Summary of Mode Deactivation Therapy, Cognitive Behavior Therapy and Social Skills Training with Two Year Post Treatment Results

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Abstract

This study summarized two treatment research studies and included recidivism data for two years post discharge for group therapy. The study compared Mode deactivation Therapy (MDT), Cognitive Behavior Therapy (CBT), and Social Skills training (SST), results of the MDT series of studies and the two year post-study recidivism data. The data from the studies of Apsche and his colleagues (Apsche, Bass, Siv 2005; Apsche, Bass, Jennings, Murphy, Hunter, and Siv, 2005), were used to demonstrate the overall efficiency in treatment of MDT. The follow-up data suggests the MDT has positive generalization effects post-treatment.

Keywords: Recidivism CBT, MDT, SST, Conduct Disorder, Aggression

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Introduction

This research summarized the collected studies of outcome of Apsche and his colleagues. It includes recidivism data for two years since treatment was terminated and the adolescents were discharged. Recidivism data was collected by written surveys sent to parents, guardians and case worker's of the residents. Phone calls were initiated as reminders to case managers and their supervisors to assure confidence. The summary of the data suggests that in three groups of equal size in a total population of 60 male adolescents, MDT was far superior to CBT and SST in reducing aggression, sexual aggression, and psychological distress as measured by the CBCL and DSMD.

Further analysis suggests that MDT is superior in reducing recidivism over CBT and SST. Because of MDT's superior results, it is hypothesized that the effects of MDT are superior in generalization to the home environments of the adolescents.

Table 1 Demographic data of population by treatment condition, diagnosed disorder and race.

Axis I	**CBT**	**MDT**	**SST**
Conduct Disorder	14	15	17
Oppositional Defiant Disorder	4	2	3
Post Traumatic Stress Disorder	7	7	5
Major Depression	0	5	0

Axis II			
Mixed Personality Disorder	4	6	4
Borderline Personality Traits	2	3	1
Narcissistic Personality Traits	2	2	1
Dependent Personality Traits	1	0	0
Avoidant Personality Traits	0	0	1
Race			
African American	14	15	14
European American	4	5	4
Hispanic/Latino American	1	1	3
Total	19	21	20
Average Age	16.5	16.5	16.1

MEASURES

The measures define how we collected data and checked for reliability in a treatment center. It is important to clarify that treatment research requires that all adolescents receive adequate treatment. There is no total control group, or no treatment, wait list group.

A review of the key measures of physical and sexual aggression used in this study consisted of Daily Behavior Reports and Behavior Incident Reports. The Daily Behavior Reports were completed by all levels of staff, both professional and paraprofessional, across all settings of the residential treatment program (e.g., schoolroom, psycho educational classes, treatment activities, residential dormitories, etc.). The Behavior Incident Reports were only completed by staff following the occurrence of serious or critical incidents, namely, acts of physical and sexual aggression. Inter-rater reliability in the use of the measures was determined by independently totaling the number of physical and sexual aggression incidents on both the Daily Behavior Report cards and the Behavior Incident Report forms and calculating the percentage of agreement. The agreement for this study was at the 98% level, as reported by Apsche, et. al. (2005).

The baseline ("pre-treatment") measure of physical and sexual aggression consisted of the average number of incidents per week that occurred during the first 60 days following admission and the post-treatment measure was the rate of occurrence during the 60 day period prior to discharge.

Two assessments were used to measure the behavior of the residents, which included the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Devereux Scales of Mental Disorders (DSMD; The Devereux Foundation, 1994).

The CBCL is a multi-axial assessment designed to obtain reports regarding the behaviors and competencies of 11 to 18 year olds. The means and standards are divided into three categories: internalizing (which measures withdrawn behaviors, somatic complaints, anxiety and depression), externalizing (which measures delinquent behavior and aggressive behavior), and total problems (which represent the conglomerate of total problems and symptoms, both internal and external).

The DSMD illustrates level of functioning in comparison to a normal group, via behavioral ratings. T scores have a mean of deviation of 10; a score of 60 or higher indicates an area of clinical concern.

