followed by 25.7% react by denial and rejection of the child.

Table (2) represent that, the mean age of the mentally retarded children is 6.4±2.5 years. 58.1% are girls, regarding age (period) of discover mental retardation, slightly less than half of study sample 45.2 % are discovered from 3 years - < 5 years, 32.2% are discovered from 5-9 years and 22.6 % from birth - < 3 years. The mean sibling's numbers of the mentally retarded children are 2.5±0.7 siblings. the majority of the mentally retarded children order in the family 74.2 % is 1st - 2nd.

Table (3) reveals that, the most common approach the parents uses in solving problems is avoidance style and then problem solving confidence use in pre intervention and reduce after intervention with highly statistical significant at ($p < 0.000$).

Table (4) illustrates that after intervention, there is significant improvement in positive coping strategies including seeking out information and acquiring social support, reframing and planning, acceptance and seeking spiritual and religious support. Total mean score positive coping strategies post intervention is (54.6±2.9) compared to pre intervention (32.4±5.5). In addition, there is significant decrease in negative coping strategies including denial, avoidance and withdrawal and self –blame. Total mean score negative coping strategies pre intervention are (36.2±4.8) compared to post intervention (21.2±2.4).

Figure (1) displays that the mean score of stress coping strategies post intervention of cognitive behavior therapy shows improvement which is 54.6% compared to pre instruction which is 32.4%. Otherwise, the mean score of negative stress coping is decreased to 21.2% post intervention compared to 36.2% pre intervention (parents become more adapted).

Table (5) illustrates that, there is a highly significant relationship between total stress coping score and some socio-demographic data as, education, marital status, family history of mental retardation and parent reaction after intervention of cognitive behavior therapy. As regards education, the mean stress coping score is higher among secondary education. In addition to family history of mental retardation, the stress coping score improved after cognitive behavior therapy intervention in mental retardation for mother and father. As regards parent's reaction, guilt feeling have higher mean stress coping score after cognitive behavior therapy intervention.

Figure (2) shows that after intervention of cognitive behavior therapy, mean total score of problem solving inventory is decreased to 53.5 compared to pre intervention 160.8. Also, this figure shows that after intervention of cognitive behavior therapy, mean total score of stress coping is increased to 75.7 compared to pre intervention which is 68.6.

Table (6) reveals that, there is high statistical significant decreasing in problem-solving confidence, approach-avoidance style and personal control of parents of children with mental retardation after cognitive behavior therapy with all personal characteristics. there is statistically significant relationship between cognitive behavior therapy on problem solving mean scores pre and post intervention distributed by some personal characteristics as marital status and family history.

Table (1): Basic characteristics of the studied parents of children with mental retardation (N=31)

General characteristics	Study group(n=31)	
	N0.	**%**
Maternal age groups		
20 - < 30 years	9	29
30 - <40 years	16	51.6
40 – 46 years	6	19.4
Mean ±SD 34.1±6.3	**Range 21 – 46 years**	
Father age groups		
20 - < 30 years	3	9.6
30 - <40 years	14	45.2
40 – 54 years	14	45.2
Mean ±SD 40.2± 7.2	**Range 26 – 54 years**	
Education		
Read and write	6	19.4
Secondary	15	48.4

University	10	32.2
Occupation Not working Working	 6 25	 19.4 80.6
Marital status Married Widow/ divorced	 22 9	 71 29
Family income Insufficient Sufficient	 13 18	 41.9 58.1
Family History of mental retardation From mother From father Not present	 8 11 12	 25.8 35.5 38.7
Parent Reaction Guilt feeling Fear and anxiety Depression Denial and reject the child	 7 10 6 8	 22.6 32.3 19.4 25.7

Table (2): Basic characteristics of the mentally retarded children (N=31)

General characteristics	Study group(n=31)	
	N0	%
Age 3 – 6 years 7 – 11 years	 15 16	 48.4 51.6
Mean ±SD 6.4±2.5 years	**Range 3-11 years**	
Sex Boy Girl	 13 18	 41.9 58.1
Age (period) of discover mental retardation From birth - < 3 years From 3 years - < 5 years From 5-9 years	 7 14 10	 22.6 45.2 32.2
Siblings numbers 1 – 2 Siblings 3 – 4 Siblings	 15 16	 48.4 51.6
Mean ±SD 2.5±0.7 siblings		
Child order in the family 1st - 2nd 3rd - 4th	 23 8	 74.2 25.8

