

**درمان اختلال وسواسی جبری کودکان و  
نوجوانان: مقایسه ی درمان رفتاری شناختی با  
کلومی پرامین و دارو نما**

شهرام وزیری

**Treatment Of Children's and Adolescents'  
Obsessive Compulsive Disorder: The  
Combination of Cognitive Behavior  
Therapy with Clomipramine and Placebo**

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در این پژوهش به عنوان یک پژوهش تجربی اثرات  
دو رویکرد درمانی، درمان با دارو (کلومی پرامین)  
و روان درمانی (درمان رفتاری شناختی) با هم و  
بدون در بیماران ۸ تا ۱۷ ساله مبتلا به اختلال  
وسواسی جبری مقایسه شده است. نتایج پژوهش  
نشان می دهد که کلومی پرامین و درمان رفتاری  
شناختی در درمان اختلال وسواسی جبری موثر  
است اما درمان رفتاری شناختی در کودکان و  
نوجوانان موثر تر و پایاتر از درمان با کلومی پرامین  
است.

The research is being experimental and an  
empirical attempt to measure the effects of  
the two approaches of treatment by drugs  
(Clomipramine) and psychotherapy  
(Cognitive Behavior Therapy) each  
separately and along with each other. We  
intended to measure the therapeutic results  
of each of the Cognitive Behavior Therapy  
and Clomipramine separately, and both  
together, on a group of patients - 8 to 17  
ages - affected with Obsessive Compulsive  
Disorder. The present research has showed  
that, Clomipramine and Cognitive behavior  
therapy will be effective in the treatment of  
obsessive compulsive disorder, but cognitive  
behavior therapy is more effective than  
Clomipramine, and it is more stable than  
Clomipramine in the treatment of obsessive  
compulsive disorder among children and  
adolescents.

**Introduction**

Childhood to adolescence, spanning almost 20 years, is a period marked by dramatic changes in physical, cognitive, and social-emotional skills and capacities. Mental health, in childhood and adolescence, is defined by the achievement of expected developmental, cognitive, social, and emotional milestones and by secured attachments, satisfying social relationships, and effective coping skills. Mentally healthy children and adolescents enjoy a positive quality of life; function well at home, in school, and in their communities; and are free from the disabling symptoms of psychopathology (Hoagwood, Jensen, Petti & Burns, 1996). Childhood mental health is expressed in this context, at any stage as children proceed through development.

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Development is a lifelong process of growth, maturation, and change that unfolds at its fastest pace during childhood and adolescence. An appreciation of normal development is crucial to understanding mental health in children and adolescents and the risks they face in maintaining their mental health. Distortions in the process of development may lead to mental disorders.

Children and teens have anxiety in their lives, just as adults do, and they can suffer from anxiety disorders in much the same way. While children can develop any of the recognized anxiety disorders, some are more common in childhood than others (Anxiety Disorders Association of America, 2005). Obsession affects 0.9 per cent of Iranian pupils 7 to 17 years of age (Vaziri, 2005).

Obsessive-Compulsive Disorder, OCD, is an anxiety disorder and is characterized by recurrent, unwanted thoughts (obsessions) and / or repetitive behaviors (compulsions). Repetitive behaviors such as handwashing, counting, checking, or cleaning are often performed with the hope of preventing obsessive thoughts or making them go away. Performing these so-called "rituals", however, provides only temporary relief, and not performing them markedly increases anxiety (National Institute of Mental Health, 2005).

In the psychiatric nomenclature, obsessive compulsive disorder comes under the category of anxiety disorders. Both DSM-IV-TR (APA, 2000) and ICD-10 (WHO, 1992) define OCD in terms of its characteristic symptoms. Although the DSM-IV criteria for OCD appear similar to the ICD-10 criteria, they represent a slightly better definition of this condition (Bebbington, 1998). According to APA (1994, 2000) a patient presenting with either obsessions, compulsions or both will be diagnosed as having OCD. The obsession must be recurrent or persistent, or the images which are experienced at some stage during the disturbance must be intrusive and inappropriate, and cause marked anxiety and distress. This intrusiveness must be greater than that experienced with ordinary worry.

The treatment of obsessive compulsive disorder is not at variance from other anxiety disorders. The anxiety disorders are treated with some form of psychotherapy or pharmacotherapy, either singly or in combination (Barlow & Lehman, 1996; March, Frances, Carpenter & Kahn, 1997; American Psychiatric Association, 1998; Kent, Coplan & Gorman, 1998). Pharmacotherapy and psychotherapy are two important approaches for OCD treatment (NIMI, 2001).

