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**A STUDY INVESTIGATING PARENTAL OBSESSIVE-COMPULSIVE DISORDER
OF CHILDREN WITH AUTISM**

**By
Kristy Kratz**

A Thesis

**Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
Of
The Graduate School
At
Rowan University
May 4, 2004**

Approved by

Dr. Dihoff

Date Approved 5/7/04

ABSTRACT

Kristy L. Kratz

A STUDY INVESTIGATING PARENTAL OBSESSIVE-COMPULSIVE DISORDER OF CHILDREN WITH AUTISM

2003/2004

Advisors: Dr. Dihoff and Dr. Klanderma
Master of arts in School Psychology

This study intended to look at the relationship of obsessive compulsiveness between parents of autistic children and parents of non-autistic children. A screening instrument in the form of a questionnaire was used to screen for traits and characteristics of obsessive compulsive disorder. A sample of 60 adults was used: 34 parents with children with autism and 26 parents of non-autistic children. The sample was further broken down into mothers and fathers of autistic and non-autistic children. Three hypotheses were tested using statistics such as Chi-Square measures. Results indicated that there was no relationship between parents of autistic children and non-autistic children in relation to obsessive compulsive traits and characteristics.

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Table of Contents

	Page
Chapter 1: Research Problem.....	1
Introduction.....	1
Need.....	2
Purpose.....	3
Hypothesis.....	3
Theory.....	4
Definitions.....	5
Assumptions.....	6
Limitations.....	7
Summary.....	7
Chapter 2: Review of Literature.....	8
Introduction.....	8
Characteristics of OCD and Autism.....	8
Pathophysiology of OCD and Autism.....	10
Behavior Therapy.....	14
Psychopharmacology.....	16
Family Histories and OCD and Autism.....	17
Summary.....	19
Chapter 3: Research Design.....	20
Sample	20
Measures.....	20
Hypotheses.....	21
Analysis.....	21
Summary.....	22
Chapter 4: Analysis of Data.....	23
Introduction.....	23
Analysis of Results.....	23
Summary.....	27
Chapter 5: Summary and Conclusions.....	28
Summary.....	28
Discussion.....	29
Conclusions.....	31
Implications for Further Research.....	31
References.....	33

List of Figures

	Page
4.1.....	24
4.2.....	25
4.3.....	26

Chapter 1 Research Problem

Introduction

Obsessive compulsive disorder is often connected to autism either in the autistic individual himself, displaying obsessive compulsive-like traits, or through family histories. Evidence does suggest that there is a genetic link between obsessive compulsive disorder and autism. This study would like to demonstrate the possible connection between children with autism and parental obsessive compulsive disorder. A relationship would be interesting and very useful linking parental obsessive compulsive disorder and autism.

In both the autistic and obsessive compulsive disorder there are many similarities of characteristics as well as traits that individuals with either disorder display. They are very similar in neuroimaging studies, repetitive thoughts and behaviors, and behavioral and psychopharmacological treatments for both disorders (Riddle et al., 1990). The repetitive thoughts and behavior symptoms of obsessive compulsive disorder and autism have similar successful therapies because the disorders are so alike. Successful therapy for obsessive compulsive disorder and autism are similar for the repetitive thoughts and behavior symptoms. Psychopharmacology, as well as behavior therapy, is a very effective treatment for both autism and OCD.

Selective serotonin reuptake inhibitors (SSRI) treat OCD patients as well as autistic patients because of the likenesses of the disorders and are relatively successful in treating symptoms of both disorders (Hollander, 1997). The primary drug treatment for

OCD may reduce the obsessive compulsive-like tendencies in autistic patients. Children with autism often show repetitive thoughts and behaviors. Obsessive compulsive traits and the OCD disorder were compared in parents of children with autism with high and low rates of repetitive behavior. If autistic children have a high occurrence of repetitive behavior, then the occurrence of obsessive compulsive traits or the disorder in parents is significantly more likely (Hollander, 2003).

Various abnormalities of brain function and structure are seen in people with OCD and autism, and there is a strong family history of OCD in both OCD subjects and those with autism. By examining the parents of autistic children, one can determine if there is a higher significance of parents with OCD having children with autism compared to parents of non-autistic children. The literature will also illustrate a genetic link between OCD traits and children with OCD and autism through family histories.

This study will explore the relationship of parental diagnosis of obsessive compulsive disorder and autism. This study will rely on self-reported information of obsessive compulsive traits in parents with an autistic child compared to parents with a non-autistic child. This study will show that one or both parents of autistic children will have characteristics and traits of obsessive compulsive disorder. Obsessive compulsive disorder and autism will be discussed, as well as comparing similarities and differences of characteristics, brain structure, treatments and therapy, and family histories.

Need

This study would like to demonstrate the possible link between children with autism and parental obsessive compulsive disorder. A link between these two disorders

would lead to better diagnoses and help to determine who is at a higher risk of developing autism. Medications then could be then targeted to the specific genetic problem areas in the brain in certain children with the disorder and an effective treatment for autism could then be developed to improve the quality of life for the individual. A correlation would be interesting and very valuable linking parental obsessive compulsive disorder and autism.

