COMPARISON OF MEDICATION TREATMENT VERSUS COGNITIVE BEHAVIOR THERAPY OF HOARDING BEHAVIORS IN OBSESSIVE-COMPULSIVE DISORDER

A Research Project by

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Submitted to the Department of Physician Assistant
and the faculty of the Graduate School of
Wichita State University
in partial fulfillment of
the requirements for the degree of
Master of Physician Assistant

May 2007

Wichita State University

College of Health Professions

Department of Physician Assistant

We hereby recommend that the literature review prepared under our supervision by Christine Marie Powers entitled *Comparison of Medication Treatment vs. Cognitive Behavior Therapy of Hoarding Behaviors in Obsessive-Compulsive Disorder* be accepted as partial fulfillment for the degree of Master of Physician Assistant.

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ACKNOWLEDGMENTS

I would like to thank my advisor Tim Quigley for his guidance and encouragement throughout the completion of this literature review. I also would like to acknowledge the staff of Wichita State University's Library in assisting me to obtain the articles needed for my Evidence Based Medicine Literature Review.

ABSTRACT

Obsessive-compulsive disorder (OCD) can be difficult to treat due to patient non-compliance and treatment efficacy. This anxiety disorder presents in behaviors such as checking, washing, repeating/counting, ordering/symmetry, harming obsessions, religious/sexual obsessions, obsessional slowness, pure obsessions and hoarding. Of these behaviors, hoarding is the most difficult to treat. Hoarding is defined as the inability to throw away items that are useless. *Objective:* To determine the best possible therapy for individuals with hoarding behaviors comparing the use of psychotropic medications, cognitive behavioral therapy (CBT) or both. *Method:* A comprehensive evidence-based medicine (EBM) literature review was conducted using Medline, PubMed, and FirstSearch databases. Included articles were published in English between 1995 and the present. Studies were then ranked Level 1, 2 or 4 based on the quality of the study design. Level 3 articles were not available for this topic of study. *Results:* Of the 17 studies that met the inclusion criteria in this comprehensive EBM analysis, five were used primarily as background information, one supported the use of medication along with CBT, two supported the use of CBT alone, one did not support the use of medications, two did not support the use of CBT, one did not support either the use of medications or CBT, and five were inconclusive. *Conclusion:* This analysis warrants a Level C recommendation (inadequate number of Level 1, 2 or 3 studies) for use of medications with CBT, medication treatment alone or CBT alone. This patient population often does not recognize the seriousness of their illness and are non-compliant. Due to this dilemma more research must be performed and data obtained from Level 1 and 2 studies to search for the most effective treatment of hoarding.

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CHAPTER 1

INTRODUCTION

According to the DSM-IV, obsessive-compulsive disorder (OCD) is classified as an anxiety disorder. OCD involves repeated thoughts or obsessions and repeated behaviors or compulsions. Obsessions are images, thoughts, or impulses that cause a person anxiety; compulsions are acts that are repeated mentally or behaviorally in response to the anxiety caused by the obsessions. The individual experiencing these obsessions and compulsions feels compelled to continue with this behavior even though the individual is aware that these thoughts and behaviors may not be rational or appropriate. Trying to halt or take control of these thoughts and behaviors leads to great distress in the individual experiencing them.[1]

Treatment for OCD is obtained by medication, cognitive-behavioral therapy or a combination of both. The drugs of choice for this disorder are serotonin reuptake inhibitors.[2] If medication is discontinued, exacerbations of the symptoms usually occur because this disorder is lifelong.[3] Behavioral therapy involves gradual exposure to anxiety-causing stimuli and prevention from engaging in their compulsions. Cognitive techniques are used to correct thought processes that contribute to OCD symptoms.[4]

Obsessive-Compulsive Disorder can present in childhood or adulthood. This disorder can also present in a variety of behaviors such as checking, washing, repeating/counting, ordering/symmetry, harming obsessions, religious/sexual obsessions, obsessional slowness, pure obsessions and hoarding.[2] Although all of these behaviors are anxiety provoking, the one that has been shown to be the most difficult to treat is hoarding. Hoarding is defined as the inability to throw away items that are useless. Brain scans have shown specific patterns in the anterior

cingulate gyrus in people with hoarding disorder in OCD. Abnormalities in this area interferes with cognitive and emotional functioning.[5]

The following characteristics are present in the typical hoarder:

1. The compulsive hoarder obtains and is unable to discard useless or invaluable items.
2. The living space of the compulsive hoarder is cluttered to the extent so that normal activity cannot be allowed in that space.
3. Significant distress is caused by the hoarding activity to the extent that functioning is impaired.[5]

Not only is this behavior distressing to the individual, it also causes concerns of physical safety, fire risk, sanitation, failure to seek health care, and loss of important items.[5] One reason why this aspect of OCD is so difficult to treat is because of the noncompliance to treatment that these individuals often possess.[6]

Purpose of the Study

Of all of the subcategories of OCD, hoarding is the most difficult to treat.[7] Poor response to cognitive behavioral therapy (CBT) and medications is known to be related with this aspect of OCD. The anxiety levels are higher in people with hoarding symptoms and because of this their ability to gain insight on treatment benefits is decreased. This leads to decreased compliance to treatment. The purpose of this study is to determine the best possible therapy for individuals with hoarding behaviors regarding the use of medications, CBT or both.