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The mechanism of action of the drugs effective in treating OCD has given rise to the hypothesis that deficient serotonin function is a key element in the pathophysiology of OCD. These drugs block serotonin reuptake by the pre-synaptic neuron, thereby increasing serotonin availability at post-synaptic receptors. Research shows that selective serotonin reuptake inhibitors have successfully treated OCD (Life Extension, 2005).

There is a much stronger evidence base to support the use of drug treatments for early-onset obsessive-compulsive disorder. Current theories of OCD stress the role of dysregulation in central serotonin subsystems, with target areas of dysfunction including the basal ganglia and orbitofrontal cortex (Grados & Riddle, 2001). Recent work further proposes that a reversible, glutamatergically mediated, thalamo-cortical-striatal dysfunction is important in both the etiology of pediatric OCD and response to treatment (Bolton, Moore, MacMillan *et al.*, 2001; Rosenberg, MacMillan, & Moore, 2001). It is therefore, not surprising that serotonin-enhancing agents such as the SSRIs and Clomipramine are efficacious treatments for this disorder.

The major types of psychotherapy for children are supportive, psychodynamic, cognitive-behavioral, interpersonal, and family systemic. These therapies were originally developed for adults and then tailored for use in children. In this area cognitive behavior therapy (CBT) has become a standard effective approach in the treatment of adults with OCD (Kozak & Foa, 1997; Riggs & Foa, 1993). This therapeutic modality has also been shown to be effective in the treatment of children and adolescents with OCD (de Haan, Hoogduin, Buitelaar, & Keijsers, 1998; Piacentini & Bergman, 2001).

Cognitive-behavioral therapists use an assortment of behavior and cognitive techniques in therapy. CBT routinely is described as the psychotherapeutic treatment of choice for adults, children, and adolescents who have been diagnosed with OCD (Tynan, 2005). The task of cognitive behavior therapy or CBT is partly to understand how the three components of emotion, behavior and thoughts interrelate and how they may be influenced by external stimuli - including events which may have occurred early in the client's life (Enright, 1997). The hallmarks of cognitive-behavioral therapies are evaluating apparent cause and effect relationships between thoughts, feelings, and behaviors, as well as implementing relatively straightforward strategies to lessen symptoms and reduce avoidant behavior (Barlow, 1988).

A critical element of therapy is to increase exposure to the stimuli or situations that provoke anxiety. For treatment of obsessive-compulsive disorder, the strategy of response prevention must be added to exposure to ensure that compulsions are not performed (Barlow, 1988). There is now extensive evidence that cognitive-behavioral therapies are useful treatments for a majority of patients with anxiety disorders (Chambless, Baker, Baucom *et al.*, 1998).

CBT and pharmacotherapy work well together clinically. Many clinicians believe that most children with OCD benefit from the combined treatment. Controlled studies are being conducted; at least 1 open trial demonstrated that CBT in combination with SSRI was far superior to either therapy alone (Tynan, 2005). The efficacy of CBT has been empirically examined in youngsters with OCD (de Haan *et al.*, 1998; March *et al.*, 1994; Piacentini & Bergman, 2001).

Cognitive-behavior therapy (CBT) with habit reversal and serotonin reuptake inhibitors such as Clomipramine (Anafranil) is reported to be effective treatment for Trichotillomania (Nina, Rothbaum, Marsteller *et al.*, 2000). According to de Haan, Hoogduin, Buitelaar & Keijsers, (1998) behavior therapy in children and adolescents with OCD is at least as effective as treatment with medication over a short term period.

The present study, in an attempt to incorporate the above elements, was carried out with the following aims:

- To examine the effect of cognitive behavior therapy in treatment of obsessive-compulsive disorder among children and adolescents.
- To find out the effect of Clomipramine in the treatment of obsessive-compulsive disorder among children and adolescents.
- To find out the preferability of cognitive behavior therapy to Clomipramine in treatment of obsessive-compulsive disorder among children and adolescents.

## Method

The research is being experimental and an empirical attempt to measure the effects of the two approaches of treatment by drugs (Clomipramine) and psychotherapy (Cognitive Behavior Therapy) each separately and along with each other. We intended to measure the therapeutic results of each of the Cognitive Behavior Therapy and Clomipramine separately, and both together, on a group of patients - 8 to 17 ages - affected with Obsessive Compulsive Disorder.

The independent variable in this research was the method of treatment, including 1) CBT, and 2) Clomipramine and 3) CBT+ Clomipramine. The

dependent variable was reduction of the symptoms of OCD considering the test grade on a Children's Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman *et al.*, 1989).