Table (3): Problem Solving Strategies at pre and post intervention among studied group (N=31):

Study Variable(problem solving strategies)	Cognitive behavioral therapy intervention						Paired t test	P value
	Pre No.=31			Post No.=31				
	Minimum	Maximum	Mean ±SD	Minimum	Maximum	Mean ±SD		
1-Problem Solving Confidence	36	66	55.9±7.1	11	28	18±3.6	42.8	0.000 HS
2- Approach - Avoidance Style	48	94	78.5±13.1	17	37	25.1±5.3	27.4	0.000 HS
3- Personal Control	20	30	26.4±2.7	6	15	10.3±2.3	43.9	0.000 HS
Total Problem solving inventory score	112	184	160.8±19.5	37	70	53.5±8.4	39.9	0.000 HS

Table (4): Stress coping Strategies pre and post intervention among studied group (N=31):

Stress coping strategies subscales	Cognitive behavioral therapy intervention						Test of significant	P value
	Pre No.=31			Post No.=31				
	Minimum	Maximum	Mean ±SD	Minimum	Maximum	Mean ±SD		
Positive coping strategies								
1-Seeking out information and acquiring social support.	5	11	7.6 ±1.8	11	15	12.8 ±1.5	-22.7	0.000HS
2- Reframing and planning	6	11	8.2 ±1.4	11	15	13.8 ±1.1	-28.8	0.000HS
3- Acceptance	5	10	7.7±1.7	12	15	13.6±1	-29.2	0.000HS
4-Seeking spiritual and religious support	5	12	8.9±2.3	12	15	14.4±1.1	-18.1	0.000HS
Total score positive coping strategies	24	41	32.4±5.5	50	59	54.6±2.9	-34.4	0.000HS
Negative coping strategies								
1-Denial	7	15	11.6±2	5	9	6.5±1.1	19.6	0.000HS
2- Avoidance and withdrawal	8	15	12.3±1.9	5	9	6.9±1.6	21.2	0.000HS
3- Self –blame	7	15	12.4±2.3	5	11	7.8±1.7	17.5	0.000HS
Total Stress negative coping strategies score	24	43	36.2±4.8	16	27	21.2±2.4	24.9	0.000HS

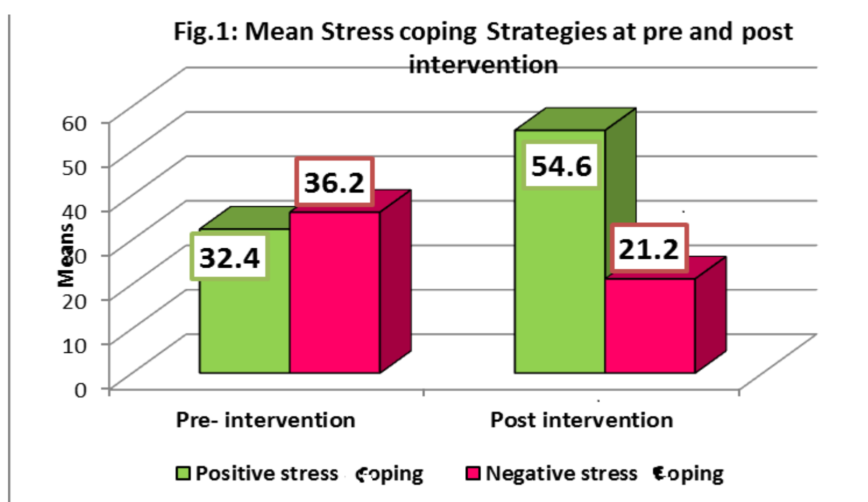


Table (5): Effect of cognitive behavior therapy on stress coping scores pre and post intervention distributed by some personal characteristics

