

Impact of Cognitive Behavioral Therapy on Basic Daily Life Activities in Autistic Children

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Abstract: Cognitive Behavioral Therapy (CBT) has a significant positive effect on the daily life activities of autistic children. CBT is a hopeful therapy for autistic children because it concentrates on children's independence and self-care tasks. The aim of the current study was to evaluate the impact of cognitive-behavioral therapy on basic daily life activities of autistic children. A Quasi-experimental research design was adopted to conduct this study. This study was conducted at Al-Amal Complex for Mental Health in, Saudi Arabia. A convenience sample of 40 autistic children (6-13years) was included in this study. Two main tools were used: 1) Vineland Adaptive Behavior Scale used to measure the basic daily life activities of autistic children, 2) Parent-Child Interaction Questionnaire (PACHIQ). Results showed an improvement in children's basic daily life activities and slight reductions in caregiver's participation in basic daily life activities of autistic children. There were statistically significant differences between study and control autistic children $p < 0.001$. Conclusion the current results exhibit that CBT may help in increasing the independence of autistic children toward basic daily life activities. Well organized and structured educational programs should be applied to caregivers and all health care team especially nurses to explain how to deal with the autistic child.

Key words: Cognitive Behavioral Therapy • Autism • Basic Daily Life Activities • Parent-Child Interaction • Autistic Children

INTRODUCTION

Autism is a developmental defect of a neurological part that takes place in a great different degree, from mild to severe. It affects one from every hundred childbirths all over the world. Autism affects boys four point five times than girls [1]. It is one from mostly discussing defects. Even though, the accepted definition still difficult to define and many developing countries knew little about it [2].

Commonest definitions of autism are impaired of the individual's abilities of social interaction, communication skills, idiosyncratic behaviors and deficits [3, 4].

Also, Autism Disorders (AD) are prevalent and chronic neuro-biological defects manifested by a form of failure in social interview and communication skills that observable on a person's behavior during any situations [4-7].

The exact cause of autism is unknown. Additionally, recent studies have connected it with a lot of

predisposing agents such as ecological, environmental, biological and physical agents. Ecological and environmental agents that have direct contact with high toxic minerals as lead and mercury. Biological and physical agents such as genetic brain defects as Rett defect and developmental problems as Fragile X syndrome [8].

The signs and symptoms of autism are highly differentiated, two individuals with similar diagnosis differ quietly in their abilities and in their way to behave [1]. Also, individuals with a high degree have marked incompetence to communicate with others while individuals with a mild degree can communicate nearly normal. The symptoms may appear in the infant stage or delayed until late toddler or preschool stage when isolation or aggression behavior or a defect in communication skills manifested [9, 10].

Recent studies mentioned that children who are fully dependent on their parents have a low degree of self-esteem which interfering with their development [11].

Many studies have been applied to improve the clinical features of an autistic person by support socialization and personal contact through applying behavioral exploration or pivotal response treatment. Until now, there is no effective study for improving basic daily life activities for autistic children with high function autism who have seventy or more degrees of an intelligence quotient [12].

Basic daily life activities are the essential tasks for human survival which cover daily care, include all individual skills as hygienic care and house or school activities as keep supplies arranged and clean and community activities as avoiding dangers and risk factors [11, 12].

In other hands, daily life activities contain many skills such as individualized hygienic care, dress and undress, eating, ability to move or be moved freely and easily, toilet care, home care, wash clothes, keep the environment safe, health care, administering medication, rest and entertainment [13].

Autistic children usually do not perform their basic daily life activities alone even if they able. Most mothers faced many problems when implementing some trials for training their autistic children [12].

Cognitive Behavior Therapy (CBT) is an intervention model in which new skills are established by enhancing child and his family through logic and convincing manner and Socratic questioning to perform basic daily life activities independently. In relation to that, the health team particularly nurses should develop an effective program to aid family, especially mother for helping their autistic children to be independent [14]. Hence, the current study aimed to examine the impact of the family-based cognitive behavior therapy on parental perceptions of basic daily life activities of autistic children.

MATERIAL AND METHODS

Study Design: Quiz-experimental design was used in this study, aimed to examine the impact of the family-based cognitive behavior therapy on parental perceptions of basic daily life activities of autistic children.

Setting and Sample: This study was carried out in Al Amal Complex for Mental Health in Dammam city Saudi Arabia. The intervention took place between 20 \ October /2015-16 \ October /2016. A convenience sample of 40 children, aged between 6 to 13 years were included in this study.

Ethical Consideration: A written informed consents were obtained from a center manager and the prime parents (Mostly their mothers) who were primary accountable of children and were willing to participate in this study. Before conducting the study confidentiality and anonymity of the children were assured during the coding of the data. Parents of children were assured that the data were not being reused in another research without their acceptance. Also, the aim of this study was explained to center members who were responsible for children.