Purpose

The purpose of this study is to explore the relationship of parental diagnosis of obsessive compulsive disorder and autism. There is a need for more attention for people with autism and the family histories of possible psychological disorders. This study will focus on obsessive compulsive disorder and autism, and it will provide information where further research can be done.

This study will rely on self-reported information of obsessive compulsive traits in parents with an autistic child compared to parents with a non-autistic child. The comparison will show whether or not there are more reported obsessive compulsive thoughts and behaviors in parents with autistic children.

Hypothesis

This study will show that one or both parents of autistic children will have characteristics and traits of obsessive compulsive disorder. The study will lend support that there are high incidents of parental diagnosis or self-diagnosis of obsessive compulsive disorder of children diagnosed with autism and will be congruent with the

literature review. It will also show that fathers and mothers separately show more OCD traits when compared to fathers and mothers of non-autistic children.

Theory

There is evidence suggesting a genetic link between obsessive compulsive disorder and autism. They are very similar in neuroimaging studies, repetitive thoughts and behaviors, and behavioral and psychopharmacological treatments for both disorders (Riddle et al., 1990). Obsessive compulsive disorder is often connected to autism either in the autistic individual himself or through family histories. In both the autistic and obsessive compulsive disorder, there are many similarities of characteristics as well as traits that individuals with either disorder display. Children with autism do show characteristics of ODC such as having repetitive thoughts and behaviors, and these traits can be targeted with the same treatments such as behavior therapy or psychopharmacology.

Brain development is thought to be a causative factor in both OCD and autism. These abnormalities in the brain structure and function can be related to the interference of brain development resulting from the environment as well as genetics. Family histories of those with autism also report having OCD in their families. When there were reported histories of OCD, the autistic individual also showed a higher incidence of repetitive thoughts and behaviors.

The repetitive thoughts and behavior symptoms of obsessive compulsive disorder and autism have similar successful therapies because the disorders are so alike. Selective serotonin reuptake inhibitors (SSRI) treat OCD patients as well as autistic patients

because of these similarities and are relatively successful in treating symptoms of both disorders (Hollander, 1997). Behavioral therapy is also very successful, including integration, for target behaviors of both disorders.

Determining this genetic link between obsessive compulsive disorder and autism is very valuable and will help in future diagnostics of autism. By examining the parents of autistic children, one can determine if there is a higher significance of parents with OCD having children with autism compared to parents of non-autistic children.

Definitions

Asperger disorder- a neurobiological disorder that usually affects children with normal intelligence and language development, but also exhibits autistic-like tendencies and marked deficiencies in social and communication skills.

Autism- a psychiatric disorder of childhood characterized by marked deficits in communication and social interaction, preoccupation with fantasy, language impairment, and abnormal behavior, such as repetitive acts and excessive attachments to certain objects. It is also usually associated with intellectual impairment.

Compulsion- an act or acts performed in response to such an impulse.

Developmental disabilities (DD)- a mental or physical disability arising before adulthood and usually lasting throughout life.

Obsession- compulsive preoccupation with a fixed idea or an unwanted feeling or emotion, often accompanied by symptoms of anxiety.

Obsessive compulsive disorder (OCD)- a pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency, beginning by early adulthood and present in a variety of contexts.

Psychopharmacology- the study of drugs that affect the mind.

Selective serotonin reuptake inhibitors- a class of antidepressants that act within the brain to increase the amount of the neurotransmitter serotonin by inhibiting the re-uptake at synapses.

Assumptions

- 1) It is assumed that the surveys were responded to with integrity.
- 2) It is assumed that the surveyed population has no other disabilities.
- 3) It is assumed that the surveyed population fully understands the questions in the survey and responds accurately.
- 4) It is assumed that there will not be a direct correlation between obsessive compulsive traits in parents and autism.

- 5) It is assumed that there may be some shared characteristics between autism and obsessive compulsive disorder.
- 6) It is assumed that the parents are biological parents of the autistic and non-autistic children.

Limitations

- 1) Self-reported data is the only information collected.
- 2) The reliability of the study may be affected by the size of the surveyed population.
- 3) The findings may be limited due to the geographical and local area, being from Southern New Jersey and suburban areas.

Summary

In chapter 2, literature pertaining to this study will be reviewed. Obsessive compulsive disorder and autism will be discussed as well as comparing similarities and differences of characteristics, brain structure, treatments and therapy, and family histories. In chapter 3, the design of the study will be presented and the survey will consist of questions pertaining to obsessive compulsive disorder and traits one may experience even if not diagnosed as having the disorder. In chapter 4, a comparison will be made between groups and the results will be analyzed. In chapter 5, A discussion of the results of the survey and their significance will be discussed as well as a conclusion.

Chapter 2 Review of Literature

Introduction

This chapter will review some research about obsessive compulsive disorder and autism. Characteristics that are similar between the two disorders will be discussed as well as the similarities and differences of the pathophysiology of people with both disorders. Treatments for OCD and autism will be discussed such as behavior therapy and psychopharmacology as well as the effects of these treatments for people with these disorders. The literature will also illustrate a genetic link between OCD traits and children with OCD and autism through family histories.