Table 2 Descriptive Statistics of participants by group; pre and post treatment condition.

Measure	Tx Type	N	Mean	Std. Dev.	Std. Error	95% confidence Interval		Min	Max
						Lower bound	Upper Bound		
Baseline Physical Aggression	CBT	19	1.53	.513	.118	1.28	1.77	1	2
	MDT	20	1.55	.510	.114	1.31	1.79	1	2
	SST	20	1.60	.503	.112	1.36	1.84	1	2
	Total	59	1.56	.501	.065	1.43	1.69	1	2
Baseline Sexual Aggression	CBT	19	1.68	.478	.110	1.45	1.91	1	2
	MDT	20	1.65	.489	.109	1.42	1.88	1	2
	SST	20	1.70	.470	.105	1.48	1.92	1	2
	Total	59	1.67	.471	.061	1.56	1.80	1	2
Post-Treatment	CBT	19	.42	.507	.116	.18	.67	0	1

Physical Aggression	MDT	20	.30	.470	.105	.08	.52	0	1
	SST	20	.50	.513	.115	.26	.74	0	1
	Total	59	.41	.495	.065	.28	.54	0	1
Post-Treatment Sexual Aggression	CBT	19	.47	.513	.118	.23	.72	0	1
	MDT	20	.25	.444	.099	.04	.46	0	1
	SST	20	.50	.513	.065	.28	.74	0	1
	Total	59	.41	.495	.065	.28	.54	0	1

Thus, the first analysis suggests that all types of treatment – Mode Deactivation Therapy and Cognitive Behavioral Therapy – had a positive effect of reducing rates of physical and sexual aggression over the course of treatment (see Table 3).