The research hypotheses were capable of combining the effects of CBT and Clomipramine techniques as well as considering them separately. The study included 60 children and adolescents with obsessive-compulsive disorder that referred to clinics of Counseling and Psychotherapy Centers at Tehran between 20<sup>th</sup> April and 20<sup>th</sup> Sept 2004.

**Samples:** The sample comprised of 60 children and adolescents who had OCD but were randomly selected in three treatment groups: combined, CBT and Clomipramine.

To carry out this research, first evaluation and groupings were carried out. At first, the patients were diagnosed to have OCD and to be introduced for treatment were primarily evaluated. This preliminary evaluation included interviews for filling out the CY-BOCS questionnaire and preparing profiles. During the interview, being subject to DSM symptoms was examined in the case of OCD. If qualified to enter treatment, YBOCS and profile were carried out. The goal of this evaluation was to screen patients to identify those qualified to enter treatment. On the other hand, doing this, the researcher was seeking to establish the rapport and obtain primary information for processing.

The time spent for each patient at this stage, if being subject to the conditions in the two sessions, lasted one week. As doubt, indecision and slowness are characteristic of OCD patients, they were given limited time to fill out the questionnaires. They were assisted by the therapist if they had difficulty in reading the text. As mentioned in the section on sampling, since waiting for completing a qualified group of approximate 70 members could last for 3 to 4 months, or even more, qualified individuals were put on a waiting list. Once the waiting list had 3 names on it, the individuals were randomly divided into 3 groups of A, B and C by research colleagues who were not involved in the process of treatment:

**Group A:** Group A was the group with Clomipramine (50 to 150 mg/day depending on the severity of symptoms and age), receiving CBT at the same time. In the combined Clomipramine and CBT treatment group, the patients entered the CBT treatment process while being prescribed 50 to 200 mg of Clomipramine. In addition to the evaluations of the fourth, eighth and twelfth week, this group was periodically evaluated by the psychiatrist so as to increase or decrease daily intake if necessary.

**Group B:** Group B was the one receiving placebo and CBT at the same time. Like Group A, this group was also evaluated, and was given drugs. The patients entered the CBT treatment process while being prescribed 50 to 200 mg of Clomipramine by the psychiatrist. But the Clomipramine tablets in this group had no drug value. Other evaluations and the CBT treatment process in the case of this group were exactly like that of Group A.

**Group C:** Group C consisted of individuals with Clomipramine, non therapeutic talk. Like Groups A and B, this group was also evaluated by the psychiatrist and were given Clomipramine. However, in the weekly psychotherapy hours and sessions only the patients' record, the course, the conditions of the classes and the manner of learning were discussed. Although such discussions were not therapeutic, the patients believed that they were undergoing psychotherapy.

No therapist and no patient of any of the groups A, B or C knew if the drugs given were placebo or Clomipramine and in Group C the clients thought that the sessions were therapeutic, but in practice all sessions were passed talking about the past of the patients and history of the disease. Every session in each of the groups lasted 50 to 60 minutes, twice a week.

The CBT protocol consisted of 24 visits over 12 weeks that involved:

- 1) Establishment of a therapeutic relationship and assessing symptoms;
- 2) Awareness increasing;
- 3) Externalizing the problem;
- 4) Mapping OCD;
- 5) Therapeutic techniques (e.g. Exposure and Response prevention);
- 6) Homework;
- 7) Relapse prevention.

**Instrument:** Since the introduction of the Yale–Brown Obsessive-Compulsive Scale (Y-BOCS) in 1989, (Goodman et al., 1989a,b) it has been increasingly utilized in both drug trials and cognitive–behavioral studies (Hohagen, Winkelmann, Rasche-Rauchle, Hand, König et al., 1998). The Y-BOCS is consensually acknowledged as being the standard for rating obsessive–compulsive symptomatology. It is a clinician-administered, semi-structured interview that contains 16 core items scored on a five-step Likert scale (0–4, higher scores indicate greater disturbance). The total score is computed from the first 10 items (without items 1b and 6b). Reliability and validity of CY-BOCS was examined in Iran. All studies showed high reliability (more than .84) and validity (more than .64) for CY-BOCS.

## Findings

In this research the reductions of OCD signs have been considered as improvement parameters. These parameters have been measured by CY-BOCS questionnaire. In this chapter, first of all, the demographic data of the groups have been provided, and then, the statistical findings of the three therapeutic groups have been reviewed. The study of demographic characteristics of samples shows that, most patients were female (66.1) and mean age of them is 12.90. most patients were first-borns (44.1%). Two patients (3.4%) were the only children in their family. The parents of 12 patients (20.33%) were relatives. Most mothers and fathers of patinas have high school degree (45.8 and 42.9) and most of these families have moderate levels in the socioeconomic status.