Table 1
Characteristics of OCD

Characteristic of Compulsion	Description of Compulsion	Related Obsession
Checking	Repeated verification that certain tasks are completed.	Failure to repeatedly check would end in harm to others or risk that a mistake could be made.
Washing	Repeated and excessive cleaning of self or objects.	The end result of missed germs or dirt could lead to contamination of self or others.
Repeating/Counting	Repeated assessment of a task which must be completed a certain number of times to ensure it is properly managed.	If not allowed to repeat a task a selected number of times could lead to harm to others or mistakes.
Ordering/Symmetry	Management that objects are in their proper placement.	Others having control of one's possessions could lead to disorder.
Hoarding	A need to obtain items whether needed or not.	An item which is disposed of may be needed in the future.
Harming	A need to not have possible harmful objects around oneself or to be in situations where one may feel the urge to harm.	A fear that having knives or other harmful objects would cause one to harm another.
Religious/Sexual	Completing religious or sexual tasks.	If the ritual is not completed harm would fall onto others.
Primary Obsessional Slowness	Tasks are completed at an exceptionally slow rate.	Speeding through a task could lead to mistakes.
Pure Obsessions	No related compulsion.	Repeated, intrusive thoughts in the absence of a compulsion.

CHAPTER 2

METHODOLOGY

The data for this study was collected by performing an evidence-based literature review. Only peer-reviewed literature was included and obtained by searching Medline, PubMed, and FirstSearch databases. The MeSH terms used in the search consisted of the following: hoarding, hoarding disorder, obsessive compulsive disorder, treatment of hoarding, and treatment of obsessive compulsive disorder. Articles for the study were chosen based on relevance of the data, study type, journal type and levels of evidence. Articles were also chosen based on how efficiently the data was linked to the hypothesis of the study. Some articles included in this literature review were used for the sole purpose of background information. All articles were required to be in English and were published between 1995 and the present. Of the articles used in the literature review, half were level 1 or 2. The need to include Level 4 articles was pertinent due to the lack of investigation of this particular topic. Level 3 articles were not available for this comprehensive EBM.

Table 2
Levels of Evidence

Level 1	Evidence obtained from at least one randomized controlled trial.
Level 2	Evidence obtained from one or more cohort study.
Level 3	Evidence obtained from one or more case-control study.
Level 4	Evidence obtained from case-series or expert opinion.

The exclusion criteria of this literature review consisted of the following: studies that did not investigate the treatment of hoarding in OCD, studies that provided no background on the topic of OCD and/or hoarding, and articles which focused primarily on the overall treatment of OCD but did not include the treatment of hoarding.

CHAPTER 3

LITERATURE REVIEW

Pharmacological Studies

Two articles pertaining to pharmacological treatment alone of hoarding disorder met inclusion criteria. One article was rated as Level 1 and was a double-blind, placebo controlled trial. The second article regarding pharmacological treatment was rated as Level 2 and was a retrospective cohort study.

Serotonin reuptake inhibitors (SRIs) and selective serotonin reuptake inhibitors (SSRIs) are the mainstay of treatment for OCD and other anxiety and depressive disorders. Both SRIs and SSRIs inhibit serotonin reuptake in the CNS neurons. Serotonin is a central neurotransmitter which regulates emotion, mood, appetite and sleep.[8]

In a Level 1, double-blind, placebo-controlled trial conducted by Mataix-Cols et al, the different characteristics of OCD were separated out and it was determined how these characteristics related to sex, age onset, comorbidity and chronic tic disorders.[9] This study also compared treatment of the separate characteristics of OCD between placebo and SRI/SSRI treatment. One hundred and fifty participants who where evaluated on severity of OCD using the Yale-Brown Obsessive Compulsive Scale (YBOCS) and the National Institute of Mental Health (NIMH) OCD scale were included. It was also determined that none of the subjects were depressed by using the Hamilton Depression Rating Scale (HDRS). The medications administered were sertraline, paroxetine, fluvoxamine and fluoxetine. In separating out hoarding and its response to SRI and SSRI treatment it was determined that hoarding out of the other characteristics of OCD faired poorer in response to SRI and SSRI treatment. Predictors to placebo response were not identified.

In the Level 2, retrospective cohort study conducted by Seedat et al, response to medical treatment was observed as well as demographic and clinical characteristics of hoarding behavior in patients with OCD.[10] This was a small study with only 15 subjects. Recruitment of these subjects came from an OCD clinic and all subjects met DSM-IV criteria and were rated on the YBOCS. A questionnaire was used to measure distress, control, resistance, insight and interference in the treatment of hoarding. The SSRIs evaluated in treatment were citalopram and fluoxetine along with one antipsychotic, haloperidol. Nine of the subjects received no medication treatment and they did not view hoarding as a problem in need of treatment. Four subjects received citalopram and of these, half experienced good response and half poor response to treatment. One subject received fluoxetine and reported good response to treatment. It was difficult to determine the reliance of the subjects in answering the questionnaire due to their perception of hoarding severity.