Characteristics of Obsessive Compulsive Disorder and Autism

Obsessive compulsive disorder (OCD) is often undetected and untreated among individuals with developmental disorders. Approaches to screening for this disorder included record reviews, screening with the Goodman's Children's Yale-Brown Obsessive-Compulsive Scale and screenings with an instrument developed specifically for use in detecting OCD in the population of people with developmental disabilities (Gedye's Comprehensive Behavioral Checklist). There is a need for more research on people with developmental disabilities (DD) and OCD. Screenings for DD and OCD

could help with effective treatment and improved quality of life for individuals with developmental disabilities and OCD (Wilson & Walden, 2002).

Obsessive compulsive disorder is often related to high functioning autism and Asperger disorder. A study was done investigating the relationship of Cluster A personality disorders in subjects with OCD and in relation to high functioning autism and Asperger disorder. Sixty-four subjects participated and 20% of these subjects with obsessive compulsive disorder had autistic traits. Subjects with the autistic traits identified for anxious personality disorders and paranoid personality disorders more often than subjects without the autistic traits (Bejerot, 2001).

Children with autism often show repetitive thoughts and behaviors. The types and frequency of these repetitive thoughts and behaviors between autistic patients and OCD patients needs to be further researched as well as the pharmacological treatments of the different symptoms in each disorder (McDougle, 1995). Although these children show obsessions and compulsions, there are similarities to obsessive compulsive disorder. However, subjective data is lacking in autistic children and it is harder to completely compare the obsessions and compulsions in autistic children and OCD patients (Baron-Cohen, 1989).

A study was done on children aged 4-13 years with autism. The rate was examined of D8/17 expression and its correlation with severity of repetitive behaviors. The severity of repetitive behaviors significantly correlated with the D8/17 expression and D8/17 positive patients had significantly higher compulsion scores than those that were D8/17 negative. Compulsion severity is then concluded to be associated with high D8/17 expression (Cartwright et al., 1999).

Another study was conducted to investigate these repetitive thoughts and behaviors in adults with autistic disorder and compare them to adults diagnosed with obsessive compulsive disorder. Fifty patients with autistic disorder completed the symptom checklist of the Yale-Brown Obsessive-Compulsive Disorder. Fifty age and sex matched adults with OCD were compared. Both groups had repetitive thoughts and behaviors; however, the types of thoughts could be distinguished between groups. The repetitive thoughts and behavior characteristics are significantly different in autism and OCD (McDougle, 1995).

Although autism and OCD are very similar in exhibiting repetitive thoughts and behaviors, as pointed out, there are differences. The brain development as well as genetics in both disorders is implied to be causative factors in both disorders. Genetics as well as environmental factors interfere with normal brain development. Location in the brain is important, as are the areas that are associated with cognitive functions of learning disabilities, developmental disabilities, and attention deficit disorder. Neuropsychiatric, neuropsychological, and neuroanatomical abnormalities are found in people with obsessive compulsive disorder (Decaria, 1999).

Pathophysiology of OCD and autism

In OCD, a central role in the pathophysiology of the disorder is suggested to be neural dysfunction in frontal-subcortical circuits in the brain. Regional cerebral blood flow (rCBF) and neuropsychological functions and their relationship were studied. Fourteen unmedicated OCD patients and 14 health-matched controls were assessed on neuropsychological tests and the rCBF was studied with “-super (99m) Tc-hexamthl-

propyleneamine-oxime (HMPAO) single photon emission computed tomography (SPECT).” OCD patients did more poorly than controls ($p < .05$) on certain neuropsychological tests such as the Rey Complex Figure Test (RCF), Verbal Fluency Test (VFT), and the Wisconsin Card Sorting Test (WCST). Severity of OCD symptoms positively correlated with rCBF in the right thalamus. Non-perseverative errors on the WCST corresponded positively with rCBF in frontal areas and the anterior cingulate (Lacerda et al., 2003).

Cerebral circuits, involving the prefrontal and anterior cingulate cortices, the striatum, and the thalamus have been suggested in the possible role of pathophysiology of OCD. Regional cerebral blood flow (rCBF) was also measured with (99m-Tc) HMPAO single photo emission computed tomography in 16 drug free patients with OCD and 17 healthy matched subjects.

Four regions of interest identified by analysis covariance were significantly higher rCBF: the right superior and inferior frontal cortex and the right and left thalamus. Severity of symptoms measured by the Clinical Global Impression Scores and rCBF were positively correlated in the right and left inferior frontal lobes and the right basal ganglia. In the right thalamus, compulsive behavior was inversely correlated with rCBF and also the duration of illness as well as the right and left superior frontal lobes. This study and the findings provided additional support for involvement of prefrontal subcortical circuits in pathophysiology of OCD (Lacerda et al, 2003).