With respect to the fact that the first hypothesis of the research is “*Clomipramine and cognitive behavior therapy will be effective in the treatment of obsessive compulsive disorder among children and adolescents*”, we compared the scores before and after “treatment” for examining the hypothesis. **Table 1** to 3 shows the statistics of OCD scores before and after the therapy.

**Table 1. The Statistics of OCD Scores Before and After the Therapy (Group A)**

Statistics (CBT+ Clomipramine)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	11.55	3.30	12.80	1.80	24.35	5.10
Median	12.00	3.00	12.00	2.00	25.00	5.00
Mode	9	3	12	2	22	5
Std. Deviation	2.63	1.03	1.91	.83	3.48	1.33
Variance	6.89	1.06	3.64	.69	12.13	1.78
Minimum	7	1	10	0	18	3
Maximum	16	6	17	3	31	8
Sum	231	66	256	36	487	102

Before treatment=a

After treatment=b

**Table 1. The Statistics of OCD Scores Before and After the Therapy (Group B)**

Statistics (Clomipramine + Visit)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	12.25	5.20	13.35	4.15	25.60	8.60
Std. Error of Mean	.42	.46	.55	.38	.84	.67
Median	12.50	5.50	14.00	4.00	26.50	9.00
Mode	14	6	12	3	27	10
Std. Deviation	1.86	2.07	2.46	1.69	3.75	3.02
Variance	3.46	4.27	6.03	2.87	14.04	9.09
Minimum	8	1	8	1	18	2
Maximum	15	8	17	8	31	13
Sum	245	104	267	83	512	172

Before treatment=a

After treatment=b

**Table 3. The Statistics of OCD Scores Before and After the Therapy (Group C)**

Statistics (CBT + Placebo)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	11.95	2.63	13.11	1.89	25.05	4.05
Median	12.00	2.00	14.00	2.00	26.00	4.00
Mode	10	2	14	2	28	4
Std. Deviation	2.48	1.42	1.97	.66	3.52	1.35
Variance	6.16	2.02	3.88	.43	12.39	1.83
Minimum	8	1	10	1	19	2
Maximum	16	6	17	3	31	7
Sum	227	50	249	36	476	77

Before treatment=a

After treatment=b

In order to compare the measures obtained from CY-BOCS in Obsession, Compulsion subtitles and total scores, we examined OCD scores through analysis of variance (ANOVA), **Table 4 to 6** shows the effects of two kinds of therapy in the reducing of Obsession, Compulsion and Total scores during sessions.

**Table 4. The Testes of Between-Subjects Effects (Obsession Scores)**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power*
Intercept	12033.462	1	12033.462	1478.090	.000	.963	1478.090	1.000
GROUP	200.600	2	100.300	12.320	.000	.306	24.640	.994
Error	455.909	56	8.141					

\* Computed using alpha = .05

**Table 5. The Testes of Between-Subjects Effects (Compulsion Scores)**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power*
Intercept	12005.400	1	12005.40	2169.00	.000	.975	2169.007	1.000
GROUP	38.177	2	19.089	3.449	.039	.110	6.897	.623
Error	309.959	56	5.535					

\* Computed using alpha = .05

**Table 6. The Testes of Between-Subjects Effects (Total Scores)**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power*
Intercept	46775.121	1	46775.121	2907.33	.000	.981	2907.336	1.000
GROUP	326.044	2	163.022	10.133	.000	.266	20.265	.982
Error	900.964	56	16.089					

\* Computed using alpha = .05



With respect to the fact that the second hypothesis of the research is “*cognitive behavior therapy will be effective than Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents*”, in the following of MANOVA, we compared the effects of applying CBT and Clomipramine alone and together. Table 7 to 9, shows the output of MANOVA about these comparisons:

**Table 7. Multiple Comparisons of Obsession Scores through Therapeutic Sessions**

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
CBT + Clomipramine	Clomipramine + Visit	-2.0125*	.4511	.000	-2.9162	-1.1088
	CBT + Placebo	-.1408	.4570	.759	-1.0564	.7748
Clomipramine + Visit	CBT + Clomipramine	2.0125*	.4511	.000	1.1088	2.9162
	CBT + Placebo	1.8717*	.4570	.000	.9561	2.7873
CBT + Placebo	CBT + Clomipramine	.1408	.4570	.759	-.7748	1.0564
	Clomipramine + Visit	-1.8717*	.4570	.000	-2.7873	-.9561

\* The mean difference is significant at the .05 level.

