An Empirical "Real World" Comparison of Two Treatments with Aggressive Adolescent Males

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This research study compares the efficacy of Mode Deactivation Therapy (MDT), an advanced form of Cognitive Behavioral Therapy based on Beck's theory of modes, and standard Cognitive Behavioral Therapy (CBT) for adolescent males in residential treatment. The results showed MDT was superior to CBT in reducing both physical and sexual aggression and reductions of external and internal psychological distress as measured by the Devereux Scale of Mental Disorder (DSMD) and Child Behavioral Checklist (CBCL).
Keywords: CBT, MDT, Conduct Disorder, Aggression.

Introduction

This study compares two effective treatments, Mode Deactivation Therapy (MDT) and Cognitive Behavioral Therapy (CBT) for adolescent males in residential treatment. CBT has had numerous publications regarding its efficacy with adolescents (Reinecke, Dattilio, Freeman,1996, 2004). MDT has been demonstrated to be an evidenced based treatment for adolescents in numerous studies (Apsche, Ward 2004, Apsche Ward, Evile 2004; Apsche, Bass, Jennings, Murphy, Hunter and Siv, 2005, compared MDT to CBT and social skills training (SST) in reducing physical aggression and sexual aggression with adolescents. MDT is shown to be more effective than CBT or SST in reducing both physical and sexual aggression in these adolescents as measured by the Devereux Scale of Mental Disorder (DSMD) and Child Behavioral Checklist (CBCL).

Both CBT and MDT have been demonstrated to be effective treatments with difficult adolescents in numerous studies. CBT has a plethora of literature published in recent articles and books on its efficacy with adolescents. Reinecke, Dattilio, Freeman, 2004, Friedberg, Maclure, 2002. CBT has been demonstrated to be effective in treating adolescent depression, Rehm and Sharp, 1996, adolescent anxiety disorders, Kendall, 2004 and personality disorders, Beck, Freeman, Davis and Associates, 2004, aggression, Lochman, Whidby, Fitzgerald, 2000, and anger, Nelson and Finch, 2000.

MDT has had several recent articles that demonstrate it is an effective treatment with aggressive and abused or reactive adolescents (Apsche, Bass, Siv, 2005; Apsche, Ward Bailey 2004.MDT and CBT were compared together and with social skills training (Apsche, Bass, Jennings, Murphy, Siv and Hunter, 2005); Apsche, Bass, Siv, 2005). The results suggest that MDT was superior to CBT and SST in reducing both physical and sexual aggression in adolescents in a residential treatment center. The results of these studies suggest that MDT is effective in treating physical and sexual aggression in adolescent males. These results also suggest that MDT is more effective in treating these adolescents than standard CBT or SST. (Apsche et. al., 2005).

METHOD

Sample Characteristics

A total of 40 male adolescents participated in the study. All subjects were referred to the same residential treatment facility for the treatment of physical aggression and/or sexual aggression. In this study, subjects were randomly assigned to one of the two treatment conditions at the time of

admission based on available openings in the caseload of the participating clinicians. Both treatment conditions showed similarity in terms of the frequency of Axis I and Axis II diagnoses, age, and racial background. To ensure consistency in the delivery of the two respective treatments, therapists were specifically trained in one of the two treatment curriculums/methods. The average length of residential treatment across all conditions was around 11 months.

Cognitive Behavioral Therapy (CBT) Participant: Nineteen male sexual offenders from a residential sex offender treatment program for adolescent males were assigned to the CBT condition. The group was comprised of 15 African Americans, 3 European Americans and 1 Hispanic American with ages between 11 and 18 years with an average age of 16.1. The principal Axis I diagnoses for this group included Conduct Disorder (15), Oppositional Defiant Disorder (4), and Post Traumatic Stress Disorder (9). Axis II diagnoses for the group included Mixed Personality Disorder (4), Borderline Personality Disorder (4), Narcissistic Personality Disorder (0) and Dependent Personality Disorder (1). All participants were first-time admissions to the program and had never participated in a cognitive-behavioral based treatment program before. Their mean estimated length of stay was 18.3 months (SD=3.53, range 12-23), mean estimated number of victims was 2.4 (SD=3.4, range 1-12).