Various abnormalities of brain function and structure have been suggested but not a specific area reliably shown to be connected in studies of autism. Findings include increased brain volume, structure abnormalities in the frontal lobe and corpus collosum in

a proportion of individuals with autism. Blood flow and imbalanced inter-regional and inter-hemispheric brain metabolism as well as abnormalities in the anterior cingulate gyrus have been found using neuroimaging techniques (Deb & Thomson, 1998).

Regional patterns of cerebral synaptic activity are suggested from studies of brain metabolism and blood flow. Neurotransmitter studies using positron emission tomography “suggest abnormalities of serotonergic and dopaminergic function.”

Metabolic deficits in frontal cortex and cerebellum are being studied using magnetic resonance spectroscopy (Rumsey & Ernst, 2000).

Using magnetic resonance imaging, a volumetric analysis of the thalamus was conducted in 12 high functioning individuals with autism (mean age 21.0 yr) with a mean IQ of 106.4. There was a significant difference in thalamic volume and total brain volume only in the control group. The increase in thalamic volume with the increase in total brain volume was not seen in the autistic individuals. Because there was not a significant difference in the autistic group, it is suggested that there are underdeveloped connections between cortical and subcortical regions (Tsatsanis et al, 2003).

The frontostriatal system that deals with adaptive responses such as initiation, execution, or withholding leads to a range of neurodevelopmental disorders including OCD and autism. The disorders have this genetic component. Whichever disorder is dominant depends on the inherited genetic predispositions and on the environment on the frontostriatal system. Close relative may also have these genes but may adapt to given situations and environments (Bradshaw, 2000).

In the frontostriatal system there seems to be a dysfunction within the associative frontostriatal circuits in OCD. Cognitive frontal lobe performance is also lacking in OCD

(Schmidtke, et al., 1998). The actual symptoms of OCD are thought to be abnormalities in the orbital prefrontal cortex and the ventral striatal target fields. These abnormalities in the frontostriatal circuits may cause a basic disturbance of neurobehavioral inhibition in OCD (Rosenberg et al., 1997).

This inhibition control is also seen in developmental disorders as well as the deficits in the frontostriatal circuitry. The basal ganglia thalamocortical circuits underlie inhibitory control and the circuits and reflect a disruption of development of these circuits across a range of developmental disorders including autism (Casey, 2001).

A study of the basal ganglia in autistic patients revealed caudate enlargement and this enlargement may be a part of an abnormal distributed network as well part of the ritualistic-repetitive behavior in autism. High-resolution MRI scans were obtained from thirty-five high functioning autistic patients and thirty-six matched controls. Caudate enlargement was associated with compulsions and rituals, complex motor mannerisms, and difficulties with minor changes. A second MRI study was then done using MRI scans from thirteen autistic patients and twenty-five controls. Caudate enlargement in the basal ganglia was found in these autistic subjects as well (Sears et al, 1999).

A case report was done of a 73-year old woman who had no psychiatric problems. After a stroke, compulsive behaviors and depression surfaced. Identical symptoms to those that have been described in bilateral damage of the basal ganglia yet the stroke was located unilaterally in the left basal ganglia. The stroke seemed to be responsible for many OCD-like symptoms and was successfully treated with fluoxetine, lithium, and risperidone (Lopez-Rodriguez et al, 1997).

Studies of interventions that have significant treatment effects to those with autism and coexisting neuropsychiatric disorders including obsessive compulsive disorder was discussed. It was strongly suggested that neurochemical factors play a major role in autism and related neuropsychiatric disorders (Tsai, 1999). There is some pharmacological overlap between the OCD and autism as well as similar neuroimaging studies (Gross-Isseroff & Hermesh, 2001).

Behavior Therapy

Successful therapy for obsessive compulsive disorder and autism are similar for the repetitive thoughts and behavior symptoms. Behavior therapy as well as psychopharmacology particularly potent serotonin reuptake inhibitors, are both relatively successful in treating symptoms in both disorders (Hollander, 1997).

Behavioral therapy is a successful treatment for autism and its symptoms. Integration is the most successful. Many disciplines, treatment types, domains of behavior, treatment programs, and treatment providers all need to be integrated together for the most success in treating autism. Integration is very important because it involves sharing information from researchers to treatment providers, it helps maximize treatment success by being individualized, facilitates efficient and effective teaching, and it encourages consistency, which is very important in dealing with autistic patients and managing their behaviors (Schreibman & Anderson, 2001).

Behavioral treatments of the autistic disorder and other pervasive developmental disorders requires the identification of target symptoms as well as other comorbid disorders such as OCD (Cook, 1995). Behavioral treatments targeting OCD symptoms

are looked at. A study was done on a 17-year old male followed over a three-year time span. He had autism associated with obsessive compulsive rituals and ruminations, interpersonal deficits, and depression. Intensive behavioral treatment was implemented, as well as in vivo exposure modeling, response prevention, and social skills training. The compulsive ritual improved but the ruminations persisted as well as the social defects. There was a continuing improvement of the rituals (Lindley, 1977).