Subjects and Selection Method: The sample of the current study portrays autistic children and their parents (primary parent) coming to Al Amal Complex for Mental Health in Dammam City Saudi Arabia.

Inclusion Criteria:

- Autistic children, Asperger disorders or Pervasive Developmental

Disorder:

- Children with milder symptoms of autism.
- Autistic children who had a verbal Intelligence Quotient equal to or more than 70.
- Primary parents and their children who willing to participate in this study.

Exclusion Criteria:

- Autistic children who had a verbal Intelligence Quotient less than 70
- Autistic children who participate in other behavioral therapy.
- Autistic children who received psychiatric drugs.
- Autistic children who disagree or their parents to share in the current study.

Research Hypothesis: Improvement in basic daily life activities of autistic children and reduction of parent's participation in it.

Procedure: Official permission was granted from administrative personnel of College of Applied Medical Science at Shaqra and Al Amal Complex for Mental Health in Dammam city Saudi Arabia, to obtain their permission for implement this study after clarifying the purpose of the study.

After reviewing literature the researcher develops suitable intervention Cognitive Behavior Therapy (CBT) program about basic daily life activities appropriate for

autistic children and their parent. This CBT program focused on basic daily life activities in order to promote a child's independence. Through: i) Reformulate the concept of basic daily life activities for autistic children and their parents by establishing trust, self-satisfaction and self-acquisition when performing the basic daily life activities by their self, ii) A hierarchy plan for developing children's basic daily life activities (Gradation of contact), iii) Families are instructed to assist and encourage any attempts from their children toward independent by using suitable communicating skills as making options, immediately favorable feedback, by giving rewards with each attempt even if child do a very simple steps.

A pilot study was carried out on 3 autistic children to examine the validity of the questionnaires and to test the research feasibility, clarity and objectivity of the tools. The sample of the pilot study was excluded from the study sample and the necessary modifications were done accordingly.

The selected forty students were divided into two groups study and control. Study group divided into 4 groups. 4 weekly sessions were performed with each group of the study group until 4 weeks. Each session lasting 70 min (About 25 min with the children and 45 min with the mothers /parents), to implement CBT program. The researcher evaluating autistic children for basic daily life activities before and immediately after intervention (After 4 weeks of intervention) and at the end of three months from intervention.

Instruments: Structured questionnaire sheet was used to collect socio-demographic characteristics of the autistic children and their families, such as age, child order, occupation and level of education of their parents. Child's basic daily life activities were evaluated through semi-structured interpersonal meeting with the person who responsible for childcare (mainly mothers) by applying Vineland Adaptive Behavior Scale (VABS-2) and Parent-Child Interaction Questionnaire (PACHIQ), VABS-2 scale is a psychometric evaluation *tool* planned to aid in the assessment of social competence. It measures the behaviour and social abilities of individuals from birth to adulthood. Regarding, adaptive behaviour which refers to how the individual performs the essential daily tasks, this scale assesses what is the individuals really do, not what is they are capable to do. The Vineland-2 assesses adaptive behaviour in 4 areas as communication, daily life activities, social and motor skills. Additionally, it provides total marks that represent the person's

achievement over 4 areas of investigation^[16]. PACHIQ assess the emotional and communication strategies of children. It monitoring how fathers and mothers see their relationship with their children (PACHIQ-Parents form). It contains 21 elements about medical and psychiatric history of children and mother/father health history [17].

Scoring System: Self-performing of basic daily life activities estimated according to age and sex measuring.

- Need no support=2
- Slight support=1
- Complete support=0

Basic daily life activities such as washing, drying face, bathing or showering, feeding self, combing hair, toileting care, oral care, grooming and managing medication.

Statistical Design: Data were analysed using statistical package for social sciences (SPSS) version 20 windows and were presented in tables. Chi-square analysis was performed. Also, mean, median and standard deviations were computed to evaluate the precipitating factors. An alpha level of 0.05 was used to assess significant differences.

RESULTS

Table 1 shows that most (87.5%) of the autistic children were between 6 and 11 years of age. While 12.5% of them were between 11 and 13 years of age. The mean age was 6.1 ± 1.316 days. As regards to educational level, most of them (85%) were at the primary phase. All of the autistic children (100%) had siblings and 7.5% of them had affected siblings with autism.

Table 2 shows that the majority (92.5%) of fathers of autistic children had secondary education and the majority of them worked. In addition, most (75%) of mothers of autistic children had a high level of education and 17.5% of them were housewife. Also, more than two-thirds (65%) of families were in the middle level of income.

Table 3 shows that the majority of families of the autistic children faced behavioral, emotional and physical problems. Also, most (82.5%) of them had financial problems.

Table 4 shows that there was a statistically significant difference between study and control group immediately and at the end of three months from intervention $P < 0.001$.