**Table 8. Multiple Comparisons of Obsession Scores through Therapeutic Sessions**

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
CBT + Clomipramine	Clomipramine + Visit	-.8125*	.3720	.033	-1.5577	-.0067
	CBT + Placebo	.0071	.3768	.850	-.6832	.8266
Clomipramine + Visit	CBT + Clomipramine	.8125*	.3720	.033	.0067	1.5577
	CBT + Placebo	.8842*	.3768	.023	.1293	1.6391
CBT + Placebo	CBT + Clomipramine	-.007	.3768	.850	-.8266	.6832
	Clomipramine + Visit	-.8842*	.3768	.023	-1.6391	-.1293

\* The mean difference is significant at the .05 level.

**Table 9. Multiple Comparisons of Total Scores through Therapeutic Sessions**

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
CBT + Clomipramine	Clomipramine + Visit	-2.4250*	.6342	.000	-3.6955	-1.1545
	CBT + Placebo	.1151	.6425	.858	-1.1719	1.4022
Clomipramine + Visit	CBT + Clomipramine	2.4250*	.6342	.000	1.1545	3.6955
	CBT + Placebo	2.5401*	.6425	.000	1.2531	3.8272
CBT + Placebo	CBT + Clomipramine	-.1151	.6425	.858	-1.4022	1.1719
	Clomipramine + Visit	-2.5401*	.6425	.000	-3.8272	-1.2531

\* The mean difference is significant at the .05 level.

The 3<sup>rd</sup> hypothesis of the research is “*CBT is more stable than Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents*”. In

order to consider the above hypothesis, we compared the CY-BOCSs' scores at the final stage of therapy and two months after the therapy. **Table 10** to **12** shows the statistics of these two observations in the obsession, compulsion and total scores:

**Table 10. The Statistics of Obsession Scores in the End and After Two Month of Therapy**

Statistics (CBT + Clomipramine)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	3.30	1.75	1.80	2.30	5.10	4.05
Std. Error of Mean	.23	.16	.19	.21	.30	.26
Median	3.00	2.00	2.00	2.50	5.00	4.00
Mode	3	2	2	3	5	4
Std. Deviation	1.03	.72	.83	.92	1.33	1.15
Variance	1.06	.51	.69	.85	1.78	1.31
Sum	66	35	36	46	102	81

In the end of treatment= a    After two month=b

**Table 11. The Statistics of Compulsive Scores in the End and After Two Month of Therapy**

Statistics (Clomipramine+Visit)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	5.20	11.05	4.15	11.25	8.60	22.30
Std. Error of Mean	.46	.55	.38	.64	.67	.95
Median	5.50	12.00	4.00	10.50	9.00	23.00
Mode	6	12	3	8	10	23
Std. Deviation	2.07	2.46	1.69	2.86	3.02	4.24
Variance	4.27	6.05	2.87	8.20	9.09	18.01
Sum	104	221	83	225	172	446

In the end of treatment= a    After two month=b

**Table 12The Statistics of Total Scores in the End and After Two Month of Therapy**

Statistics (CBT + Placebo)	Obsession		Compulsion		Total Scores	
	a	b	a	b	a	b
Mean	2.63	3.68	1.89	1.53	4.05	2.42
Std. Error of Mean	.33	.30	.15	.18	.31	.22
Median	2.00	3.00	2.00	1.00	4.00	2.00
Mode	2	3	2	1	4	2
Std. Deviation	1.42	1.29	.66	.77	1.35	.96
Variance	2.02	1.67	.43	.60	1.83	.92
Sum	50	70	36	29	77	46

In the end of treatment= a    After two month=b

**Table 13 to 15** , shows the results obtained from the comparison of the scores at the end of therapy and two months after the therapy (follow up) through **MANOVA** method.

**Table 13. Pairwise Comparisons of Obsession Scores (follow up)**

Group CBT + Clomipramine	Observation (I) (J)		Mean Differenc e (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
	End of treatment	After two month				Lower Bound	Upper Bound
Obsession	3.30	1.75	1.550*	.246	.000	1.036	2.06
Compulsion	1.80	2.30	-.500	.276	.086	-1.078	.008
Total	5.10	4.05	1.050*	.373	.011	.269	1.83

\* The mean difference is significant at the .05 level

**Table 14. Pairwise Comparisons of Compulsion Scores (follow up)**

Group Clomipramine + Visit	Observation (I) (J)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
	End of treatm ent	After two month				Lower Bound	Upper Bound
Obsession	5.20	11.05	-5.850	.514	.000	-6.927	-4.77
Compulsion	4.15	11.25	-7.100	.791	.000	-8.756	-5.44
Total	8.60	22.30	-13.700	1.129	.000	-16.063	-11.33