The particular CBT methodology used for this group employed a published treatment curriculum and workbook system for adolescent sex offenders called "Thought Change" (Apsche, 1999; Apsche, Evile and Murphy, 2004). This structured treatment program is specifically designed for personality disordered and conduct-disordered youth with psychosexual disturbances and high levels of aggression and violence. Components of this psycho-educational treatment curriculum included daily recording of negative thoughts, cognitive distortions, cognitive restructuring, sexual offense patterns and beliefs, aggressive patterns and beliefs, mood management, dysfunctional beliefs, taking responsibility, mental health maintenance, substance abuse issues, and victim empathy.

Mode Deactivation Therapy (MDT) Participants: A total of twenty-one male adolescents were assigned to the MDT condition. All participants were first-time admissions to the program and had never participated in a cognitive-behavioral or mode deactivation based treatment program before. The group was comprised of 17 African Americans, 3 European Americans and 1 Hispanic American with an average age of 16.5. The principal Axis I diagnoses for this group included Conduct Disorder (15), Oppositional Defiant Disorder (4), Post Traumatic Stress Disorder (8), and Major Depressive Disorder, primary or secondary (5). Axis II diagnoses for the group included Mixed Personality Disorder (6), Borderline Personality Traits (5), and Narcissistic Personality Traits (2). The MDT condition used the methodology described earlier in this paper. Their mean estimated length of stay is 16.36 (SD+1.73, range12-19), mean number of reported victims is 3 (SD=3.16, range 1-13). Types of offenses included flashing, fondling, vaginal and anal penetration, or a combination for both conditions of this study.

Table 1, Next Page

Table 1. Demographic Characteristics of Study Participants by Group

	CBT	MDT
Axis I		
Conduct Disorder	15	13
Oppositional Defiant Disorder	4	4
Post Traumatic Stress Disorder	9	8
Major Depression	0	5
Axis II		
Mixed Personality Disorder	5	6
Borderline Personality Traits	4	5
Narcissistic Personality Traits	2	2
Dependent Personality Traits	0	0
Avoidant Personality Traits	0	0
Race		
African American	15	17
European American	3	3
Hispanic/Latino American	1	1
Total	19	21
Average Age	16.1	16.5

MEASURES

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, psychoeducational 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/or sexual aggression. Inter-rater reliability in the use of these 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.

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.

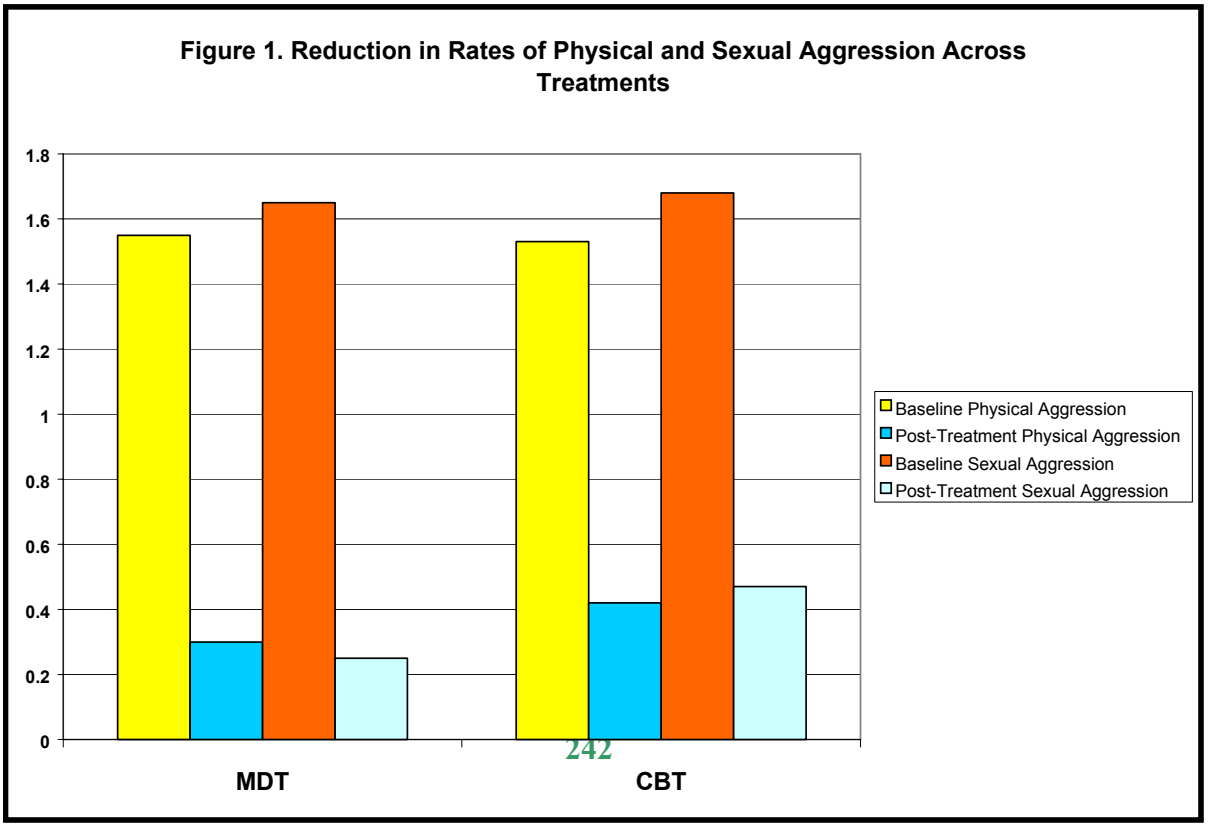
Two assessments were used to measure the behavior of the residents, which included the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Devereux Scales of Mental Disorders (DSMD; The Devereux Foundation, 1994).