Cognitive Behavioral Therapy Studies

Five articles that reviewed the effectiveness of cognitive behavioral therapy alone in the treatment of hoarding disorder met inclusion criteria. Of these five articles, one was rated Level 1 as a randomized controlled trial. Two articles were rated Level 2 as cohort studies and two articles were rated Level 4 as case-series.

Mataix-Cols, et al performed a Level 1, multi-centre randomized control trial which evaluated the response and compliance of one hundred and fifty-three patients to behavioral therapy and relaxation.[11] Of these participants twenty displayed hoarding symptoms. Only five of these twenty responded to the behavioral therapy and relaxation. When comparing this result to the one hundred and fifty-three patients involved in the study the only other sub-category of OCD that responded to a lesser degree were those with sexual/religious symptoms. It was also

found that the participants with hoarding disorder had a higher drop out rate of 27% than compared to the other sub-categories of OCD with a rate of 12%. This reflected in the lower success rate of hoarding with behavioral therapy. Mataix-Cols, et al concluded that this type of treatment needs improvement and refinement in order for it to be successful not only in hoarding disorder but in all aspects of OCD.

In a Level 2 cohort study performed by Steketee, et al seven participants underwent extensive and modified CBT.[12] It was observed in this group that because of their hoarding disorder they had difficulty with concentration when given the task of discarding and organizing possessions. In this study the participants underwent 15 group treatment sessions which lasted 2 hours over a time period of 20 weeks. In-home treatment sessions were provided for three of the participants after the initial 20 weeks. The focus of these sessions was education about hoarding disorder and practice in organizing and decision-making. Behavioral exposure and cognitive remodeling were also addressed. One participant dropped out of the study before the final measurements could be conducted. The six remaining participants showed an average decline of their YBOCS score from 22.3 to 18.7 after 20 weeks of treatment. After four of these six clients remained in treatment for an additional year the average decline in their YBOCS score fell from 20.3 to 14.8. It was concluded that when CBT alone addresses specific problems with hoarding an overall improvement in symptoms is obtained especially with an extended duration of treatment. It was also noted that the group therapy helped the clients to remain accountable for assignments given during therapy.

In a Level 2 retrospective cohort study completed by Drummond, Turner and Reid, CBT response was measured in fifty randomly chosen individuals.[13] These individual cases were pulled from records dating between 1988 and 1994 at the Behavioural Psychotherapy Inpatient

Unit at Springfield Hospital in London, England. All of the selected individuals had a primary diagnosis of OCD. Out of the fifty patients with OCD, 8% had symptoms of hoarding, self-neglect and difficulties with household members due to their hoarding. The items used for assessment of their progress were a 39-item Self-Completion Questionnaire and the 13-item Beck Depression Inventory. After treatment at the hospital results showed that individuals with hoarding disorder responded more poorly to CBT when compared to other subcategories of OCD.

Hartl and Frost presented a Level 4 case study of a 53 year old female with compulsive hoarding and how CBT helped her.[14] This individual had accumulated enough clutter to take up 70% of her living space. She underwent 45 sessions which spanned over 17 months that included training, exposure and cognitive restructuring. She was trained in decision making and categorization skills as well as learning what to discard. Results were measured using ratios of clutter (CR) to room space over a time period of 17 months. This subject also self-reported her progression using a 24-item Likert scale questionnaire referred to as a Hoarding Scale (HS). The HS assesses behavior of discarding, decision making problems with discarding, emotions related to possessions and discarding, frequency of use of possessions and the concern related to future need of these possessions. Her progress was also assessed using the YBOCS prior to treatment and after 24 sessions. Another Likert scale, a 15-item Indecisiveness Scale (IS), was used to assess decision-making difficulties experienced by the subject. After the 17 months of treatment floor clutter ratios decreased from $M = 0.54$ to $M = 0.02$. Furniture clutter ratios decreased from $M = 0.85$ to $M = 0.05$. HS scores decreased from 95 to 72 and IS scores decreased from 49 to 40. YBOCS pre-treatment score of 26 decreased to 17. Hartl and Frost concluded that their case

study showed that CBT in hoarding can be successful. They also suggested streamlining this treatment program and testing it on larger samples.

Cermele, et al presented another Level 4 case study of a 72 year old female who exhibited symptoms of hoarding for the past 10 years.[15] 75% of her home was occupied by clutter. Interventions of assessing the clutter, planning how to eliminate the clutter and the actual act of dehoarding were performed. During this time it was stressed that she remained in charge of the dehoarding process while receiving positive feedback. The therapists were also active in helping her with the discarding and removal of items from the subject's home. Success in CBT was measured by the percentage of clutter removed, the subject's ability to function during the process and her ability to continue with the dehoarding process after initial treatment was completed. In the first day alone, along with the aid of her therapists, the reduction in household clutter reduced to 52%. In a total of three months she was able to sort, remove unneeded items and make necessary repairs of her home on her own. She then sold her home and moved out of state where contact with the therapists ended. However, during this time it was evident that the improvement of her cognitive-behavioral decision making skills aided her in dehoarding her home.