Figure 1, Next Page

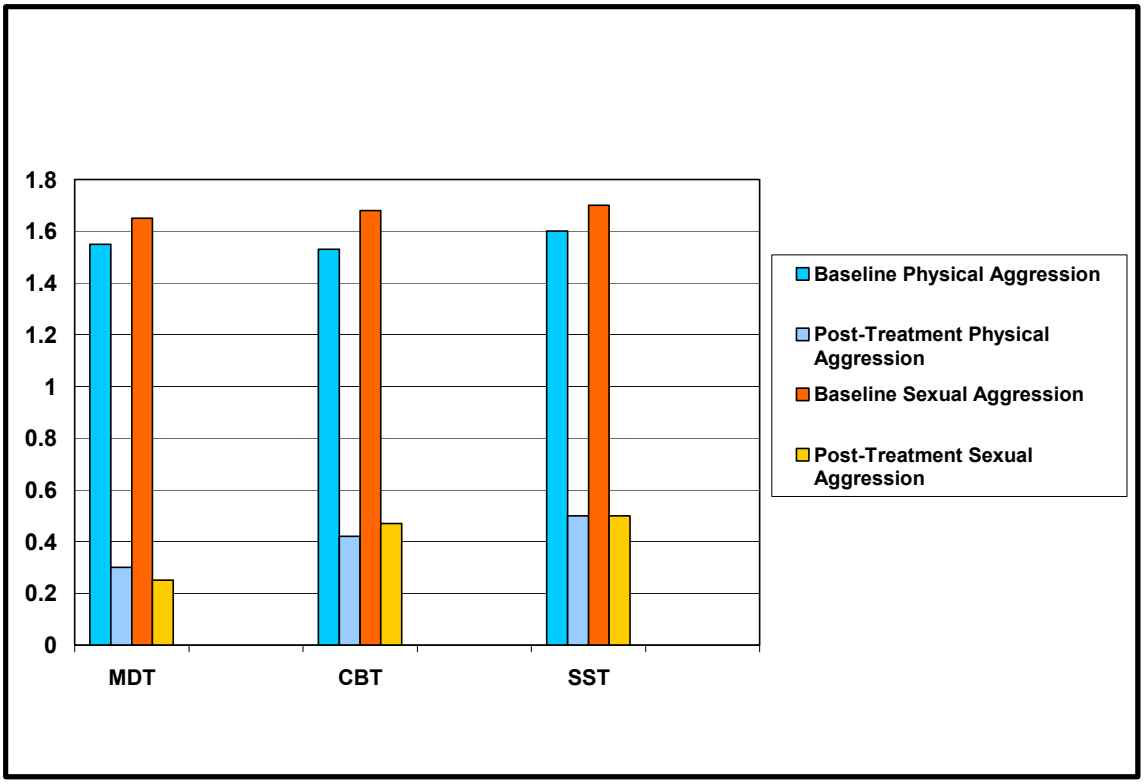

Figure 1: Comparison of Baseline and Post-treatment measures for Physical Aggression and Sexual Aggression for treatment groups; MDT= Mode Deactivation Therapy; CBT = Cognitive Behavioral Therapy; SST= Social Skills Training.

The second analysis looked at significant differences in treatment effectiveness between the two treatment conditions. It was hypothesized that adolescent male aggressive sexual offenders would show greater improvements in terms of aggressive and sexual acting out behavior when treated with MDT as compared to CBT. To test this hypothesis, a one way analysis of variance (ANOVA) was conducted on the baseline and post-treatment measures of physical and sexual aggression. Both post-treatment physical aggression and post-treatment sexual aggression were significantly affected by type of treatment, $F(2, 56) = 8.32$, $p < .01$ (post-treatment aggression); $F(2, 56) = 10.02$, $p < .01$ (post-treatment sexual aggression).

Table 3, Next Page

Table 3 ANOVA -- Difference in Outcomes between MDT and CBT and SST

Measure		Sum of Squares	Df	Mean Square	F	Signif.
Baseline Physical Aggression	Between Groups	.707	2	.353	1.413	.252
	Within Groups	14.005	56	.250		
	Total	14.712	58			
Post-Treatment Physical Aggression	Between Groups	3.299	2	1.649	8.316	.001
	Within Groups	11.108	56	.198		
	Total	14.407	58			
Baseline Sexual Aggression	Between Groups	.537	2	.269	1.074	.349
	Within Groups	14.005	56	.250		
	Total	14.542	58			
Post-Treatment Sexual Aggression	Between Groups	3.483	2	1.742	10.017	.000
	Within Groups	9.737	56	.174		
	Total	13.220	58			

To better elucidate between-group differences in magnitude of effect, independent factorial analyses on treatment model and variable were conducted. With an overall percent reduction of 80.7% in rates of post-treatment physical aggression, Mode Deactivation Therapy was found to be superior to Cognitive Behavioral Therapy at 72.6% and Social Skills Training at 68.8 %. The greater magnitude of effect for MDT was statistically significant compared to CBT and SST, which were not significantly different from each other. The most dramatic difference between treatment groups was found in reduction of post-treatment rates of sexual aggression. In this instance, *only* Mode Deactivation Therapy showed a statistically significant reduction in rates of sexual aggression from baseline to post-treatment. MDT showed a reduction of 84.5% in sexual aggression compared to CBT and SST at 72.0% and 70.6% respectively. Post-treatment rates of sexual aggression were .30 for MDT and .42 for CBT, and .43 for SST. The differences

were significant using an independent *T*-test comparing, CBT and MDT. The *T* test showed $T = 2.21$, $df = 39$, $p = .01$. The results clearly show that MDT produced significantly superior results when compared to CBT and SST. These differences in magnitude of effect are graphically represented in Figure 2.

Table 4 Post-Treatment Scores and Percent Reduction in Types of Aggression Across Treatments.