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 pre and post mean scores by group

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
	Total	39	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
	Total	39	1.67	.471	.061	1.56	1.80	1	2
Post-Treatment Physical Aggression	CBT	19	.42	.507	.116	.18	.67	0	1
	MDT	20	.30	.470	.105	.08	.52	0	1
	Total	39	.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
	Total	39	.41	.495	.065	.28	.54	0	1



Thus, the first analysis suggests that both 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 Figure 3).

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, $F(2, 36) = 8.32$, $p < .01$ (post-treatment aggression); $F(2, 36) = 10.02$, $p < .01$ post-treatment sexual aggression).

Table 3. ANOVA -- Difference in Outcomes Between MDT and CBT

Measure		Sum of Squares	Df	Mean Square	F	Signif.
Baseline Physical Aggression	Between Groups	.707	2	.353	1.413	.252
	Within Groups	14.005	36	.250		
	Total	14.712	38			
Post-Treatment Physical Aggression	Between Groups	3.299	2	1.649	8.316	.001
	Within Groups	11.108	36	.198		
	Total	14.407	38			
Baseline Sexual Aggression	Between Groups	.537	2	.269	1.074	.349
	Within Groups	14.005	36	.250		
	Total	14.542	38			
Post-Treatment Sexual Aggression	Between Groups	3.483	2	1.742	10.017	.001
	Within Groups	9.737	36	.174		
	Total	13.220	38			

To better elucidate between-group differences in magnitude of effect, independent factorial analyses on treatment model and variable were conducted.

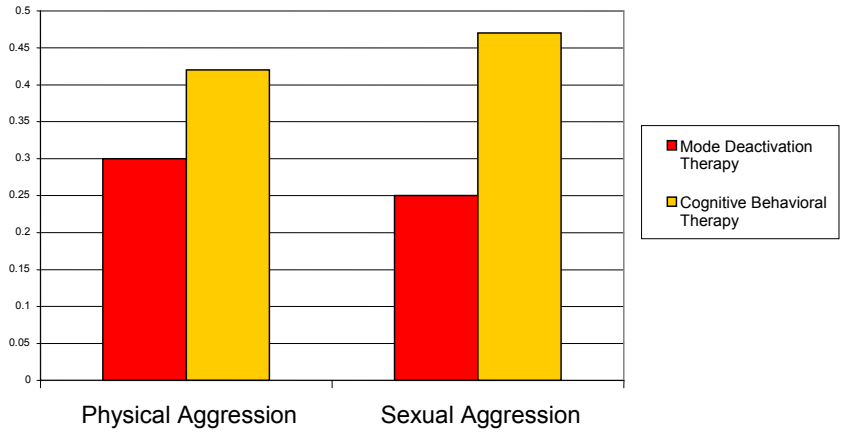
With an overall percent reduction of 80.7% in rates of post-treatment physical aggression, Mode Deactivation Therapy was found to be superior to Cognitive Behavioral Therapy at 72.6%. The greater magnitude of effect for MDT was statistically significant compared to CBT. (Table 4)

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 at 72.0%. Post-treatment rates of sexual aggression were .30 for MDT and .42 for CBT. 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. These differences in magnitude of effect are graphically represented in Table 4.