Medication Augmented With CBT

Four articles were reviewed that included studies evaluating medication treatment along with CBT. Of these articles one was a Level 1 randomized, double blind study, another was a Level 2 retrospective cohort study and the remaining two articles were Level 4 case study and case series respectively.

Black, et al performed a Level 1 randomized, double blind study in 38 participants who met DSM-III-R criteria for OCD and who also were in good physical health.[16] These

participants were split up between a 12 week medication study preceded by 2 week discontinuation of all psychotropic medications and a 12 week CBT study preceded by 2 weeks of observation. Medication protocol consisted of paroxetine 20 mg, 1 tab or placebo administered in a double-blind fashion and given 1 tab per day for 7 days then 2 tabs a day for 7 days then up to 3 tabs a day. These dosages were decreased or slowed with side effects. CBT therapy was given to participants requesting non-drug therapy and who had received no prior experience with CBT. Evaluation of the effectiveness of paroxetine in 20 mg, 40 mg, and 60 mg versus CBT therapy in treatment of hoarding symptoms were measured using National Institute of Mental Health Obsessive-Compulsive Scale (NIMHOCS), YBOCS, Symptom Checklist 90, and Maudsley Obsessive-Compulsive Inventory. After this 12 week time period only 50% of paroxetine-administered subjects responded to therapy compared to 60% of subjects receiving CBT.

A retrospective cohort, Level 2 study conducted by Saxena, et al included 190 participants diagnosed with OCD, of which 11% displayed hoarding symptoms.[7] Two groups were formed consisting of hoarders (N=20) versus nonhoarders (N=170). These participants received intensive daily CBT and psychosocial rehabilitation in both individual and group settings which took place over six weeks. The 11% of compulsive hoarders primarily focused on their hoarding symptoms during treatment. Along with CBT these patients received SRIs along with antipsychotics, antidepressants, mood stabilizers and anxiolytics. Outcomes were measured using YBOCS, Hamilton Rating Scale for Depression (HAM-D), Hamilton Rating Scale for Anxiety (HAM-A), and Global Assessment Scale (GAS) for overall psychosocial functioning. YBOCS and HAM-D pretreatment scores were close to identical in both groups. However, GAS scores were lower for hoarders which implied lower levels of functioning socially and

occupationally. HAM-A scores were higher for hoarders than nonhoarders which indicated a higher level of anxiety for hoarders. Post treatment scores showed improvement for both hoarders and nonhoarders with OCD. As expected, nonhoarders experienced a greater decline in YBOCS scores than hoarders. This indicated greater improvement in OCD symptoms with treatment of nonhoarders. Of the participants with hoarding symptoms 45% reflected improvement with CBT and medication treatment. This compares to 63% of nonhoarding participants who had improvement of symptoms. Both groups had improvements in GAS scores and equal declines in HAM-D and HAM-A scores. Although both groups improved in OCD symptoms, hoarders still faired more poorly with regards to overall severity of symptoms and functioning.

Saxena and Maidment describe a Level 4 case study of a 50 year old female with history of OCD since she was a child.[17] The current form of her OCD was severe compulsive hoarding. She had undergone medication therapy with paroxetine 50 mg per day and outpatient CBT, which were both unsuccessful. Her next choice in treatment was admission to UCLA OCD Partial Hospitalization Program (PHP) for inpatient CBT and medication treatment. Upon admission her YBOCS score was 30 and her 21-item Hamilton Depression Rating Scale (HDRS) was 21. This subject underwent 6 weeks involving 5 days a week of 4 hour sessions of CBT and a change in her medication from paroxetine to venlafaxine 300 mg per day. She also had weekend homework involving one hour a day of organizing preassigned items. After the treatment course was completed her living and dining areas were cleared. Her YBOCS score decreased to 16 and her HDRS score decreased to 5. After this time period she continued with outpatient therapy to clear out the remainder of her home. When she followed up 4 months later her YBOCS score decreased even further to 14.

Finally a Level 4 case series and literature review conducted by Winsberg, Cassic and Koran describes the treatment response of 20 subjects with hoarding behavior in OCD.[18] Nine of these participates were female and eleven were male. Thirteen of these participants reported that hoarding was their major symptom of OCD. Fourteen participants reported that hoarding was their main therapy focus. SRIs were given to 18 of the participants who retrospectively rated their improvement after 8 to 12 weeks of treatment. The SRIs administered were clomipramine 150 mg daily, fluoxetine 20 mg daily, fluvoxamine 150 mg daily, paroxetine 40 mg daily, and sertraline 50 mg daily. CBT was utilized for 8 participants and 7 of these also received pharmacotherapy. Of the 18 participants who received SRI therapy, only 6% reported a marked response, 89% reported partial response, and one participant reported little to no response to SRI therapy. The one participant who received CBT alone had a 36% drop on his YBOCS score. Of the 7 participants who received CBT along with SRIs, 3 had at least a 25% improvement of their YBOCS score.