	MDT		CBT		SST	
	Post-Treatment Score	Percent reduction	Post-Treatment Score	Percent reduction	Post-Treatment Score	Percent reduction
Physical Aggression	.30	80.7%	.42	72.6%	.43	68.8%
Sexual Aggression	.25	84.5%	.47	72.0%	.50	70.6%

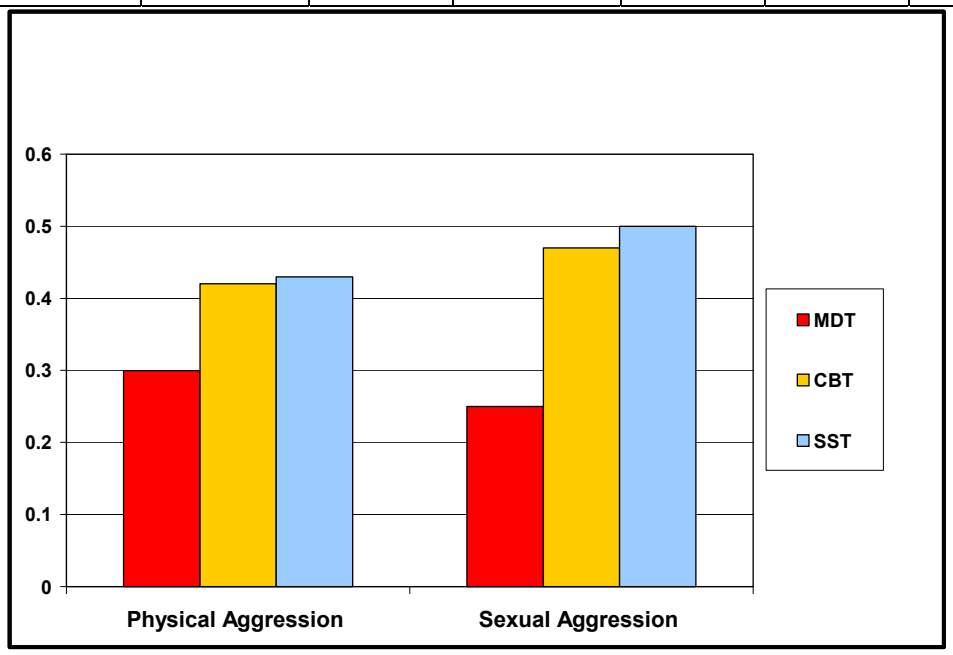

Figure 2: Post-Treatment Reduction in Rates of Aggression Across Three Treatment Conditions. MDT= Mode Deactivation Therapy; CBT = Cognitive Behavioral Therapy; SST= Social Skills Training.

The CBCL is a multi-axial assessment designed to obtain reports regarding the behaviors and competencies of 11 to 18 year olds. The means and standards are divided into three categories: internalizing (which measures withdrawn behaviors, somatic complaints, anxiety and depression), externalizing (which measures delinquent behavior and aggressive behavior), and total problems (which represent the conglomerate of total problems and symptoms, both internal and external). The DSMD uses T scores with a mean of 50 and a standard deviation of 10; any T score over 60 is considered clinically significant. The means and standards are divided into four scales and analyzed: (1) Internalizing (which measures negative internal mood, cognition, and attitude), (2) Externalizing (which measures prevalence of negative overt behavior or symptoms), (3) Critical Pathology (which represents the severe and disturbed behavior in children and adolescents), and Total (which represent the conglomerate of all scores including general Axis I pathology, delusions, psychotic symptoms, and hallucinations).

Table 5 T- scores, ranges, and standard deviations in all measures for both groups

Measure	**Scale**	**CBT**	**MDT**	**SST**
Child Behavior Checklist (CBCL) Pre-Treatment	Internal	71.43 (Range = 66 - 84)	72.57 (Range = 68 - 86)	72.45 (Range= 66-84)
	External	73.74 (Range = 66 - 86)	72.94 (Range = 64 - 86)	71.95 (Range= 68-88)
	Total	72.67	72.74	72.25
Child Behavior Checklist (CBCL) Post-Treatment	Internal	63.66 (Range = 55 - 80) SD = 10.04	51.75 (Range = 39 - 71) SD = 12.10	66.33 (Range= 58-86) SD= 8.94
	External	65.63 (Range = 52 - 82) SD = 10.76	50.04 (Range = 37 - 69) SD =11.74	69.63 (Range = 66-88) SD = 8.41
	Total	64 (Range = 52 – 84) SD = 9.24	51.00 (Range = 40 – 61) SD =10.28	67.98 (Range = 54-71) SD = 7.10