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

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

Figure 2. Post-Treatment Reduction in Rates of Aggression Across Two Treatment Conditions



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	
Child Behavior Checklist (CBCL) Pre-Treatment	Internal	71.43 (Range = 66 - 84)	72.57 (Range = 68 – 86)	
	External	73.74 (Range = 66 - 86)	72.94 (Range = 64 – 86)	
	Total	72.67	72.74	
Child Behavior Checklist (CBCL) Post-Treatment	Internal	63.66 (Range = 55 - 80) SD = 10.04	51.75 (Range = 39 - 71) SD = 12.10	
	External	65.63 (Range = 52 - 82) SD = 10.76	50.04 (Range = 37 - 69) SD =11.74	
	Total	64 (Range = 52 – 84) SD = 9.24	51.00 (Range = 40 – 61) SD =10.28	
DSMD Pre-Treatment	Internal	70.5(Range = 62- 84)	71.3(Range = 64- 83)	
	External	73.1(Range = 64- 86)	72.5(Range = 67- 84)	
	Critical Path	68.7(Range = 58- 88)	70.5(Range = 60- 86)	
	Total	70.77	71.50	
DSMD Post-Treatment	Internal	61.70(Range = 52- 74)	49.70(Range = 46- 56)	
	External	57.81(Range = 52- 72)	45.88(Range = 41- 54)	
	Critical Path	50.21(Range = 46- 66)	46.15(Range = 42- 56)	
	Total	58.00(Range = 56- 82)	46.15(Range = 40- 56)	

At the time both CBCL and DSMD assessments, the two 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 both measures 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.