CHAPTER 4

RESULTS

Of the 17 studies that met the inclusion criteria in this comprehensive EBM analysis, five were used primarily as background information, one supported the use of medication along with CBT, two supported the use of CBT alone, one did not support the use of medications, two did not support the use of CBT, one did not support either the use of medications or CBT, and five were inconclusive. Of the eleven articles used in the literature review, three were Level 1 (evidence obtained from at least one randomized controlled trial) and four were Level 2 (evidence obtained from one or more cohort study). Articles that would be rated Level 3 (evidence obtained from one or more case-control study) were not available for this research topic. It was necessary to include four articles which met Level 4 criteria (evidence obtained from case-series or expert opinion) due to the lack of investigation of this particular topic.

CHAPTER 5

CONCLUSION

Based on this comprehensive evidence based medicine literature review, there is a lack of sufficient evidence as to the effectiveness of treatment of hoarding. This analysis warrants a Level C recommendation (inadequate number of Level 1, 2 or 3 studies) for use of medications with CBT, medication treatment alone or CBT alone. More research must be performed and data obtained from Level 1 and 2 studies to search for the most effective treatment of hoarding. Because this patient population often does not recognize the seriousness of their illness and the safety implications involved, they do not seek medical attention. For the patients who do seek medical attention for hoarding, they are often non-compliant in treatment due to only seeking medical treatment to appease family and friends who urge them to be treated. The individual and varying response to treatment of individuals with OCD involving hoarding disorder requires strict systematic study to conclude the best possible treatment in this life-altering mental illness.

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APPENDIX A

TABLE 1: Studies evaluating hoarding treatment efficacy					
TREATMENT	**AUTHOR**	**LEVEL OF EVIDENCE**	**EFFECTIVE**	**NOT EFFECTIVE**	**INCONCLUSIVE**
PHARMACOLOGICAL STUDIES	Maitaix-Cols, et al	1		√	
	Seedat, et al	2			√
CBT STUDIES	Maitaix-Cols, et al	1		√	
	Drummond, et al	2		√	
	Hartl & Frost	4	√		
	Cermele, et al	4	√		
	Stedetee, et al	2			√
CBT & PHARMACOLOGICAL STUDIES	Black, et al	1			√
	Saxena, et al	2			√
	Sexena & Maidment	4	√		
	Winsberg, Cassic & Koran	4			√
		TOTAL	**3**	**3**	**5**

APPENDIX B

PHARMACOLOGICAL STUDIES

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
1 Double-blind, placebo-controlled trial YBOCS and NIMH OCD scale used to diagnose.	Use of Factor-Analyzed Symptom Dimensions to Predict Outcome With Serotonin Reuptake Inhibitors and Placebo in the Treatment of Obsessive-Compulsive Disorder D Mataix-Cols, SL Rauch, PA Manzo, MA Jenike, L Baer Am J Psychiatry 1999	Determine what sx dimensions best summarize the heterogeneous phenomenology of OCD. Determine how those dimensions are related to sex, age of onset, and comorbidity with chronic tic disorders. Determine how those dimensions are related to treatment outcome with SRIs. Determine if any predictors of placebo response.	150 participants Participants were determined to not be depressed according to the Hamilton Depression Rating Scale	Six double-blind, placebo-controlled trials 84 participants received an SRI 66 participants received a placebo	Improvement of sx after SRI treatment compared with improvement of sx after placebo treatment using YBOCS.	Higher scores were noted for obsessions and compulsions related to hoarding in comparison with other dimensions of OCD. Hoarding obsessions and compulsions are associated with poor response to SRIs. No predictors of placebo response were identified.	None reported.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
2 Retrospective Cohort Small sample size and reliance on subject's perception of hoarding severity. Diagnoses based on DSM-IV and YBOCS.	Hoarding in obsessive-compulsive disorder and related disorders: A preliminary report of 15 cases S Seedat, D Stein Psychiatry and Clinical Neurosciences 2002	Demographic and clinical characteristics of hoarding behavior in subjects with OCD and OCD-related disorders. Describing psychopathology, family history, and treatment response.	15 subjects 11 women 4 men Hoarded an avg of 7 item types. Avg duration 13 years. Avg age 41.8 years. Recruited from an OCD clinic and newspaper advertisement.	25-question hoarding questionnaire.	Family history, hoarding characteristics, treatment and course of disorder. Items on the questionnaire that were rated on a Likert scale from 'none' to 'extreme' were distress, control, resistance, insight and interference.	4 subjects treated with citalopram; half good response and half poor response. 1 subject treated with fluoxetine with good response. 1 subject treated with antipsychotic haloperidol with no response. 9 subjects received no medication treatment. Majority of patients did not view hoarding as a problem in need of treatment.	None reported.