DSMD Pre-Treatment	Internal	70.5(Range = 62-84)	71.3(Range = 64- 83)	72.10 (Range = 62-84)
	External	73.1(Range = 64-86)	72.5(Range = 67- 84)	71.25 (Range = 60-86)
	Critical Path	68.7(Range = 58-88)	70.5(Range = 60- 86)	72.33 (Range = 68-86)
	Total	70.77	71.50	71.79 (Range = 62-84)
DSMD Post-Treatment	Internal	61.70(Range = 52-74)	49.70(Range = 46-56)	65.66 (Range = 58-82)
	External	57.81(Range = 52-72)	45.88(Range = 41-54)	56.86 (Range = 52-84)
	Critical Path	50.21(Range = 46-66)	46.15(Range = 42-56)	69.75 (Range = 58-88)
	Total	58.00(Range = 56-82)	46.15(Range = 40-56)	65.92 (Range = 58-86)

Mean scores on all scales are at least one standard deviation less.

At the time both CBCL and DSMD assessments, the three groups differed significantly. Residents who participated in MDT had lower scores on all measures than did residents who engaged in CBT. The results indicate that the mean scores on the internalizing factor, externalizing factor, critical pathology, and total score for the MDT group is at or near one standard deviation below the CBT group.

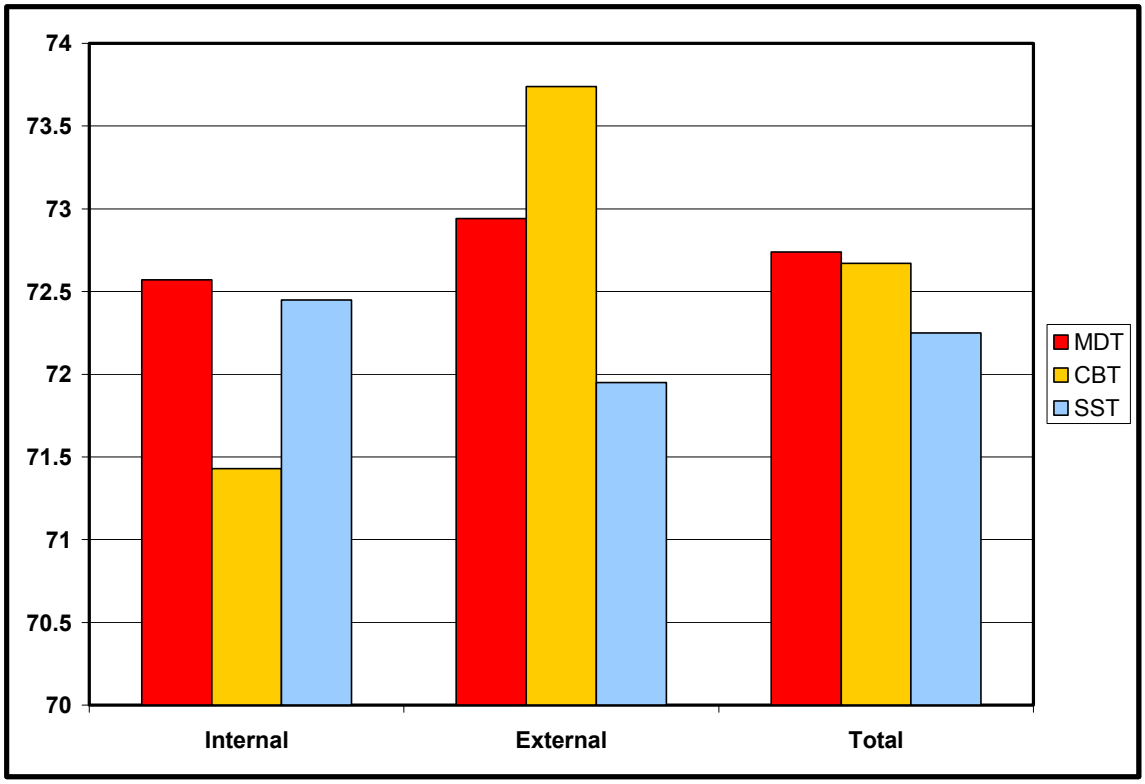

Figure 3: Child Behavioral Checklist Mean Scores Baseline Measures Across All Groups.