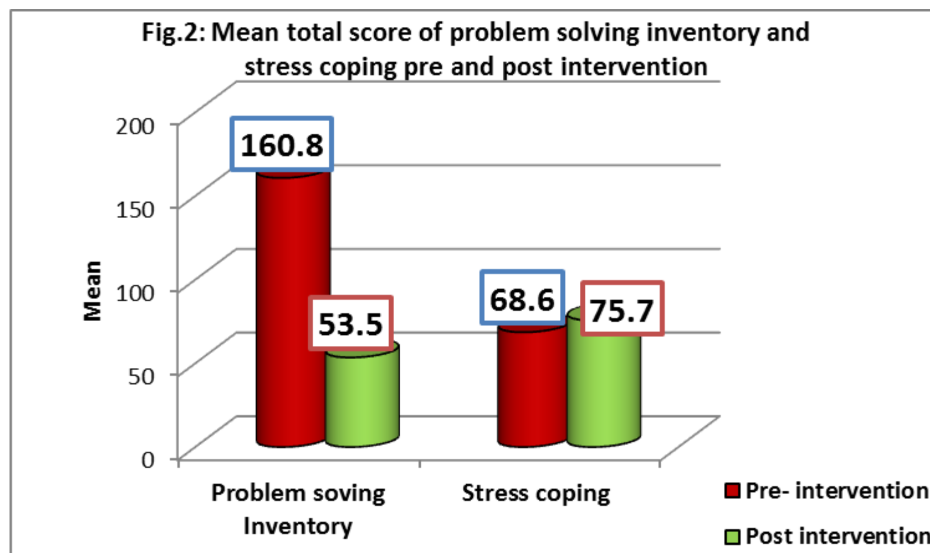
Personal characteristics	Study group (n=31)		Paired t test	P value
	Before therapy Mean± SD	After therapy Mean± SD		
Education				
Read and write	66.2±3.8	74±3.4	12.3	0.000HS
Secondary education.	69.7±5.7	76.4±3.1	11.4	0.000HS
University education.	68.6±6.9	75.8±4.0	17.5	0.000HS
Marital status				
Married	21.2 ± 2.4	36.5 ± 4.9	22.4	0.000HS
Widow/ divorced	21.1 ± 2.6	35.4 ± 4.9	21.6	0.000HS
Family History of mental retardation				
From mother	66.5±4	74.4±2	0.6	0.000HS
From father	69.8±5.2	76±4.2	8.2	0.001Sig
Not present	69±7.3	76.4±3.6	9.1	0.000 HS
Parent Reaction				
Guilt feeling	67.9±6.1	76.4±2.5	11.2	0.000HS
Fear and anxiety	69.6±6.9	75.8±3.9	10.4	0.000HS
Depression	67.8±2.3	75.5±1	9.5	0.000HS
Denial and reject the child	68.8±6.8	75.3±5.1	10.1	0.000HS
Total stress coping score	**68.6±5.8**	**75.7±3.5**	**10.6**	0.000HS

Table (6): Effect of cognitive behavior therapy on problem solving mean scores pre and post intervention distributed by some personal characteristics.

Some personal characteristics	Before Intervention				After Intervention				Paired t, P Paired value
	Problem Solving Confidence	Approach - Avoidance Style	Personal Control	Total problem solving inventory	Problem Solving Confidence	Approach Avoidance Style	Personal Control	Total problem solving inventory	
Education									
Read and write	56.2±7.6	75.*5±16.5	24.3±2.2	156±20.5	17.5±3.3	21±3.1	8.5±2.2	47±4.4	
Secondary	56.9±6.3	81.3±12	27.5±2.9	165.7±18.8	18±2.7	25.3±4.6	10.8±2.1	54.1±6.8	
University	54.1±8.2	76.2±13.3	26.1±2.1	156.4±20.1	18.4±4.9	27.4±6.1	10.7±2.6	56.5±10.7	t=46.8, P=0.000 HS
P value	**F=0.46, P=0.6**	**F=0.63, P=0.53**	**F=3.4, P=0.04**	**F=0.9, P=0.4**	**F=0.11, P=0.8**	**F=3.1, P=0.06**	**F=2.4, P=0.1**	**F=2.7, P=0.08**	
Marital status									
Married	56.3±6.9	81.3±12.1	26.4±2.7	164±19	18.5±3.4	26.2±5	10.5±2.3	55.3±8.3	
Widow/ divorced	54.8±7.9	78.8±13.9	26.3±2.8	153±19.5	16.8±3.8	22.6±5.3	9.8±2.6	49.1±7.4	t=49.3, P=0.000HS
P value	**t=0.3, P=0.5**	**t=1.1, P=0.06**	**t=0.001, P=0.9**	**t=1.2, P=0.2**	**t=1.5, P=0.2**	**t=1.2, P=0.08**	**t=0.6, P=0.4**	**t1.7, P=0.06**	
Family History of mental retardation									
From mother	58.5±3.6	79.3±11.5	28.4±1.6	166.1±11.7	19±1.3	24.4±5.5	11±2.2	54.4±6.4	
From father	51.8±7.9	76.3±14.9	25±3	153.1±23.5	16.1±3.6	25.5±6.1	8.9±2.1	50.5±9.2	t= 47.8, P=0.000HS
Not present	57.8±6.8	80.2±13.3	26.4±2.2	164.4±18.7	19.2±4.0	25.3±4.7	11.2±2.2	55.6±8.6	
P value	**F=3.1, P=0.06**	**F=0.2, P=0.7**	**F=4.3, P=0.02**	**F=1.3, P=0.26**	**F=2.7, P=0.07**	**F=0.1, P=0.9**	**F=3.5, P=0.04**	**F=1.2, P=0.3**	
Parent Reaction									
Guilt feeling	53±8.3	74.6± 12.9	25.1±1.7	152.7±21.1	17.1±3.5	25.4±4.3	9.3±1.4	51.9±8.3	46.5, P=0.000 HS
Fear and anxiety	60.5±2.7	80.8±14.8	27.3±2.7	168.6±15.2	19.6±3.4	22.8±4.4	10.6±2.2	53.0±7.1	37.4, P=0.000 HS
Depression	51.7±7.8	79.7±12.5	25.5±4	156.8±23	16.8±3.1	26.2±7.1	10±3.7	53±11.2	45.6, P=0.000HS
Denial and reject the child	55.8±7.2	78.4±13.4	27.1±1.7	161.3±20.2	17.8±4	27±5.5	11.1±1.8	53.9±9.1	40.2,P=0.000HS
P value	**F=2.7, P=0.06**	**F=0.3, P=0.8**	**F=1.3, P=0.3**	**F=1.0, P=0.4 NS**	**F=1, P=0.4**	**F=1, P=0.4**	**F=0.8, P=0.5**	**F=0.3, P=0.8 NS**	
Total				**160.8±19.5**				**53.5±8.4**	39.4, P=0.000HS