Figures 3 & 4, Next Page

Figure 3. CBCL; Mean scores for MDT and CBT groups Pre-Treatment

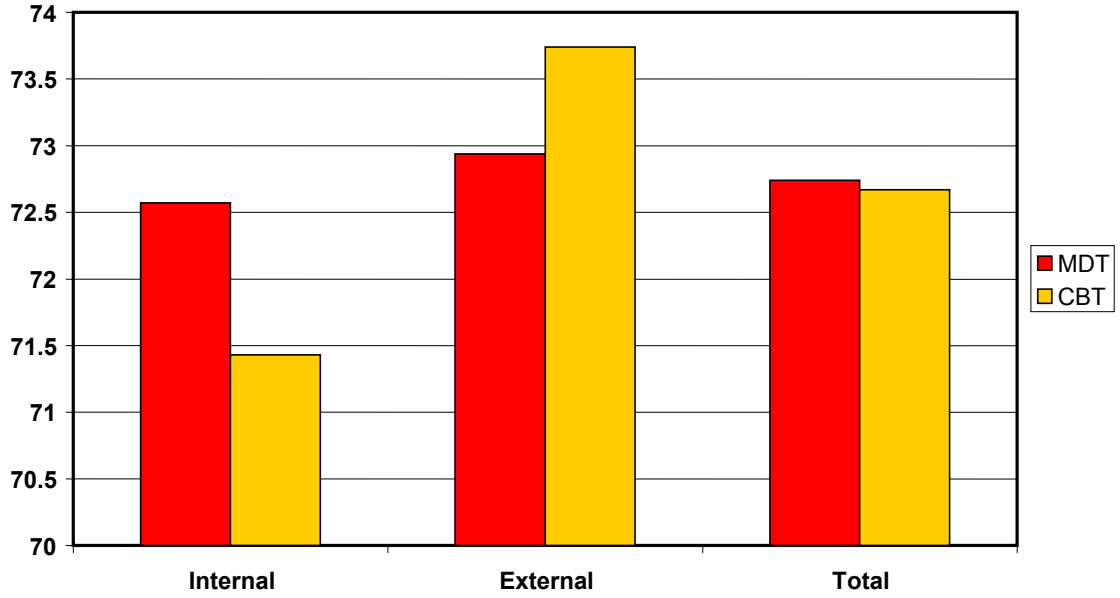
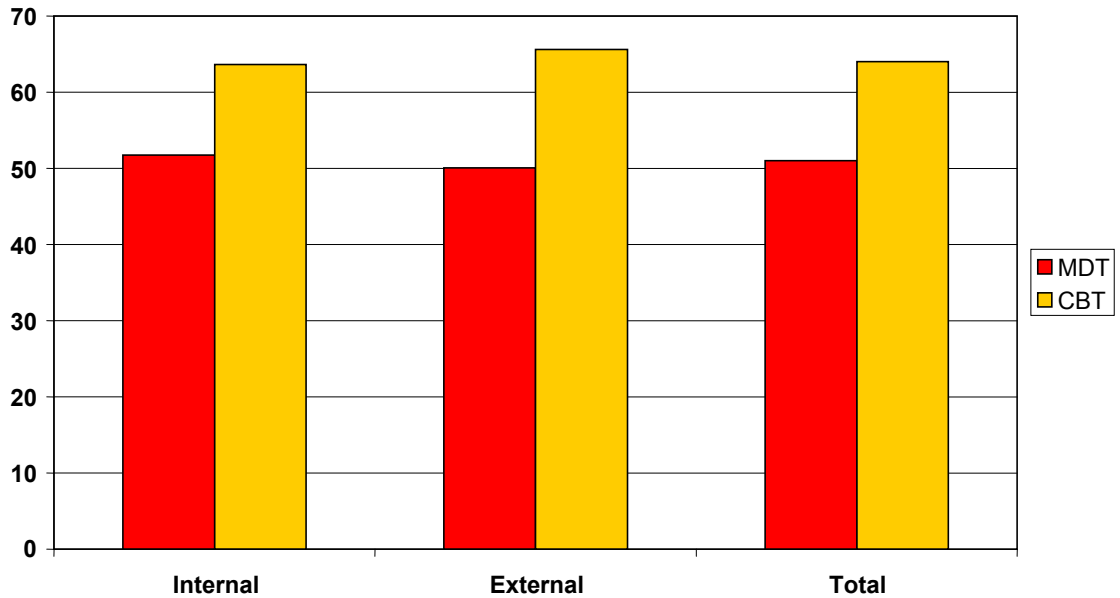
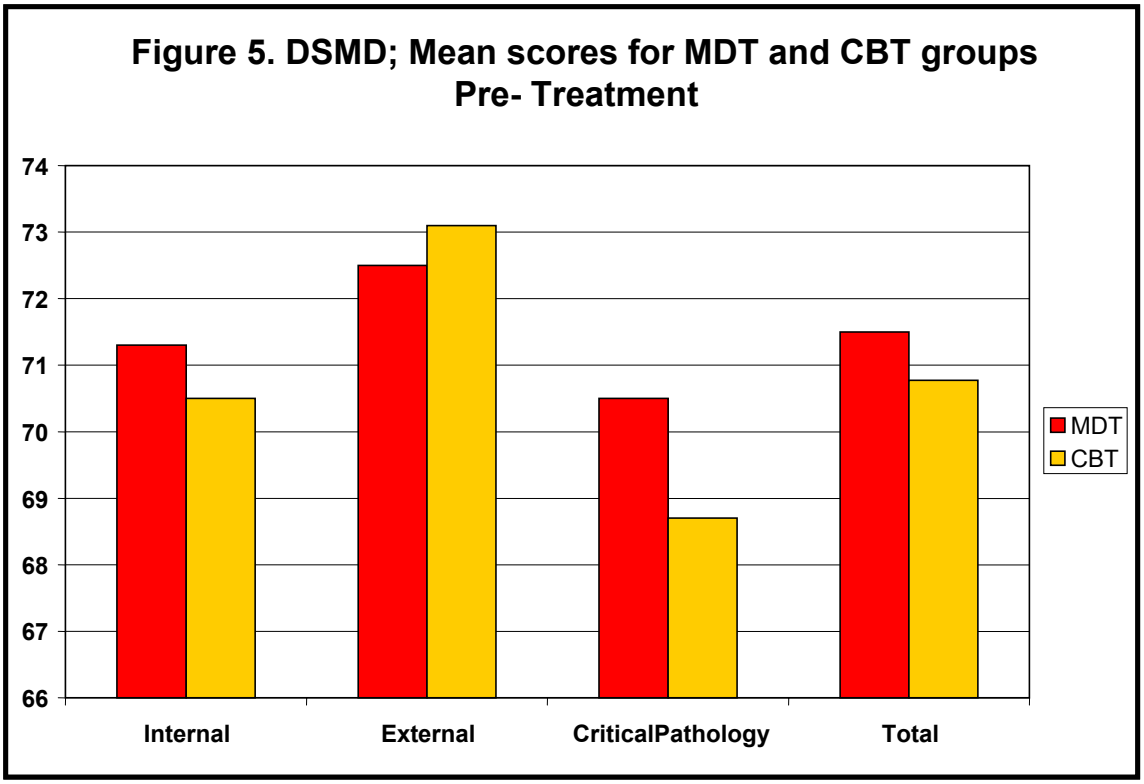