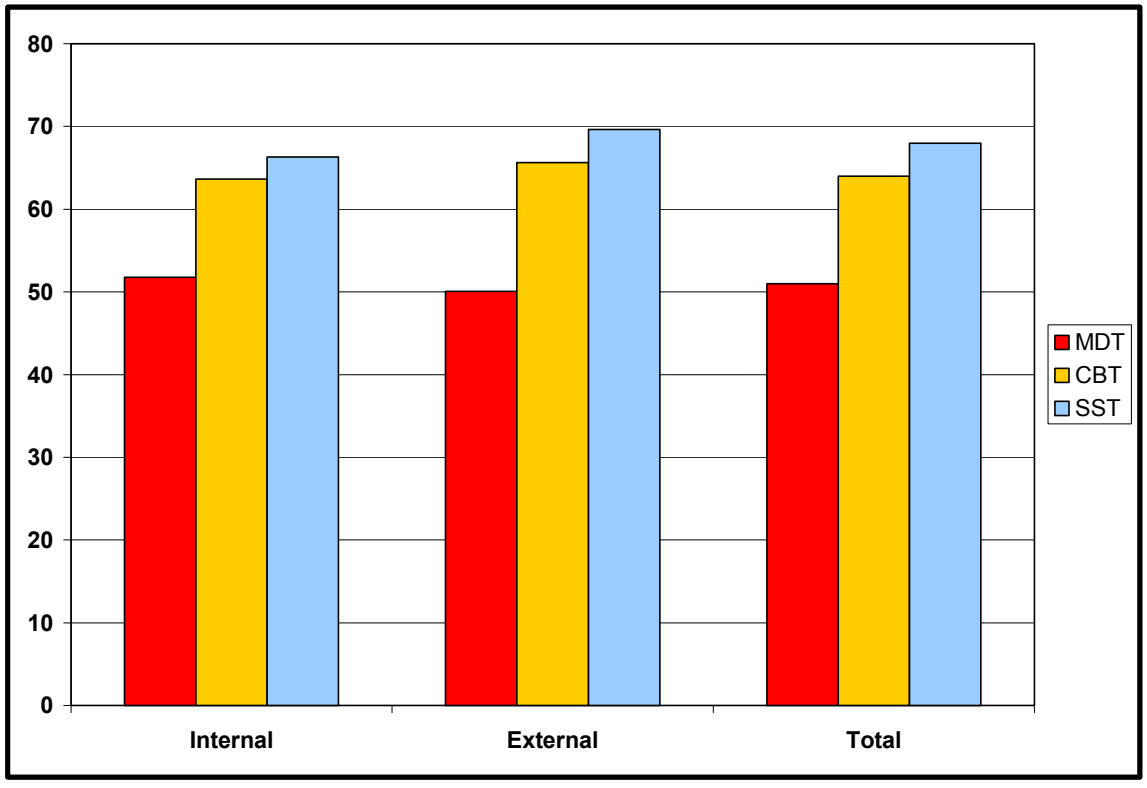

Figure 4: Child Behavioral Checklist Mean Scores for Post-Treatment Measures Across All Groups.