\* The mean difference is significant at the .05 level

**Table 15. Pairwise Comparisons of Total Scores (follow up)**

Group CBT + Placebo	Observation (I) (J)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
	End of treatment	After two month				Lower Bound	Upper Bound
Obsession	2.63	3.68	1.737	.285	.000	1.139	2.33
Compulsion	1.89	1.53	.368	.191	.069	-.0031	.76
Total	4.05	2.42	1.632	.288	.000	1.026	2.23

The mean difference is significant at the .05 level

In order to compare the measures obtained from CY-BOCS in Obsession, Compulsion subtotals and total scores, we examined OCD scores. Intercept results Cognitive Behavior Therapy, and Clomipramine are effective in the treatment of obsessive compulsive disorder among children and adolescents [in the obsession scores,  $F(1, 56) = 1478$ ;  $p < .001$ ; in the compulsion score,  $F(1, 56) = 2169$ ;  $p < .001$  and In the total scores,  $F(1, 56) = 2907$ ;  $p < .001$ ]. The size of these differences for Obsession, Compulsion and Total scores are .963 for obsession scores, .975 for compulsion scores and .981 for total scores. It means that, at least 96 per cent of the variances of OCD scores in the 4 observations refer to deference's of scores through session of therapy. group A (CBT + Clomipramine) and group C (CBT + placebo) do not show a meaningful difference in the obsession scores ( $p = .759$ ), while groups A

(CBT + Clomipramine) and group B (Clomipramine + Visit) show a significant difference ( $p < .001$ ), although group B (Clomipramine + Visit) and group C (CBT + placebo) show a significant difference ( $p < .001$ ) too. These relations are the same in the comparisons of compulsive and total scores. This means that while no significant difference is shown between therapy with CBT plus placebo or merely CBT, but both methods show a meaningful difference through application of Clomipramine alone.

The results obtained from the comparison of the scores at the end of therapy and two months after the therapy (follow up) through MANOVA method. As observed in these tables, group A (CBT + Clomipramine) with  $p < .05$ , group B (Clomipramine + Visit) with  $p < .05$ , and group C (CBT + Placebo) with  $p < .05$  show a meaningful difference between the end of therapy and two month after finishing and cutting off Clomipramine in the total scores of OCD. But this difference in group B (Clomipramine + Visit), is negative. It means that, groups who had received CBT do not show a return to OCD signs, while groups who had received Clomipramine and gap showed meaningful return to OCD signs. These findings are similar for obsession scores too.

As observed compulsion scores do not show a meaningful difference between the end of therapy and two months after finishing and cutting off Clomipramine, group A (CBT + Clomipramine) with  $p > .05$ , group C (CBT + Placebo) with  $p < .05$  but group B (Clomipramine + Visit) with  $p < .00$  shows a meaningful difference between the end of therapy and two months after finishing and cutting off Clomipramine. Because this difference among group B participants (Clomipramine + Visit), is negative, groups who had received CBT do not show a return to OCD signs, while the group which had received Clomipramine and gape show meaningful return to OCD signs.

The results of the present research show that, Clomipramine and Cognitive behavior therapy will be effective in the treatment of obsessive compulsive disorder, but cognitive behavior therapy is more effective than Clomipramine, and it is also more stable than Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents. It was found that, the OCD – obsession, compulsion and total – scores for the experimental groups had been falling until the 12<sup>th</sup> week of therapy, while the OCD scores remarkably increased for the group receiving Clomipramine only or the non-therapeutic gap, by two months after cutting off the medicine and psychological treatment. Results support the issue that cutting off the medicine –Clomipramine-, without CBT and learning “*how we can control it*”, will lead to the relapse of OCD signs after a couple of months. Therefore, based on these findings we can say that, CBT is more stable than

Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents.

The present research has showed that, Clomipramine and Cognitive behavior therapy will be effective in the treatment of obsessive compulsive disorder, but cognitive behavior therapy is more effective than Clomipramine, and it is more stable than Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents.

First and foremost, these findings will be helpful in the treatment of OCD among children and adolescents. Once a child has been diagnosed with OCD, we need to decide which treatment or treatments to use first. Virtually no treatment is curative for OCD. Most treatment can be expected to reduce symptoms by 50-80 per cent or more, however. The illness is cyclic, and worsens when the individual is under stress (Hooper, 2005). The past twenty years have seen the emergence and evaluation of two effective forms of treatment (cognitive behavior therapy and drug therapy) of OCD.