Figure 4. CBCL; Mean scores for MDT and CBT groups Post- Treatment





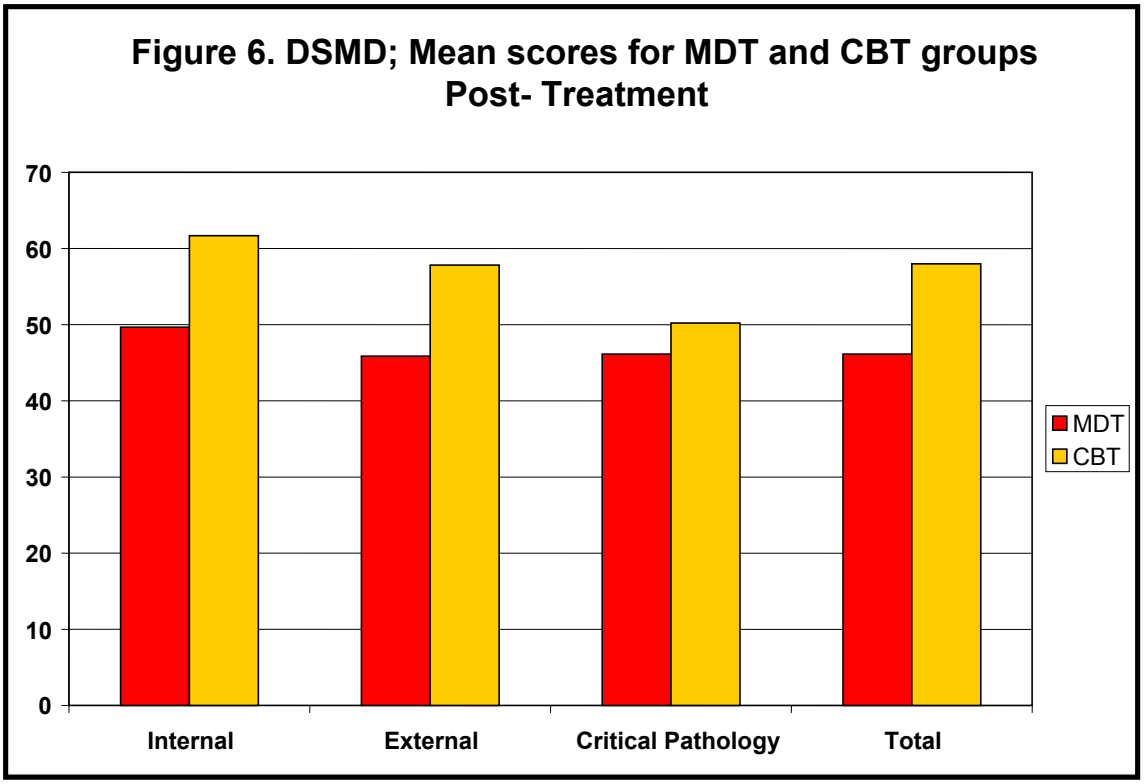


Figure 10 and 11. DSMD; mean scores for MDT and CBT groups Pre-Treatment and Post-Treatment.

Results

This research study was initiated to compare the efficacy of two different treatment methods for male adolescents in residential treatment for physical and/or sexual aggression. We began the analysis by assessing weekly behavioral reports, which indicated a number of observed sexual or aggressive acts. Once reports were compiled, statistical analysis of the results ensued. It was found that all participants benefited from treatment regardless of theoretical orientation (see Table One). The baseline average rate of aggression across all groups was 1.56 with a total standard deviation of .501 and standard error of .065. There was a 74% reduction in rate of aggression to the post treatment mean of .41, with a standard deviation of .495 and standard error of .065. An independent T test was performed on the difference in means. The T-test found a significant difference between the baseline and post-treatment measures T = 18, df = 39, p <.01. A one-way ANOVA was computed and indicated a significant difference, F (2,36) 8.32, p<.01.