Also a study was done on a 42-year old male with moderate Intellectual disability (ID) and ritualistic behaviors congruent with features of autism or obsessive compulsive disorder. Results of differential reinforcement of inappropriate behavior program were successful in targeting ritualization and reducing social isolation. Inconsistent application led to termination of this study (Equable, 2002). Behavior therapy for a 35-year old autistic, severely mentally retarded male with OCD was also studied. Sensory extinction, escape extinction and combination of behavioral approaches were compared. Sensory extinction worked the most for self-injurious behaviors (Kuhn et al., 1999).

Another study was done on behavior therapy and OCD. Behavior techniques for 12 female and 8 male subjects (avg. age 37.2 yr.) with obsessive compulsive disorder included having the subjects confront obsessive stimulus, flooding the subjects with obsessive stimulus while helping him/her avoid compulsive reactions. The subjects also interrupt obsessive ideas by calling, "Stop," imitate a role model, and help is given inducing humor to detach subject from obsessive stimulus (Riviere et al, 1980). The treatment lasted from 2-24 weeks to 6-96 weeks. Twelve subjects improved 80-200%, five had improved 50-70%, one improved 30% and two subjects discontinued treatment.

It is concluded that behavioral therapy can improve upon long term symptoms of obsessive compulsive disorder (Julien, Riviere & Note, 1980).

Psychopharmacology

Psychopharmacology is also a very effective treatment for both autism and OCD. There is also a possible dysfunction of serotonin in patients with autism and mental retardation. Documented effective therapies are clompramine and selective serotonin reuptake inhibitors. These are used to treat obsessive compulsive symptoms as well as autism because of the similarities of the disorders (Aman, Arnold, & Armstrong, 1999).

Selective serotonin reuptake inhibitors (SSRI) treat obsessive compulsive spectrum disorders including autism. Compulsiveness is associated with increased frontal lobe and serotonergic activity and impulsiveness is associated with reduced activity in these areas. SSRI's are effective, and neural circuits affected by these serotonergic pathways are identified (Hollander, 1998). The primary drug treatment for OCD may reduce the obsessive compulsive-like tendencies in autistic patients. The serotonin reuptake inhibitors reduce repetitive tendencies of autistic patients and are more effective than relatively selective norepinephrine reuptake inhibitors and placebos in children with autism in two controlled studies (McDougle, Kresch, & Posey, 2000).

A case study was done on a 26-year old male with autism and mild retardation and a 42-year old female wit autism and moderate mental retardation. They were both treated for obsessive compulsive behaviors. The male was treated with fluoxetine and after treatment maintained more eye contact and became more social. His daily rituals also ceased. The female when put on the fluoxetine also improved (Koshes 1997).

Another case study was done on a 30-year old man with obsessive compulsive disorder and autistic disorder. Fluvoxamine, a serotonin reuptake inhibitor, was given and the core symptoms of both disorders improved (McDougle et al., 1990). In a follow-up study, out of 130 patients with obsessive compulsive disorder, only those who were treated with the SSRI's clozapine or citalopram/paroxetine were looked at. Fifty-one patients were treated with clozapine and 25 of these subjects were also autistic. Thirty-five patients (69%) showed a positive effect to the SSRI, 60% of those who were autistic (15). Citalopram/paroxetine was given to 37 patients and 7 had autism. Twenty-six patients (70%) had a positive effect and 56% (4) had autism (Thureson & Faerhstrand, 1999).

Another study was conducted dealing with drugs with prominent 5-HT-Sub-2 receptor antagonist properties to selective serotonin reuptake inhibitors. These showed positive effects in patients with major depression and treatment-refractory obsessive compulsive disorder. It also may be effective in dealing with symptoms of autism. A combination of 5-HT-Sub- (2A) antagonists and SSRI's and strategies to combine 5-HT-Sub- (2A) receptor and 5-HT transporter blockade in a single compound would be the most therapeutic in a number of neuropsychiatric disorders including autism and OCD (Marek & et al, 2003).

Family Histories and OCD and autism

Obsessive compulsive disorder and autism are very similar in neuroimaging studies, repetitive thoughts and behaviors, as well as in the behavior and psychopharmacological treatments for both disorders. Evidence suggests that there is a

genetic link between the two disorders. A study was done as well as a family history involving 21 children and adolescents with clinically referred obsessive compulsive disorder. The children and the family members each took part in a standard clinical psychiatric assessment. Fifty-seven percent of the family members reported controlling behaviors. Seventy-one percent of the children had a parent with obsessive-compulsive disorder or the obsessive-compulsive symptoms (Riddle et al., 1990).

Another study was done involving 20 children with obsessive compulsive disorder with a family history of OCD. These subjects were compared to 20 comparison patients. Only one mother had OCD behaviors in the comparison group; however, 5 fathers and 3 mothers had OCD behaviors of the children with OCD. Three fathers also had the disorder of the OCD patients (Thomsen, 1995).