Many psychiatrists prefer to start off with medication. If there is no response or only a partial response, they change from drugs to drugs. Drugs have been shown to be effective in decreasing both obsessions and compulsions. Because, OCD has necessary bases in the brain chemistry, each change in the neurotransmissions provides changing in Central Nervous System (CNS) functions, and this changing provides changes in behavior. But, when the child stops taking medication, the OCD symptoms almost always gradually return (Kordon, Kahl, *et al.*, 2004). Psychiatrists or other physicians can prescribe medications for OCD. Although medications won't cure an OCD disorder, they can keep the symptoms under control and enable them to lead a normal, fulfilling life (NIMH, 2005). Results support the issue that cutting off the medicine –Clomipramine-, without CBT and learning “*how we can control it*”, will lead to the relapse of OCD signs after a couple of months.

Imaging studies have also demonstrated that both medications –as a brain chemistry changer- and psychological treatments affect the neuropsychiatric (Schwartz *et al.*, 1996). In fact, the relationship between SNS and behavior is mutual (Brody *et al.*, 1998). When we teach a patient, how he can change and control the behavior and thoughts, this learning gets fixed through exposure and response prevention. Thus, a new function is provided in the brain chemistry such as drug functions. But during drug treatments, we may see changes in the behavior, however, when we cut the drugs the abnormal behavior comes back again. This is because there is no keeper for fixing the new and normal behavior. This is the reason why CBT is more stable than Clomipramine in the treatment of obsessive compulsive disorder among children and adolescents.

Treatment of OCD is complicated by the fact that the exact cause of the illness is unknown. Treatment is therefore built upon the practical experience we have of what is actually most effective. This does not mean that the current treatment models are incorrect, but rather that one is not always aware of the risks involved; for example, whether the medication affects the brain, or exactly why it has any influence on the brain, or, in the case of psychotherapy, in what particular way it can affect the brain.

In milder cases of OCD, behavioral and cognitive behavior therapy alone has been sufficient, but in more severe cases of OCD medication is normally necessary, as a support, not necessarily as a mean treatment, however. It is most important to emphasize that medication alone is not an effective form of treatment. It is absolutely essential to include the family, particularly the parents, in the treatment of children and adolescents with psychiatric disorders. This is also relevant in the case of OCD. It is the experience of most therapists that the family is deeply involved in the child's compulsive symptoms and 'systems', when the child or adolescent is presented for treatment. In a majority of the cases, the parents have had to adjust to the child's symptoms.

A cognitive behavior therapeutic program can be applied in the treatment of children and adolescents, suffering from OCD. It must be perfectly adapted and is an extremely specialized exercise. Parents' support of the program within the home is very important and they should always (particularly in more cases of OCD) be involved. Generally, one can say that the younger the child, the more intense the parent's involvement in the treatment of OCD should be. Detailed information explaining the knowledge we have with regard to OCD is a must from the very beginning. Parents are frequently troubled by feelings of guilt, as are the majority of parents of children who suffer from psychiatric disorders. They often feel that they are able to do the "right" thing. Brothers and sisters can be irritated by the situation and feel left out, whilst the child himself feels responsible for the family turmoil, which he believes to be his fault. Due to the many and complicated feelings involved, it is most important (particularly at the beginning of treatment) to concentrate upon exactly how the compulsions have affected each member of the family, as well as the family as a whole. At this stage, it is most important to emphasize that OCD is an actual illness, that it has affected the child and subsequently has influenced the entire family. Naturally, many parents ask questions such as: "how long will our child experience these compulsive symptoms? And 'should they always try to intervene and stop the child's rituals?'. There are no simple answers to these questions. The important point is that parents, along with their child, enter into an

agreement designed to obtain a perfect balance between their being deputized therapists, and being parents.

Behavior therapy is a unique type of psychological therapy that has been developed primarily for problems with anxiety. It is unique because it involves action. Most psychological therapies focus on thinking about, talking about, and understanding feelings and thoughts. While thoughts and feelings are a part of behavior therapy, the main focus is directed at doing (or not doing) certain actions. Because behavior therapy is action-oriented, much less emphasis is placed on insight and understanding. During behavior therapy, the patient performs a series of activities (behaviors), and it is the activities themselves that have the beneficial effect. While most psychological therapies rely on insight and understanding for progress, behavior therapy relies heavily on performing a "real-life" activity. The resulting experiential learning produces therapeutic progress.