Table 1: Socio-demographic characteristics of autistic children.

Items		Study (n=20)		Control (n=20)		Total (n = 40)	
		No	%	No	%	No	%
Age	6- less than 10 years	18	90	17	85	35	87.5
	10-13 years	2	10	3	15	5	12.5
Mean +/- SD = 6.1 ± 1.316							
Family members	3-5 members	17	85	19	95	36	90
	More than 5	3	15	1	5	4	10
Mean +/- SD = 3.94 +/- 0.848							
Sex	Boy	14	70	15	75	29	72.5
	Girl	6	30	5	25	11	27.5
Educational level	Primary	16	80	18	90	34	85
	Preparatory	4	20	2	10	6	15
Having sibling	Yes	20	100	20	100	40	100
	No	0	0	0	0	0	0
Child order	1 st - 3 rd	10	50	13	65	23	57.5
	4 th -9 th	10	50	7	35	17	42.5
Affected sibling	Yes	1	5	2	10	3	7.5
	No	19	95	18	90	37	92.5

Table 2: Socio-demographic characteristics of parents of the autistic children

N= 40							
Items		Study (n=20)		Control (n=20)		Total (n=40)	
		No	%	No	%	No	%
Father education	Secondary	19	95	18	90	37	92.5
	High	1	5	2	10	3	7.5
Father occupation	Do not work	2	10	0	0	2	5
	Work	18	90	20	100	38	95
Mother education	Illiterate	0	0	1	5	1	2.5
	Primary	3	15	0	0	3	7.5
	Secondary	5	25	1	5	6	15
	High	12	60	18	90	30	75
Mother occupation	House wife	3	15	4	20	7	17.5
	Work	17	85	16	80	33	82.5
Family income	Low	4	20	3	15	7	17.5
	Middle	12	60	14	70	26	65
	High	4	20	3	15	7	17.5

Table 3: Family problems associated with the presence of autistic children.

Items		Study (n=20)		Control (n=20)		Total (n=40)	
		No	%	No	%	No	%
Behavioral problems	Yes	19	95	18	90	37	92.5
	No	1	5	2	10	3	7.5
Emotional problem	Yes	19	95	19	95	38	95
	No	1	5	1	5	2	5
Physical problems	Yes	19	95	19	95	38	95
	No	1	5	1	5	2	5
Financial problems	Yes	16	80	17	85	33	82.5
	No	4	20	3	15	7	17.5

Table 4: Impact of CBT on basic daily life activities of autistic children

Basic activities of daily living	Bia (n=40)		Iib (n=40)		At the end of 3 months (n=39)	
	SGcN=20(%)	CGdN=20(%)	SGN=20(%)	CGN=20(%)	SGN=20(%)	CGN=19(%)
1. Bathing and showering:	0	0	0	0	0	0
Need no support	3(15)	2(10)	15(75)	2(10)	17(85)	2(10.5)
Slight support?	17(85)	18(90)	5(25)	18(90)	3(15)	17(89.5)
Complete support	(0.467) P>0.001		(6.568)* P<0.001		(7.451)* P<0.001	
2. Dressing:	0	0	0	0	0	0
Need no support	15(75)	14(70)	16(80)	14(70)	18(90)	14(70)
Slight support	5(15)	6(30)	4(20)	6(30)	2(10)	5(30)
Complete support	(0.346) P>0.001		(3.851)* P<0.001		(7.695)* P<0.001	
3. Self- feeding:	0	0	0	0	0	0
Need no support	6(30)	4(20)	9(45)	4(20)	12(60)	4(21.1)
Slight support	14(70)	16(80)	11(55)	16(80)	8(40)	15(78.9)
Complete support	(0.717) P>0.001		(5.724)* P<0.001		(6.603)* P<0.001	
4. Toilet hy-giene:	0	0	0	0	0	0
Need no support	16(80)	14(70)	17(85)	14(70)	18(90)	13(68.4)
Slight support	4(20)	6(30)	3(15)	6(30)	2(10)	6(31.6)
Complete support	(0.717) P>0.001		(5.480)* P<0.001		(6.474)* P<0.001	
5. Combing:	0	0	0	0	0	0
Need no support	15(75)	13(65)	17(85)	13(65)	18(90)	12(63.2)
Slight support	5(15)	7(35)	3(15)	7(35)	2(10)	7(36.8)
Complete support	(1.050) P>0.001		(4.873)* P<0.001		(5.173)* P<0.001	
6. Oral care:	0	0	0	0	0	0
Need no support	3(15)	4(20)	5(25)	4(20)	6(30)	3(15.8)
Slight support	17(75)	16(80)	15(75)	16(80)	14(70)	16(84.2)
Complete support	(0.406) P>0.001		(5.853)* P<0.001		(9.846)* P<0.001	
7. Grooming:	0	0	0	0	0	0
Need no support	16(80)	13(65)	17(85)	13(65)	18(90)	13(68.4)
Slight support	4(20)	7(35)	3(15)	7(35)	2(10)	6(31.6)
Complete support	(0.677) P>0.001		(8.177)* P<0.001		(5.457)* P<0.001	
8- Managing medication:	0	0	0	0	0	0
Need no support	3(15)	4(20)	9(45)	4(20)	10(50)	4(21.1)
Slight support	17(75)	16(80)	11(55)	16(80)	10(50)	15(78.9)
Complete support	(0.406) P>0.001		(3.449)* P<0.001		(5.601)* P<0.001	
9- Total daily living skills:	0	0	0	0	0	0
Need no support	16(80)	4(20)	18(90)	4(20)	19(95)	6(31.6)
Slight support	4(20)	16(80)	2(10)	16(80)	1(5)	13(68.4)
Complete support	(1.050) P>0.001		(6.378)* P<0.001		(7.788)* P<0.001	