APPENDIX C

COGNITIVE BEHAVIORAL THERAPY STUDIES

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
1 Randomized controlled trial Diagnosis based on YBOCS and HAM-D scores.	Obsessive-Compulsive Symptom Dimensions as Predictors of Compliance with and Response to Behaviour Therapy: Results from a Controlled Trial D Mataix-Cols, IM Marks, JH Greist, KA Kobak, L Baer Psychotherapy and Psychosomatics 2002	Determine whether previously identified OCD dimensions respond and are compliant to behavior therapy.	153 outpts with OCD 52 of the 153 fell under the subcategory of hoarding disorder.	10 week treatment 1. Exposure and ritual prevention (ERP) guided by computer and a manual or 2. ERP guided by a therapist or 3. Relaxation guided by audiotape	Response to treatment with relaxation and behavioral therapy in all subcategories of OCD.	BT was successful in pts with aggressive/checking, contamination/cleaning and symmetry/ordering sx. BT was less successful for hoarding sx due to their propensity to drop out earlier from tx. Sexual/religious obsessions responded more poorly than hoarding.	Hoarding was over-represented due to a commercial for the study which portrayed a hoarder and was shown in 10 states. 17% of pts did not complete the study. 27% of the 52 pts with hoarding sx dropped out prematurely. 12% of 101 pts without hoarding sx dropped out prematurely.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
2 Cohort study Diagnosis based on the Anxiety Disorders Interview Schedule (ADIS). Results based on YBOCS.	Group and Individual Treatment of Compulsive Hoarding: A Pilot Study G Steketee, R O Frost, J Wincze, K Greene, H Douglas Behavioural and Cognitive Psychotherapy 2000	Determine if administering cognitive-behavioral therapy (CBT) in group and individual settings for an extended length of time and specifically aimed at treating hoarding in OCD is beneficial.	7 participants who sought treatment for problems with excessive hoarding. 5 of the 7 participants were taking an SSRI and 2 of the 5 were also taking an additional anxiolytic or antidepressant agent which they reported as not relieving their hoarding symptoms.	Group CBT treatment • 15 x 2-hour sessions over 20 weeks • Sessions 1-10 met weekly • Sessions 11-15 met every other week After the 15 sessions 3 of the participants were individually treated in their home for 28 additional weeks (14 sessions).	Y-BOCS • Before treatment • After 20 weeks • After 48 weeks Participant self-rating as percentage change in symptoms.	Y-BOCS • Mean measure before treatment 22.3. • Mean measure after 20 weeks 18.7. • Mean measure for the four clients who continued treatment after one year 14.8. The presence or type of medication was not associated with benefit.	3 participants dropped out after the last session of group treatment although protocol was to continue individual treatment for an additional 6 months.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
2 Retrospective Cohort Study	Diogenes' syndrome – a load of old rubbish? L M Drummond J Turner S Reid Ir J Psych Med 1997	Detect presence of hoarding in individuals treated for OCD and measure their response to treatment.	50 participants with OCD who were randomly selected from admission dates between 1988 and 1994 to Behavioural Psychotherapy Inpatient Unit at Springfield Hospital, London.	39-item self-completion questionnaire 13-item Beck Depression Inventory	Pre and post CBT response	Of all of the participants with OCD the ones who had all three characteristics of Diogenes' syndrome (self-neglect, domestic squalor and hoarding) had a lesser reduction in symptoms after treatment.	None noted.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
4 Case Study YBOCS used for pt diagnosis	Cognitive-behavioral treatment of compulsive hoarding: a multiple baseline experimental case study TL Hartl, RO Frost Behaviour Research and Therapy 1999	Describes the use of cognitive-behavioral treatment in a case study of an individual with compulsive hoarding.	53 year old female	Treatment Program included 45 sessions of: 1) training in categorization and decision making 2) exposure to discarding and habituation 3) cognitive restructuring	• Clutter ratio • Self-report of hoarding, obsessive-compulsive symptoms and indecisiveness • YBOCS • 15-item indecisiveness scale	After CBT • Floor clutter ratios decreased from M=0.54 to M=0.02 • Furniture clutter ratios decreased from M=0.85 to M=0.05 • Self-report of hoarding scale decreased from 95 to 72 • Self-report of indecisiveness scale decreased from 49 to 40 • YBOCS pre-treatment score of 26 decreased to 17	None noted.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
4 Case Study	Intervention in Compulsive Hoarding JA Cermele, L Melendez-Pallitto, GJ Pandina Behavior Modification 2001	Discussion of an intervention using the cognitive behavioral model proposed by Frost and Hartl. This model includes: • Information processing • Emotional attachment problems • Behavioral avoidance • Beliefs about the nature of possessions	72 year old female	1) Assessment of clutter 2) Planning 3) Dehoarding Stressed that: • She was in charge of deciding how and if the dehoarding took place. • She would be provided with support and positive feedback. • The therapist would take an active role in helping with the discarding and removal of items from her home	Assessment of clutter outcome was measured by her ability to organize her thoughts and tolerate anxiety. Dehoarding was measured by her ability to function during this process. Also, after treatment was terminated she was able to continue with the dehoarding process.	Clutter was reduced from 75% of her home to 52 % of her home initially. In three months she had sorted, dehoarded and made necessary home repairs. In 5 months she sold her home.	None noted