Obsessive compulsive traits and the disorder were compared in parents of children with autism with high and low rates of repetitive behavior. One hundred seventy-six autistic probands from 57 multiplex families were assessed using the Autism Diagnostic Interview-Revised (ADI-R) for the rates of repetitive behaviors. A parental history questionnaire was used to screen parents for OCD as well as using the Yale-Brown Obsessive-Compulsive Scale Checklist. Children with high scores on the repetitive behavior section of the ADI-R were significantly more likely to have one or both parents with obsessive compulsive traits or disorder compared to those who had low scores of repetitive behaviors. Children with high scores on D1/D2 of the ADI-R were significantly more likely to have one or both parents, especially fathers, with OCD. If autistic children have a high occurrence of repetitive behavior than the occurrence of

obsessive compulsive traits or the disorder in parents is significantly more likely (Hollander, 2003).

Summary

The information and research discussed in this chapter provided a strong background for the formulation of this study. There are similar characteristics of OCD and autistic disorders as well as a significant response to the same treatments for these traits. Various abnormalities of brain function and structure are seen in people with OCD and autism and there is a strong family history of OCD in both OCD subjects and those with autism. Evidence does suggest that there is a genetic link between obsessive compulsive disorder and autism.

Chapter Three Research Design

Sample

The population surveyed will consist of about 50 parents of autistic children and 50 parents of non-autistic children. The children with autism are enrolled in a school that provides services to individuals with autism. The non-autistic children are enrolled in a public school in southern New Jersey. The ages of the children of the parents who will be surveyed range from 3 to 14.

Measures

This study involves an obsessive compulsive disorder screening test put out by the National Institute of Mental Health. The screening test will help determine OCD characteristics and will be completed by the parents of autistic and non-autistic children. The survey consists of two parts; part A involves a yes/no format which if the subject answers yes to two or more questions they continue on to part B. Part B involves a rating scale referring to the questions in part A. The scale ranges from 0 to 4: 0 (None), 1 (Mild), 2 (Moderate), 3 (Severe), and 4 (Extreme).

Hypotheses

Hypothesis 1

H1= Parents of autistic children will show more obsessive compulsive traits on the OCD screening test than the parents of non-autistic children.

H0= There will be no difference in the results of the OCD screening test between the parents of autistic children and the parents of non-autistic children.

Hypothesis 2

H1= Fathers of autistic children will show more obsessive compulsive traits on the OCD screening test than fathers of non-autistic children.

H0= There will be no difference in the results of the OCD screening test between the fathers of autistic children and the fathers of non-autistic children.

Hypothesis 3

H1= Mothers of autistic children will show more obsessive compulsive traits on the OCD screening test than mothers of non-autistic children

H0= There will be no difference in the results of the OCD screening test between the mothers of autistic children and the mothers of non-autistic children.

Analysis

The collected research will be analyzed using percentages and the statistical method of chi-square. The level of significance for these findings will be .05.

Summary

Chapter three included information on how the study will be conducted. The population that will be surveyed was presented as well as the instrument used to collect data and produce research findings. The method of analyzing the data was also discussed.

Chapter 4 Analysis of Data

Introduction

The following statistical analysis of the data in this study was computed using chi-square. Three hypotheses were tested comparing scores of obsessive compulsive traits in an OCD screening test in both parents of autistic children of non-autistic children, mothers of autistic children compared to mothers of non autistic children, and fathers of autistic children compared to fathers of non autistic children.

Analysis of Results

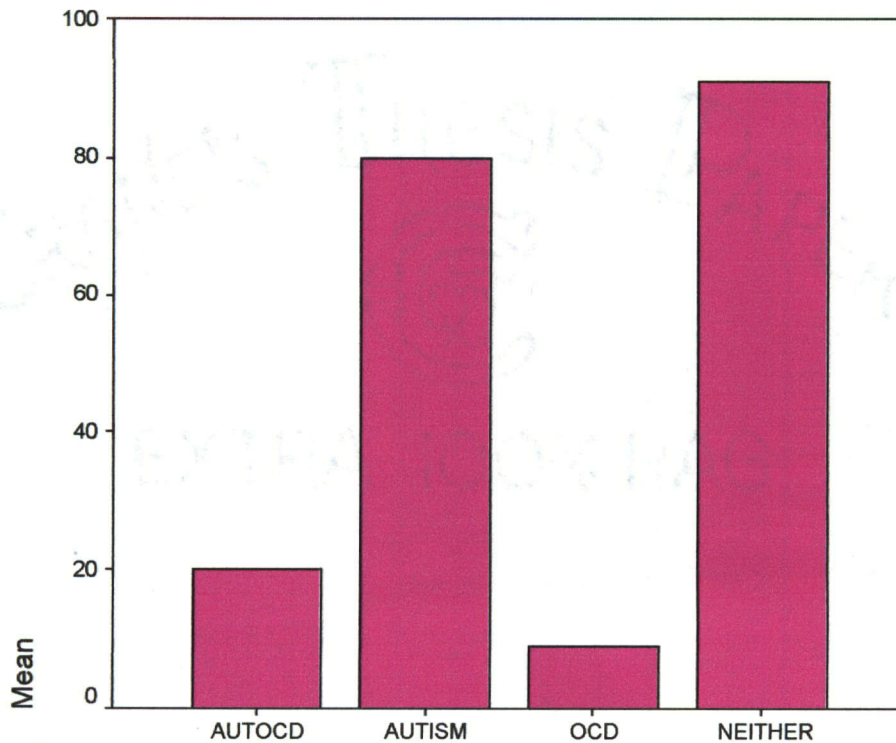
In hypothesis 1, it was stated that parents of autistic children were expected to have more obsessive compulsive traits on the OCD screening test than parents of non-autistic children. From analyzing the scores of the parents, a chi-square test showed no significance. Only 21% of parents with autistic children showed OCD-like tendencies compared to 15% of parents of non-autistic children. This confirms the null hypothesis that there will be no difference in the results of the OCD screening test from both groups of parents. Percentages can be shown in Figure 4.1 on the next page.