Further analysis was performed on the difference between baseline and post-treatment rates of sexual aggression. The baseline mean across both groups was 1.68 with a total standard deviation of .471 and standard error of .061. There was a 76% reduction in the rate of sexual aggression to the post-treatment mean of .41 with a standard deviation of .495 and standard error of .065. A one-way ANOVA was computed and indicated a significant difference, F (2,36) = 10.02, p < .01.

There was a significant difference of 1SD or better, across all domains of DSMD and CBCL for the MDT group. On the DSMD the MDT total score was reduced to less than 60. This indicates that MDT reduced the score to "not of the level of clinical concern."

Both CBT and MDT reduced both internal and external scores on the CBCL. MDT scores on the CBCL showed on 1 SD or more significance than the CBT scores across all individual measures. These results suggest that MDT might be effective in reducing symptoms of Axis I pathology as measured by the CBCL and DSMD.

Discussion

The data indicates that MDT was superior to CBT in reducing internal distress and psychological symptoms as measured by the CBCL and DSMD. Moreover, MDT was superior in reducing both physical aggression and sexual aggression in this study. It appears that MDT is superior in treating this typology of adolescents. It is also interesting to note that MDT was superior in reducing specific symptoms related to Post-Traumatic Stress Disorder. These findings might offer an additional methodology to the body of literature for treating PTSD in adolescents.

As in any real world study, it is always difficult to control for the levels of competence of the participating therapists and their adherence to the "purity" of the referenced treatment methods. Best efforts were made to control for this common problem by ensuring that therapists shared the same professional degree and level of clinical experience in each of the two methodologies and by providing training in the delivery of each model prior to the study. Training was provided by a doctorate level psychologist for both groups. The MDT group was trained by the first author and founder of MDT.

The strength of the outcomes could be further enhanced with the inclusion of additional outcome measures and, ideally, long-term follow-up of the youth who participated in the study. This study measured levels of psychological distress, including internal and external, as measured by the CBCL and DSMD. MDT demonstrated a significant decrease in all levels of behavior and Psychological distress.

It is important to note that the authors do not purport that MDT will generalize to any groups other than youngsters with conduct and personality disorders.

The authors hope that future research may use randomized trials in outpatient clinics and attempt to replicate these findings in other residential treatment facilities and with other relevant adult and adolescent populations, particularly for those with severe aberrant behaviors including personality disorders, conduct disorder and aggression. Thus, MDT might be considered in future studies as a consideration to reduce problems related to Axis I disorders and internal distress.

REFERENCES

Achenbach, T.M. (1991). *Manual for the Child Behavior Checklist and 1991 profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T.M. (1991). *Child Behavior Checklist, Assessment*. Burlington, VT: University of Vermont Department of Psychiatry.

Alford, B.A. and Beck, A.T. (1997). *The integrative power of cognitive therapy.* New York: Guilford Press.

Apsche, J.A. (2005). Beck's theory of modes. *International Journal of Behavioral Consultation and Therapy*, *1*(1), *pp. 27-45.*

Apsche, J.A., Bass, C.K., Jennings, J.L., Siv, A.M. (2005). *International Journal of Behavior Consultation and Therapy, 1(1), pp. 27-25.*

Apsche, J.A., Bass, C.K., Jennings, J.L., Murphy, C.J., Hunter, L.A. (2005). *The International Journal of Behavior Consultation and Therapy. Vol. 1 (2) pp.101-113.*

Apsche, J.A. (1999). *Thought Change Workbook*. Portsmouth, VA: Alternative Behavioral services.

Apsche, J.A., Evile, M.M., and Murphy, C.J. (2004). The thought change system: An empirically based cognitive behavior therapy for male juvenile sex offenders. A pilot study. *Thef Behavior Analysis Today*, *5*(1), 101-107.