Behavior therapy is often sufficient treatment for many children, or is at least helpful in conjunction with anti-OCD medications. The effectiveness of behavior therapy varies from child to child, but it is most beneficial for children who have mild to moderate OCD and who *want* to reduce their symptoms. Motivation is a key factor in behavior therapy success. Children who recognize that their OCD-related behaviors are causing them problems are usually interested in behavior therapy and willing to participate in therapy exercises. Behavior therapy is almost always helpful for motivated children.

Unfortunately, many children with OCD are not motivated. Some deny that their OCD is a problem, and others may be so discouraged that they are unwilling to even try. Occasionally, a skilled behavioral therapist can inspire an unmotivated child. Some research reveals that behavior therapy is helpful for most children, highly effective for about 20 per cent, and of little value to a small minority of approximately 5 per cent.

It is important that the child or adolescent, as well as the family, defines OCD as an illness for which the child is not responsible. The family, as well as the child, is often weighed down by the child's numerous compulsive actions, and parents frequently feel that the child in fact is able to sporadically control the compulsions. The child, therefore carries around the idea that she experiences thoughts which are "wrong", or that she does things "wrongly", which she should actually be capable of changing. It is important to perceive OCD as an illness that is forced upon the child, that the child is the victim, and that the illness must be fought against through some or the other form of treatment. One can ask the child to give the compulsive symptoms a nickname, in order to remind him that the

compulsive symptoms are his “enemy”. Compulsive symptoms are not merely “bad habits”, but rather something which comes from the outside and invades the child, and which the child must now try to fight. The family should also be introduced to this nickname, in order that this designation can be introduced at home.

The next important step is (together with the child) to specify the extent of the compulsive actions when they occur, in which situations are most extreme and how often the child is invaded by compulsive thoughts. It is important to establish the exact content of the compulsive symptoms, and to examine which compulsive thoughts actually motivate the compulsive actions, as described by the child. In a majority of the cases it will be extremely difficult for the therapist to identify all the child’s compulsive thoughts, partly due to their number, degree of variation and partly because the child would try to keep the most embarrassing and troublesome compulsive thoughts to himself.

It is definitely a good idea to make a note of the child’s compulsive symptoms, exactly as they describe them. After thorough registration of the compulsive symptoms (from one, or perhaps two sessions), one is able, with the help of the child, to establish which compulsive symptoms are the most troublesome. It is most important in terms of the child’s motivation, and subsequently the treatment process, to select a troublesome symptom which the child wants particularly to free himself or herself of.

However, one must not choose a symptom which is too extensive and invincible, as it is important to maintain the child’s enthusiasm with minor successes along the way. The child’s motivation will frequently appear as a form of ambivalence.

The child will need many consultations and only after a course of intensive treatment is it recommended that treatment sessions take place at longer intervals (in order to keep the patient on the right track, symptom-free). In some cases, admittance to a child and adolescent psychiatric ward will be recommended, but this is far from being a necessity in many cases.

In exactly the same way that other accomplishments — football, tennis, music - require training, and then more training, among children and adolescents the struggle against OCD involves discipline. Constant training and home assignments can be an essential part of out-patient therapy. It is most important that the therapist explains the content of the exercises thoroughly to the child, and that they are both in agreement as to their precise content. The child must fight against the compulsive symptoms each day, whilst the home assignments must be time-limited and specific, thus being under the child’s control. The idea behind home assignments is that,



within the home, the child exposes himself to compulsion inducing circumstances and subsequently attempts to resist the urge to carry out the resulting compulsive action. The child must only undertake these assignments to such a degree that he feels able to control them, as it is better for his or her morale to experience a minor success rather than a major disaster.

Some children and adolescents are able to report a relief in their condition after only four or five days. The medication can perform no miracle and diminish the obsessive symptoms completely. The children are, however, able to describe how their obsessive thoughts become successively less invasive and how the need to perform rituals or other obsessive actions is gradually diminished. This positive effect is then strengthened furthermore over a period of a few weeks. A number of children and adolescents with OCD will continue to require medication and other treatments sporadically, perhaps during the vulnerable period of puberty. Having discontinued medication, these adolescents will be able to cope without treatment, presenting either no obsessive symptom at all, or only mild symptoms which they are able to control without the help of medication.

All of the anti-OCD medications have the capacity to produce behavioral side effects in children. These side effects can include defiance, irritability, excessive energy, or other forms of inappropriate behavior. Behavioral side effects are more likely to occur in younger children or when higher doses of medication are used. These side effects can be subtle, and at times it can be difficult to tell whether a particular behavior is due to the medication side effects or simply childhood misconduct. However, when a pattern of inappropriate behavior emerges that seems "out of character" for the child, the possibility of behavioral side effects should be considered. When behavioral side effects do occur, it is usually within the first few weeks of medication although they can occur at any time.

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