APPENDIX D

CBT AND PHARMACOLOGICAL STUDIES

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
1 Randomized, double blind and Open trial of CBT YBOCS score of 16 or greater NIMHOCS score of 7 or greater HAM-D score of 16 or greater	Hoarding and Treatment Response in 38 Nondepressed Subjects with Obsessive-Compulsive Disorder D Black, P Monahen, J Gable, N Blum, G Clergy, P Baker J Clin Psychiatry 1998	Evaluate efficacy of paroxetine in 20 mg, 40 mg or 60 mg versus CBT in tx of hoarding in OCD.	38 participants Meet DSM-III-R criteria for OCD and in good physical health. 2 week discontinuation of all psychotropic meds. 2 weeks of observation for all participants receiving CBT.	1st protocol: Paroxetine (20 mg) 1 tab or placebo administered in a double-blind fashion. 1 tab/day x 7 days then 2 tab/day x 7 days up to 3 tab/day. Dosage was decreased or slowed with SE. 2nd protocol: CBT to participants requesting nondrug therapy and no prior experience with behavioral therapy	NIMHOCS and YBOCS to test severity of OCD sx at each visit. Pts receiving CBT were assessed by project coordinator Other Rating Scales: • Symptom Checklist 90-revised • Maudsley Obsessive-Compulsive Inventory	50 % of paroxetine-administered subjects responded to therapy. 60% of subjects receiving CBT responded to therapy.	None noted

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
2 Retrospective Cohort YBOCS HAM-D HAM-A GAS	Obsessive-Compulsive Hoarding: Symptom Severity and Response to Multimodal Treatment S Saxena, K Maidment, T Vapnik, G Golden, T Rishwain, R Rosen, G Tarlow, A Bystritsky 2002	Compare nonhoarding OCD pts with hoarding OCD pts to multimodal tx combining medications and intensive CBT.	190 participants Hoarders (N=20) Nonhoarders (N=170) 18-65 years with DSM-IV OCD tx openly between 1994 and 2000	Participants received intensive daily CBT and psychosocial rehabilitation in both individual and group settings for 6 weeks. The compulsive hoarders focused primarily on the hoarding syndrome. Pts also received SRIs, antipsychotics, antidepressants, mood stabilizers, and anxiolytics.	Pretreatment symptom severity Post treatment scores Pretreatment compared to Post treatment changes Rating Scales: YBOCS HAM-D HAM-A GAS	Hoarders had lower treatment response than nonhoarders to combination of medications and intensive CBT. However, hoarders do respond to multimodal tx when tailored to its specific features.	None noted

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
4 Case Study YBOCS and HDRS	Treatment of Compulsive Hoarding S Saxena, KM Maidment JCLP 2004	The use of specific strategies of CBT in the treatment of compulsive hoarding.	50 year old female with OCD sx since childhood	Intensive, multimodal CBT, 4 hours/day, 5 days/wk for a total of 6 weeks. Medication therapy change from paroxetine 50 mg per day to venlafaxine 300 mg per day. Outpatient therapy after 6 weeks consisting of one afternoon a week.	Her ability to discard and clear her living space of clutter. YBOCS score HDRS score	YBOCS score decreased from 30 to 16 in 6 weeks. At a 4-month follow-up her YBOCS score decreased to 14. HDRS decreased from 21 to 5.	None noted.

Level Of Evidence	Study	Issue	Participants	Interventions	Outcomes Measured	Results	Adverse Events, Dropouts
4 Case series and literature review YBOCS Structured Clinical Interview for DSM-III-R	Hoarding in Obsessive-Compulsive Disorder: A Report of 20 Cases M Winsberg, K Cassic L Koran J Clin Psychiatry 1999	Describe the treatment response of 20 subjects with hoarding behavior in OCD.	20 adult participants • 9 females • 11 males 13 participants reported that hoarding was their major symptom of OCD. 14 participants reported that hoarding was their main therapy focus.	SRIs were given to 18 participants who rated retrospectively their improvement after 8 to 12 weeks. • Clomipramine 150 mg/day • Fluoxetine 20 mg/day • Fluvoxamine 150 mg/day • Paroxetine 40 mg/day • Sertraline 50 mg/day CBT was utilized for 8 participants, 7 of which received this along with pharmacotherapy.	Y-BOCS Participants retrospective self-rating of response to SRIs or CBT	Of the 18 participants who received SRI therapy only 6% had a marked response. Partial response was obtained by 89% of the participants receiving SRI therapy. One other participant had little or no response to SRI therapy. 3 of the 7 participants who received SRI therapy along with CBT had improved at least 25% on their Y-BOCS score. One participant was treated with CBT alone and had a 36% drop on his Y-BOCS score.	None noted