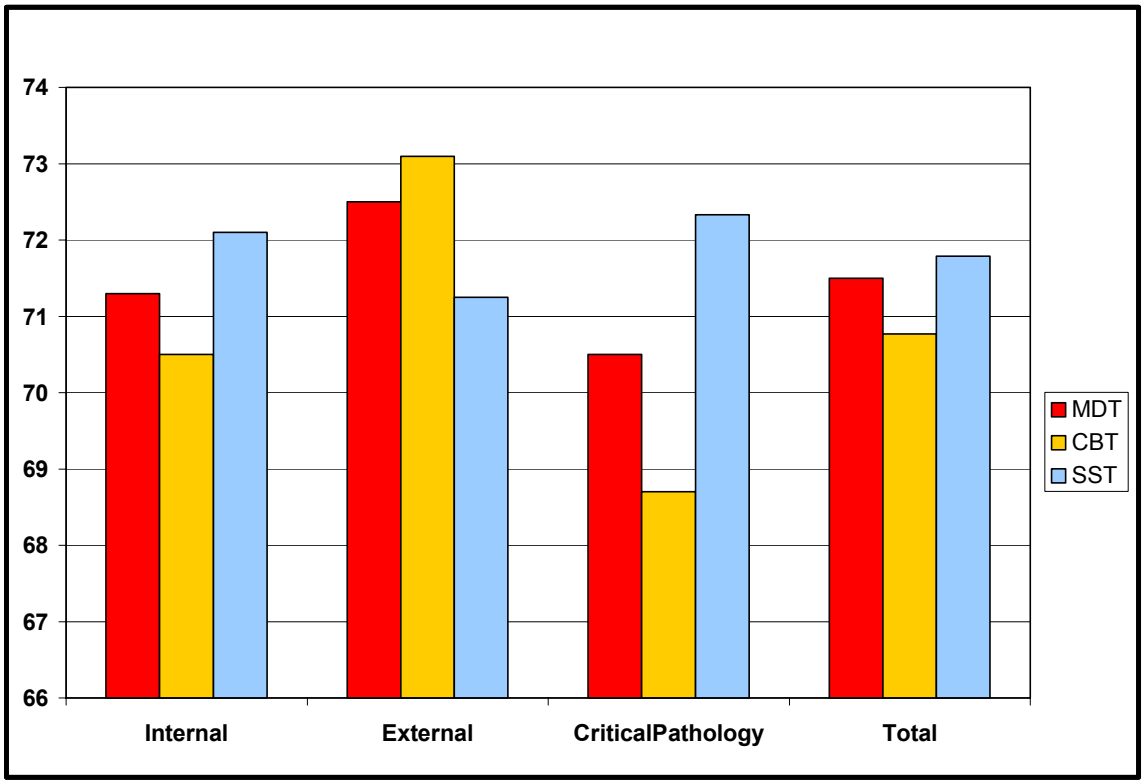

Figure 5: DSMD Baseline Means Scores Across Treatment Groups.