P Paired value= Comparison between mean problem solving inventory (either subscale or total) pre intervention and post intervention.

P value= Comparison between mean problem solving inventory (either subscale or total, pre intervention or post intervention) among different categories of each personal characteristic.



4. DISCUSSION

Parents of children with mental retardation are vulnerable to stress and many psychological problems such as anxiety and depression so, parents need programs in order to diminish stress **(18)**. Cognitive behavioral therapy one of the most methods seems to be necessary, because it help parents to learn how deal with their mentally retarded children in order to adapt their social situation to improve compliance, while reducing the harmful effects of these disabilities and help them to find the best solutions **(32)**.

Socio-demographic characteristics

The mean age of the mentally retarded children was 6.4 ± 2.5 years. More than half of them was girls. Three-quarters of the mentally retarded children order in the family was 1st - 2nd. This results were consistent with (Samuel,2014) who revealed that 38% of the mentally retarded children were first born, 26% were middle born and 36% were youngest children. On the other hand, **(28)**. revealed that the mean age was 8.7+_ 3.692 with a range of 2 to 15 amongst the included cases (N=73) and there were 57.5% were males and 42.5% females. In this regard the study conducted by **(10, 34)**. found the range age of children was 8 to 16 years. This variation may be explained by the facts that the study place of this current study was different from the study of Gupta RK, which was conducted in India.

Regarding the parent's characteristics that participated in the present study. The mean age of parents was 34.1±6.3. This result supported by **(10, 33)**. who showed that mean age was a little higher (34.8±6.4 years) among the parents of children with mental retardation. Regarding educational qualification of the parents, slightly less than half of parents 48.4% were secondary education followed by university (32.2%) while the lest percent in the parents with read and write (19.4 %) and the nearly less than half of family had Insufficient family income. These results on the contrary, the results of the study conducted by **(10)**. who reported that the majority (28.33%) of the parents were graduates followed by higher secondary (26.58%), secondary (24.17%) and masters (16.66%) and Average monthly income was higher in Parents of mental retarded child.

Regarding parent reaction, the current study results showed that, about one third of parents react to their mentally retarded children by fear and anxiety, followed by one quarter react by denial and reject the child. These results were congruent with **(35)**, who stated that, no family is ready for occurrence of a mentally handicapped child, when mental retardation children were detected family members may deny that. Parents often unwilling to talk about problems of their child with others due to fear of social stigma. In the same line **(36)** who revealed that the parent's responses to their mental retarded child including guilt feeling, failure and frustration, the denial of reality, stress and anxiety, tend to the rejection of child by mother, projection mechanism, weeding problems. This finding confirm that the negative effect of present mental retarded child in home is problematic situation and crisis for the family and they not ready to it and not having any knowledge and experience in caring that child.