Table 4.1: Table of OCD and Autism in Parents of Autistic and Non-Autistic Children

	OCD Yes	OCD No
Autism Yes	21%	79%
Autism No	15%	85%

In Hypothesis 2, it was stated that the fathers of autistic children would show more OCD-like traits than fathers of non-autistic children. Again, by computing the chi-square, no significance was shown. Twenty percent of fathers with autistic children showed OCD-like traits and 9% of fathers of non-autistic children showed these traits. Again, the null hypothesis was confirmed that there was no significant difference in the results of the OCD screening test from fathers of autistic children compared to fathers of non-autistic children. A visual comparison between the samples is shown in Table 4.2.

Table 4.2: Bar Graph of Chi-Square Results Between Fathers



*AUTOCD- autistic child and OCD traits

*AUTISM- only autism and no OCD traits

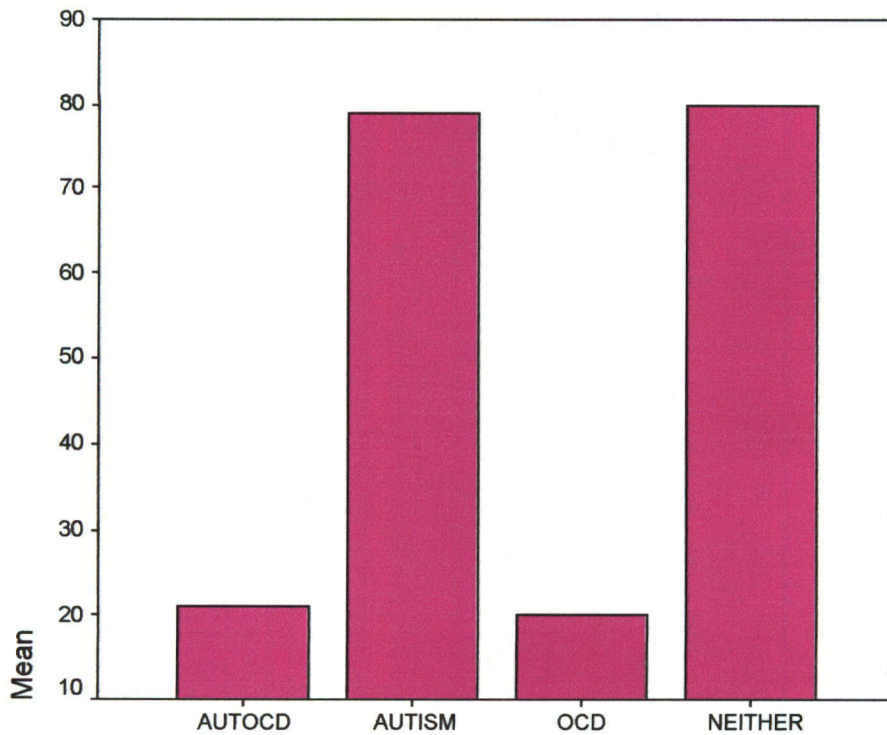
*OCD- only OCD and non-autistic child

*NEITHER- neither OCD nor autism

Hypothesis 3, which stated that mothers of autistic children would show more OCD traits on the OCD screening test than mothers of non-autistic children, also proved

to be not significant, using chi-square measures. Twenty-one percent of mothers with autistic children showed OCD like traits compared to 20% of non-autistic children's mothers. The third hypothesis, as well, confirms the null hypothesis that there is no difference in the results of the OCD screening test between the two groups of mothers.

Table 4.3: Bar Graph of Chi-Square Results Between Mothers



*AUTOCD- autistic child and OCD traits

*AUTISM- only autistic and no OCD traits

*OCD- only OCD and non-autistic child

*NEITHER- neither OCD nor autism

Summary

A total of three hypotheses were tested using chi-square statistical measures resulting in no significant findings. Therefore, on all three of the hypotheses, the null hypotheses were confirmed. There was no significant difference in any of the parents' scores on the OCD screening test.