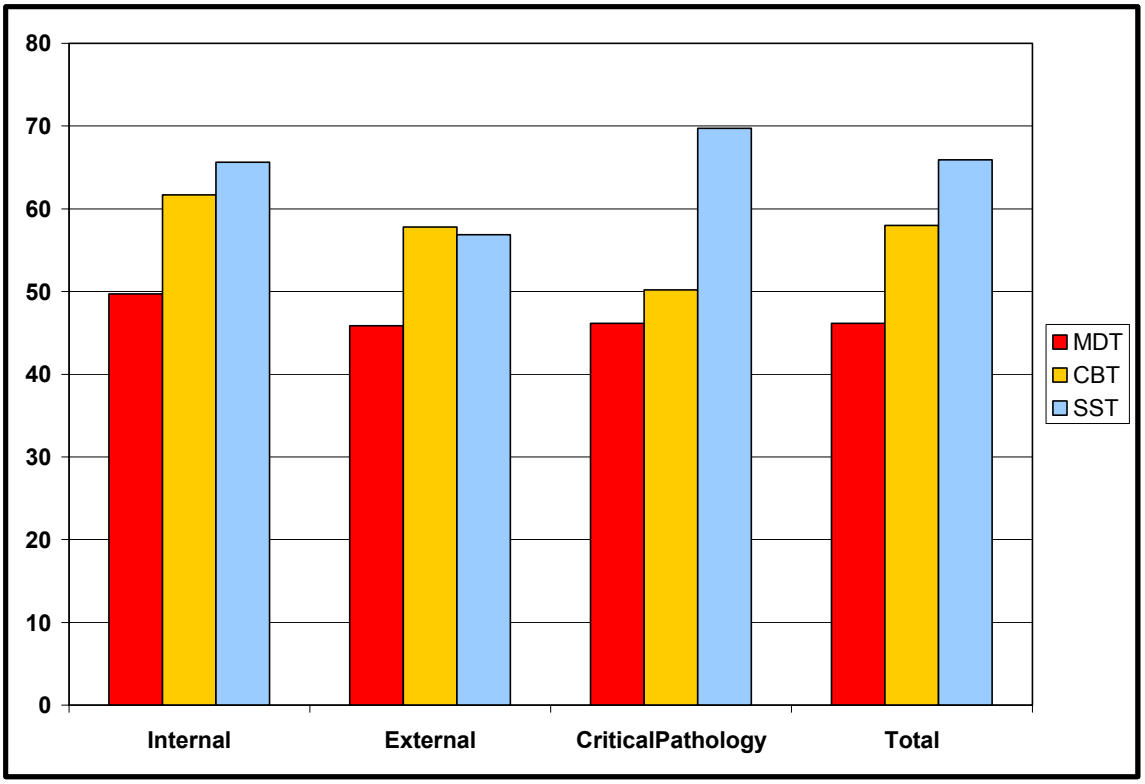

Figure 6: DSMD Post-Treatment Means Scores Across Treatment Groups.

RESULTS

Analysis of Follow-up or recidivism data

Recidivism was recorded for a two-year period following the discharge from the facility where the sixty residents were treated. The following are the results of the recidivism surveys:

The MDT Group had a recidivism rate of 7%. There were no serious offences, such as sexual assaults, or physical assaults. There were cases of Marijuana use, school suspensions, etc, but no target behaviors of the treatment group were founded.

The CBT group had a recidivism rate of 20% over the two-year period. This means 20% of the group engaged in chargeable offenses including sexual aggression, physical aggression, auto theft, and selling controlled substances.

The SST group had a recidivism rate of 49.5%: That means that almost one half of the group engaged in chargeable offences. The offenses included: attempted murder, aggravated assault, rape, auto theft, selling controlled substances, school explosions, and suspension, and running away from their place of residence.

It is important to note that MDT demonstrated superior results. Overall compliance was greater than 95% across all three groups, MDT, CBT, and SST.

Individually, compliance with the recidivism surveys showed the differences across the group both in treatment results and in follow-up or recidivism data. The three groups were at the 95% compliance level.

For this study the form asked basic questions:

1) Did the adolescent get arrested? If so what were the charges?
2) Did the adolescent get suspended from school? If so, what was the offensive behavior?
3) Has the adolescent been removed from their residence? If so, for what behavior?

DISCUSSION

The results of the series of studies on MDT suggest that it might be an efficacious treatment for adolescents with problems with conduct and personality disorders, and with aggressive and other aberrant behaviors.

The follow-up data also suggests that MDT might be effective, not only during treatment, but it might generalize to the home environment. The outcomes suggest that MDT might also be effective as an out patient treatment prior to residential in-patient treatment.

As in any "real world" treatment study this study is limited by the nature of real clinical practice. Although, if MDT has shown such superior results in "real world" clinical settings it is more important to the author for work such as MDT to be effective in clinical studies than carefully controlled University studies, because many treatment methodologies produced in carefully controlled studies are not replicable in "real world" clinical settings.
Apsche, Bass, Siv (2005)

First, the adolescents in this study were all from Urban Centers of the Northeastern United States. Most had a history of legal issues and charges. Many of these adolescents were extremely aggressive and most likely would not be participants in federally funded grant based research studies. These individuals in the MDT studies would most likely be "dropouts" from such studies because of non-compliance or aggression. In other words, these adolescents are troubled, aggressive, suspicious, largely under served, and not often represented in University based research.

MDT is a methodology developed by Apsche over time to address the lack of effective treatments in real clinical settings. It is hoped by all the authors that other clinicians and researchers who face the difficult task of treating the "untreatable" will further test the efficiency of MDT.

The first author invites any of my colleagues to my Camden, New Jersey office to demonstrate how to implement any protocols of their "controlled" treatment studies with a population of severe conduct disorder youth, many of whom have no identifiable families. We would be appreciative of such colleague support to help this difficult population.

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