Apsche, J.A. and Ward Bailey, S.R. (2004a). Mode Deactivation Therapy: Cognitive-behavioural therapy for young people with reactive conduct disorders or personality disorders or traits who sexually abuse. In M.C. Calder (Ed.), *Children and Young People who Sexually Abuse: New Theory, Research and Practice Developments*, pp. 263-287. Lyme Regis, UK: Russell House Publishing.

Apsche, J.A. and Ward Bailey, S.R. (2003). Mode deactivation therapy: A theoretical case analysis (Part I). *The Behavior Analyst Today*, *4*(3), 342-353.

Apsche, J.A. and Ward Bailey, S.R. (2004b). Mode deactivation therapy: A theoretical case analysis (Part II). *The Behavior Analyst Today*, *5*(1), 395-434.

Apsche, J.A. and Ward Bailey, S.R. (2004c). Mode deactivation therapy: A theoretical case analysis (Part III). *The Behavior Analyst Today*, *5*(3), 314-332.

Beck, A.T. (1996). Beyond belief: A theory of modes, personality and psychopathology. In P.M. Salkovaskis (Ed.), *Frontiers of cognitive therapy*, (pp. 1-25). New York: Guilford Press.

Beck, A.T. and Freeman, A. (1990). *Cognitive therapy of personality disorders.* New York: Guilford Press.

Dodge, K.A., Lochman, J.E., Harnish, J.D., Petti, G.S. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology*, *106* (1), 37-51.

Friedberg, R.D., McClure, J.M. *Clinical practice of cognitive therapy with children and adolescents.* (2002). New York: Guilford.

Henggeler, S.W., Schoenwald, S.K., Borduin, C.M., Rowland, M.D. and Cunningham, P.B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford Press.

Johnson, J.G., Cohen, P., Brown, J., Smailes, E.M., and Bernstein, D.P. (1999). Associations between four types of childhood neglect and personality disorder symptoms during adolescence and early adulthood: Findings of a community-based longitudinal study. *Archives of General Psychiatry*, *14*, 171-120.

Kazdin, A.E. and Weisz, J.R. (2003). *Evidenced based psychotherapies for children and adolescents*. New York: Guilford Press.

Kendall, P.C. *Child & adolescent therapy: cognitive-behavioral procedures.* (2000). New York: Guilford.

Koenigsberg, H.W., Harvey, P.D., Mitropoulou, V., Antonia, N.S., Goodman, M., Silverman, J., Serby, M., Schopick, F. and Siever, L. (2001). Are the interpersonal and identity disturbances in the borderline personality disorder criteria linked to the traits of affective instability and impulsivity? *Journal of Personality*, *15*(4), 358-370.

Kohlenberg, R.J. and Tsai, M. (1993). Functional Analytic Psychotherapy: A behavioral approach to intensive treatment. In W. O'Donahue and L. Krasner (Ed)., *Theories of behavior therapy: Exploring behavior change* (pp. 638-640). Washington, D.C.: American Psychological Association.

Linehan, M.M. (1993). *Treating Borderline Personality disorder: The dialectical approach*. New York: Guilford Press.

Naglieri, J.A., LeBuffe, P.A. & Pfeiffer, S.I. (1994). *Devereux scales of mental disorder*. San Antonio: The Devereux Foundation.

Naglieri, J.A., LeBuffe, P.A. & Pfeiffer, S.I. (1994). *Manual of the Devereux scales of mental disorder*. San Antonio: The Devereux Foundation.

Nezu, A.M., Nezu, C.M., Friedman, S.H. and Haynes, S.N. (1998). Case formulation in behaviour therapy: Problem-solving and Functional Analytic strategies. In T.D. Eells (Ed.), *Handbook of psychotherapy case formulation*. New York: Guilford Press.

Reinecke, M.A., Dattilio, F.M., Freeman, A Eds..(1996) (2004) *Cognitive Therapy with children and adolescents.* New York: Guilford

Swenson, C.C., Henggeler, S.W., Schoenwald, S.K., Kaufman, K.L., and Randall, J. (1998). Changing the social ecologies of adolescent sexual offenders: Implications of the success of multisystemic therapy in treating serious antisocial behavior in adolescents. *Child Maltreatment*, *3*, 330-339.

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Young, J.E., Klosko, J.S. and Weishaar, M.E. (2003). *Schema therapy: A practitioner's guide*. New York: Guilford Press.

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