APPENDIX E

EXCLUDED STUDIES

STUDY	REASON FOR EXCLUSION
Adults With Early-Onset Obsessive-Compulsive Disorder Am J Psychiatry. November 2001:158(11): 1899-1903.	This study focused on the importance of age relating to OCD. It did not cover hoarding or the treatment of OCD.
Placebo-Controlled Trial of Fluoxetine and Phenelzine for Obsessive-Compulsive Disorder Am J Psychiatry. September 1997: 154(9):1261-1264.	This study investigated medication treatment of OCD but did not focus on its effect on hoarding.
Hoarding in Obsessive Compulsive Disorder: Results from a Case-Control Study Behaviour Research and Therapy. 2002:40:517-528.	The focus of this article was the symptoms of hoarding in OCD and not the treatment of hoarding.
Cerebral Glucose Metabolism in Obsessive-Compulsive Hoarding Am J Psychiatry. June 2004:161(6):1038-1048.	The physiological aspect of glucose metabolism in subjects with hoarding in OCD was investigated.
Hoarding, Compulsive Buying and Reasons for Saving Behaviour Research and Therapy. January 1998:36:657-664.	Two studies that examined the relationship between compulsive buying and saving.
Factor Analysis of Symptom Subtypes of Obsessive Compulsive Disorder and Their Relation to Personality and Tic Disorders J Clin Psychiatry. March 1994:55(3):18-23.	This article clarified the symptom subtypes of OCD but did not elaborate towards treatment of the different subtypes.
Compulsive Hoarding Am J Psychotherapy. July 1987:110(3):409-417.	The characteristics of four cases of hoarding in OCD are investigated. The treatment of hoarding is not discussed.
Compulsive Hoarding: Current Status of the Research Clinical Psychology Review. August 2003:23:905-927.	This article reviewed the current literature on hoarding. This comprehensive EBM was a good resource for additional studies.
Hoarding: A Symptom, Not a Syndrome J Clin Psychiatry. May 1998:59(5):267-272.	This article recognized that hoarding is a symptom of OCD not a diagnosis alone.
A Cognitive-Behavioural Model of Compulsive Hoarding Behav Res Ther. 1996:34(4):341-350.	This offers a CBT model to follow in the treatment of hoarding but does not investigate its effectiveness.
Hoarding as a Psychiatric Symptom J Clin Psychiatry. October 1990:51(10):417-421.	This article describes the characteristics of hoarding.
"The bowerbird symptom": a case of severe hoarding of possessions Australian and New Zealand Journal of Psychiatry. 1997:31:597-600.	In this case study the subject dropped out of treatment before he could be assessed.

Long-Term Follow-Up and Predictors of Clinical Outcome in Obsessive-Compulsive Patients Treated With Serotonin Reuptake Inhibitors and Behavioral Therapy J Clin Psychiatry. July 2001:62(7):535-540.	This study investigated the treatment of OCD but did not describe the effects of treatment on the subtype of hoarding.
Obsessive-Compulsive Hoarding: A Cognitive Behavioural Approach Behavioural and Cognitive Psychotherapy. 1996:24:209-221.	This article was vague regarding the mechanism of treatment. It was difficult to obtain the conclusion.
DSM-IV field trial: Obsessive-compulsive disorder Am J Psychiatry. January 1995:152(1):90-96.	This field trial did not investigate the treatment of hoarding in OCD.
Hoarding: A Review Isr J Psychiatry Relat Sci. 1999:36(1):35-46.	This review focused on other psychiatric disorders that may display hoarding.
Hoarding Behavior in Dementia Am J Geriatric Psychiatry.1998:6(4):285-289.	This preliminary report did not discuss the treatment of hoarding.
Age of Onset of Compulsive Hoarding J Anxiety Disorders. 2006:20:675-686.	This article did not discuss the treatment of hoarding.
High sensitivity to punishment and low impulsivity in obsessive-compulsive patients with hoarding symptoms Psychiatry Research. 2004:129:21-27.	This article investigated the possible reasons for poor compliance in treatment of hoarders but not the treatment itself.
Hoarding Behavior in the Elderly: A Comparison Between Community-Dwelling Persons and Nursing Home Residents International Psychogeriatrics. 2003:15(3):289-306.	This article focused on the elderly population and did not discuss treatment of hoarding.
Hoarding and its relation to obsessive-compulsive disorder Behaviour Research and Therapy. 2005:43:897-921.	This article did not discuss the effects of treatment of hoarding in OCD.
Hoarding: a Community Health Problem Health and Social Care in the Community. 2000:8(4):229-234.	This article described the health implications of hoarding but did not investigate the treatment of hoarding.
Recognition and Treatment of Obsessive-Compulsive Disorder Am Family Physician. April 1998:57(7):1632.	This article did not investigate the effects of treatment on the subtypes of OCD.

Vita

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