Concerning to the effect of cognitive behavior therapy on problem solving abilities the result of the current study showed the ability of solving problems with scientific way improved post intervention than pre intervention with highly statistical significant difference at ($p < 0.000$) It confirmed the first hypothesis. This result consisted with the study conducted by **(37, 8)** who reported that the problem solving therapies improved problem solving appraisal after intervention and develop general strategies of mothers for dealing with a broad range of problems, which are direct and indirect consequence of a child with special needs.

Likewise, **(38)** who reported that the cognitive behavior therapy which include problem solving therapy can enhance cognitive skills, crises management, more cooperation as one of the main techniques for managing life issues and problems, social skills, self confidence, and self esteem. These methods were also proven to be effective in decreasing the signs and symptoms of stress. This confirm the effectiveness of cognitive behavior therapy in improving problem solving abilities through applying skills of problem solving strategies which were taught in the sessions.

The major findings of this study were that the parents of children with mental retardation experienced greater stress. This finding matched with **(28)** who depicted that parents of mentally retarded children showed higher levels of stress than children with normal status. This result in the same line with **(39)** who demonstrated the presence of high levels of stress by parents of children with disabilities as a result of permanent feelings of crisis of parents' inability to handle developmental and behavioral problems of children with disability. This finding also supported by other studies conducted by **(35, 10)**. where all the study the findings showed that parents of mentally retarded or disabled children shared greater mental stress than the parents of children with no mental retardation. This may be due to the parent can't understand needs of the child and the child become burden to the family and effect on all family members and their parents does accept reality of child with disability.

Regarding to stress coping strategies of our research showed that, post intervention of cognitive behavior therapy revealed an increase in mean stress coping strategies which was 54.6% compared to pre instruction which was 32.4% while mean score of negative stress coping was decreased to 21.2% after intervention compared to pre intervention 36.2% with highly

statistical significance difference. This finding is in consonance with the findings of **(40)** who findings showed that there was a significant difference between pretest and posttest scores of parenting stress and subscale of parenting distress. Therefore, the mothers' parenting stress was reduced after the intervention.

In addition to **(41)**, in line with the current research, study found that the program was effective in improving mental health of the mothers with significant improvement. Although the studies conducted by **(42)** and the present study were efficient in decreasing parenting stress, yet the studied interventions were different. In other words, these results similar to different studies such as, **(38)** that reported the group counseling had effect on reducing stress mothers of children with mental retardation. This may be due to the efficacy of cognitive – behavioral method in reducing stress. Cognitive behavioral method helps the parents of child with mental retardation to recognize the causes and factors related to it and identify their responses such as, guilt feeling, failure, frustration, denial of reality, stress and anxiety, tend the rejection of child by mother, projection mechanism, weeding problems and trained them to cope with stress and child's problems.

Regarding the effect of cognitive behavior therapy on positive and negative coping strategies, our research finding illustrated that there was significant improvement post intervention in positive coping strategies which include seeking out information and acquiring social support, reframing and planning, acceptance and seeking spiritual and religious support. In addition, there was significant decrease in negative coping strategies which include denial, avoidance and withdrawal and self-blame. This result is agreement with the study of **(18)** who revealed that cognitive behavior therapy training was effective in reduce stress, anxiety and depression and to improve quality of their life in parents of children with mental retardation. The results of our study proved that such interventions are necessary because the level of psychological well-being of parents directly associated with positive and effective interaction between them.

5. CONCLUSION

The results of this study support the idea that cognitive behavior therapy intervention is an effective intervention in improving abilities of problem solving and alleviate the stress among parents of children with mental retardation.

6. RECOMMENDATIONS

Based on the results of this study, we recommend that;

- Given that seminars and health education sessions regarding cognitive behavior therapy interventions in out-patient clinics to enhance parent's coping abilities and problem solving skills.
- Empowering parents of mental retarded children by training programs of relaxation techniques e.g. Guided imaginary and breathing exercise as stress coping strategies.
- Activate the problem solving management skills for family conflicts' resolution rather than exchanging blame between parents for insufficient performance in caring the child with mental retardation.
- Continuity of care for parents of mental retarded children by ministry of social affairs and other institutions to reduce family burden and promote family health.

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