^aBI=Before Intervention, ^bIi=Immediately after intervention (After intervention 4 weeks).

^cSG= Study Group, ^dCG= Control Group, *Statistically Significant Difference

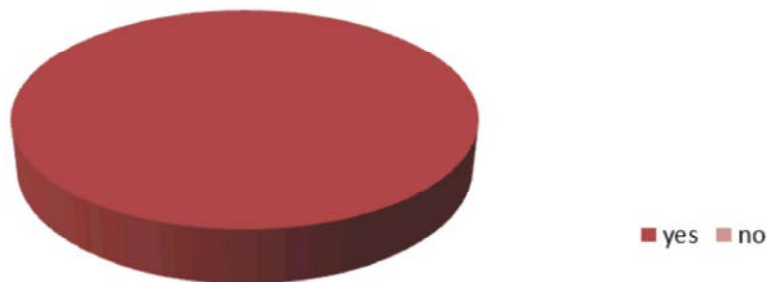


Fig. 1: Primary Parent Will Continue CBT Program After Finishing The Study

Figure 1 shows that all primary parents in the study group will continue the treatment after finishing the current study.

DISCUSSION

Autism is a permanent developmental disorder that disturbs the individual's recognition of the environment and his contact with others. Autistic individuals notice, listen and touch the outside world in a different way than others. Autism is not sickness or an illness and cannot be cured. Usually, the autistic feeling is an essential characteristic of the personality [18-20].

Autism is the commonest syndrome of childhood, it affected almost one from every 100 childbirths. Even with its frequency, its diagnosis may be delayed until preschool or school-age period. Also, the exact causes are still unknown [21].

The current study provides a suggestion that CBT may improve parent's opinions of basic daily life activities in autistic children and decline parent's participation in autistic children's basic self-care.

The present study mentions those autistic children aged between 6 to 13 years with a mean of 6.1 ± 1.316 years. This result corresponds with the fact that the diagnosis of autism may be delayed until the school-age period [21]. Also, the results of the current study show that most autistic children are boys. This finding goes in one way with Park [22] who stated that autism affected boys four times than girls.

This study illustrates that parents of autistic children in the study group observed an improvement in basic daily life activities that frequently implemented by autistic children, such as bathing, dressing, feeding, toileting, combing hair, oral care, grooming and managing medication as matched by children in the control group. There are statistically significant differences between autistic children in the study and control group. This improvement summarized in that, most of study autistic children need slight support than complete support, this means all autistic children still need some sort of support. In spite of statistically significant, we should be sure if this is clinically or not. This results corresponding with the results of other studies which examined the function adaptability and regular life activities of persons with autism found low outcome and realizing slight independent from their parents [23, 25].

Although, the results of the present study show that, autistic children in the study group become not fully dependent on their parents. Although all parents of the autistic children in the study group reported that they will

continue the CBT program after finishing the study. These findings go in one line with the other study said that there is an improvement in parents feeling about autistic children treatment and they will continue the program of treatment [26-28].

CONCLUSIONS

Parents CBT program provide statistical and clinically significant in basic daily life activities between autistic children. Parents observed that their autistic children who included in the program were capable to carry out basic daily life activities alone when program finish. Parents who included in the program stated that they decreased their participation in their children's personal care which may provide them with extra time for doing other tasks.

Recommendation:

- Early intervention for autistic children through training CBT program and therapeutic against them.
- Consult family about how to treat passive behavior.
- Help families about how to face puberty stage of their children.
- Encourage families to integrate their children in social activity.

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Limitations: Parent's observations were used to judge the activities of their children as well as their personal participation in the children self-care skills. As the parents are responsible for the intervention program of CBT, parents reports might have been subjective by their wishes to achieve the aims of this study. Future studies would value from numerous informants recording on children's daily life activities.

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