Chapter 5 Summary and Conclusions

Summary

This study intended to explore the relationship of parental diagnosis of obsessive compulsive disorder and autism. A link between the two disorders would lead to a better understanding of autism and what may contribute to this developmental disorder. The literature does indicate a genetic link between obsessive compulsive disorder and autism. Obsessive compulsive disorder and autism are both very similar in characteristics they display, the brain structure and neurochemical dysfunction's, as well as having very similar treatments for both disorders. Both OCD and autism also have strong research indicating that the disorders are in family histories of both OCD patients and autistic individuals.

This study relied on self-reported information of obsessive compulsive traits in parents with an autistic child compared to parents with a non-autistic child. An obsessive-compulsive disorder-screening test was given to parents of autistic children and parents with non-autistic children and then compared. However, the results of the study were not congruent with the literature that there are higher incidents of parental obsessive compulsiveness of children with autism. A total of three hypotheses were tested using chi-square method of computation. Results of this study showed that there were no significant findings in any of the three hypotheses and that the null hypotheses were confirmed in all three cases. More research needs to be done on obsessive compulsive

disorder in parents of autistic children, as well as on the whole family history of an autistic individual, to determine if, in fact, there is a significant relationship.

Discussion

This study was done on the basis that more research needs to be focused on autism and the possible genetic connections to other disorders, such as obsessive compulsive disorder. Although this study found no significant link between parents of autistic children and OCD, research does indicate that a genetic link does exist. The two disorders are similar in neuroimaging studies, repetitive thoughts and behaviors, treatments as well as family histories.

Neuroimaging studies are similar in both obsessive-compulsive patients compared to autistic patients. The frontostriatal system is affected in both disorders, which affects responses such as initiation, execution, and withholding. (Sears et al., 1999). This inhibition control is seen in both autism and individuals with obsessive compulsive disorder. The deficits in the frontostriatal system and abnormalities in the basal ganglia are part of this genetic component. Close relatives may also have these genetic predisposition's but may adapt and change to give situations or environments (Bradshaw, 2000).

The reason for this study was to show that there was a genetic link between OCD and autism. Although the study was not congruent with the literature, other studies were done showing that there were links through family histories. Children with obsessive compulsive disorder show as a strong family history of OCD. Seventy-one percent of

children with obsessive compulsive disorder have parents with OCD or symptoms of it, according to one study (Riddle et al., 1990).

This study also used self-reported data. The parents who answered the OCD screening test may not have answered truthfully or may not have completed the survey at all. One may deny they have these characteristics or feel embarrassed or guilty. Although stressed that it would be a confidential and anonymous screening test, some parents may not have responded with integrity. This limitation could change the results of the whole study.

The characteristics of obsessive compulsive disorder and autism are similar in the repetitive thoughts and behaviors, although subjective data is lacking in autistic children because it is hard to compare the obsessions and compulsions in autistic and OCD children (Baron-Cohen, 1989). However, in one study, children with autism with high rates of repetitive behavior were significantly more likely to have one or both parents, especially fathers, to have obsessive compulsive traits or the disorder, compared to children with low repetitive behaviors (Hollander, 2000).

There is a need for more attention on individuals with autism and their family history to track all possible links. A few of the parents who responded to the OCD screening test, wrote back information stating that they have an autistic child and, although they do not have obsessive compulsive disorder or any OCD traits, they do have a history of it in their family. By looking at the extended as well as the immediate family, it may help support the theory that OCD does run in the family histories of autistic children. The child's grandmother, aunt, uncle or other family member may

suffer from this disorder or have some OCD characteristics, and although the parents do not have OCD nor show traits of it, it could still be genetic.

Conclusion

This research study intended to investigate the relationship between parental obsessive compulsive disorder and autism. Results indicated that there was no significant relationship between OCD and autism by using a statistical measure, chi-square. By computing chi-square, there was no significant finding for any of the three hypotheses. All three hypotheses confirmed the null hypotheses that there were no differences in OCD-like traits in parents of children with autism compared to parents of non-autistic children, also when broken down further between mothers and fathers.

Research, however, does indicate a genetic connection between OCD and autism that needs to be further studied. By researching the whole family history of an autistic individual, more information can be proven useful and important. Hopefully, further research and studies will indicate what causes autism and a way to prevent or better treat it.

Implications for Further Research

Further research needs to be done concerning autism and the causes of the developmental disorder. Treatments for autism need to be studied further, since a lot of the treatments for autism and even OCD can only target certain symptoms and not the disorders as a whole. This leads to research on pathophysiology and genetic research to

try to find out where the abnormalities are in the brain or genes, and if they can be prevented if possible or at least detected.

There needs to be further research on family histories of autistic individuals. There are many learning disabilities, psychological disorders, and personality disorders, such as attention deficit disorder and obsessive compulsive disorder, that can be traced in the family histories of those with autism. The same cluster of genes could be responsible for autism as well as one of these other disorders that are in their family.

If one were to replicate this study, there are suggestions for more successful and meaningful results. A larger sample size that would be more representative and would produce more accurate results would be advised. Also, by focusing on the whole immediate, as well as the extended family of an autistic child, would provide more insight and information that is necessary for the success of the study.

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