

Update and review of mode deactivation therapy family and individual meta-analysis

Christopher Bass¹ and Jack Apsche²

¹Clark Atlanta University & ²New Lifestyles, The Apsche Institute

Abstract

The following is a review and reanalysis of both Family and Individual Mode Deactivation Therapy articles. New data were infused and added to the purported results of this study and the composite of the analysis of these results suggest that there is a large effect size of both family and individual mode deactivation therapy

Keywords

Mode Deactivation Therapy (MDT), Family MDT, Individual MDT, Mindfulness, Meditation

In 2012, Apsche, Bass and Backlund conducted a rigorous meta-analysis on the efficacy of Mode Deactivation Therapy (MDT). The findings were substantial in that MDT was shown to be an effective approach to working with many disorders and socially unacceptable behaviors (Apsche, Bass and Backlund, 2012). It has been 2 years since that analysis. This study revisited the work by adding additional data from recent articles related MDT's effectiveness within the family dynamic and reexamined all of the data to assess the consistency of the approach. As was the case in the first analysis, MDT is described as a derivative of Cognitive Behavior Therapy, Acceptance and Commitment Therapy, Dialectical Behavior Therapy, Functional Analytic Psychotherapy and Mindfulness and Meditation from ancient Buddhist practices. This was the third large scale assessment of MDT with the first being conducted by Apsche and Dimeo (2010).

Apsche & DiMeo (2010) completed a meta-analysis including thirty-eight published and unpublished studies on MDT. They included any MDT article with reported data and then examined data from unpublished MDT studies. As mentioned in the Apsche, Bass and Backlund article, the results were promising, yet incomplete. That meta-analysis examined all related articles and was, at the time of writing, current and updated. Since those publications, Apsche and associates have completed further studies that could potentially add to the body of research related to efficacious treatments for Adolescent sexual and aggressive offenders.

In this meta-analysis only MDT studies with *N*'s over seventeen and comprehensive data analysis were examined, as well as the large unpublished study with an *N* of 143. All previous unpublished studies with smaller *N*'s were not included and were removed for clarity and to not rely on non-published studies or case studies with small data basis. This meta-analysis includes twenty six published and one unpublished MDT studies. The unpublished study includes data for both meta and mediation analysis. Similar to the 2012 meta analysis, the purpose of this study is to examine the overall effectiveness and consistency of MDT individual and family groups with a diverse group of male adolescents.

Methods

All published and unpublished MDT studies were evaluated for inclusion. Only studies implementing MDT, in residential and outpatients units, were selected resulting in a total of 24 studies included in the meta-analysis. All the studies included in the meta-analysis are listed in Table 1.

Once again, the selected studies were divided into three categories. This time we used Mediation, Individual, and Family studies. A separate meta-analysis was conducted for each category. All data was extracted by the second author and an associate. The data was entered and calculated using the Cohen's *d* and Effect Size *r* methodologies (Cohen, 1988). The present meta-analysis used the *DSTAT* statistical package for the computation of effect sizes (Johnson, 1993).

Participants

The 24 studies yielded a sample population of 734 male adolescents between the ages of 14 through 17. Study Participant demographics included Axes I and II diagnoses, many with comorbid presentation (Table 2). Conduct disorder (51%), oppositional defiant disorder (42%), and post-traumatic stress disorder (54%) were prevalent among the population. Additionally, 56% of the population presented mixed personality traits. Fifty-four percent of participants were African American, 43% Caucasian, 4% were Hispanic American and one percent are listed as other (mixed race). Ninety percent of participants had experienced all four types of abuse—sexual, physical, verbal, and neglect. Furthermore, 56% had witnessed violence and 24% were parasuicidal. General participant recidivism was less than 7%, and sexual offense recidivism less than 4% after two years post MDT treatment.

Procedure

Similar to the 2012 meta-analysis, this meta-analysis measured the effectiveness of MDT on two separate, although similar, adolescent populations—adolescent sexual abusers and adolescents with conduct disorder. In the individual studies the data was gathered and the effect size and Cohen's *d* were calculated using the standard

Cohen (1988) methodology:

$$d = \frac{M_1 - M_2}{\sigma_{\text{pooled}}}$$

where

$$\sigma_{\text{pooled}} = \sqrt{\frac{\sigma_1^2 + \sigma_2^2}{2}}$$

The effect size *r* was calculated by the following:

$$r_{YX} = \frac{d}{\sqrt{d^2 + 4}}$$

The means and standard deviations were computed using the Lipsey & Wilson (1993) calculation methodology. Cohen (1998) defined effect size as small: *d* = .2, medium: *d* = .5 and large: *d* = .8

Adopting procedures recommended by Rosenthal (1991), each effect size was weighted by sample size, and averaged to yield a grand weighted mean *d* based on 20 studies. Weighting effect sizes by sample size is an unbiased and objective procedure for assigning different weights to studies that vary in statistical power. The grand weighted mean *d* was tested for significance (*d* compared to zero) using a one sample *t*-test, and 95% confidence intervals were calculated. A chi square was also calculated to test for heterogeneity of variance within the set of effect sizes. The heterogeneity test is the basis for a decision on whether or not to search for moderator variables; in case of significant heterogeneity, it would be necessary to disaggregate the effect sizes according to the variables influencing effect size. Finally, to address the file-drawer problem, a failsafe *N*, as recommended by Rosenthal (1991), was calculated to test for robustness. A robust finding indicates that the probability of a Type 1 error arising from unpublished, non significant results is negligible.

Results

The results will be separated into 3 categories; Individual studies, Family Studies and Mediation effects. We chose to separate the section because of the three separate meta analysis conducted on the selected articles.

Individual studies

Table 3 shows the results of the meta analysis on the individual studies. Cohen's *d* show large effect sizes with SO-Physical Aggression (1.81) and CD-Physical Aggression (1.85). Total Physical Aggression and Sexual Aggression were also large at 1.86 and 1.94 respectively. Child Behavior Check List (CBCL) scores were also large, yet were smaller than the aggression numbers. CBCL scores measuring internal states were 1.10 and External was 1.25. The total CBCL effect size was 1.78. The State-Trait Anger Expression Inventory (STAXI) scores showed internal expressions of anger were not as controlled as external expressions of anger. With subjects who had the Conduct disordered (CD) diagnosed delegation; STAXI scores for inner control was 1.4. Conversely, the control for outward expression was 1.51. The total Anger effect size expressed by

Table 1. List of studies

Study	Sample	DV	Design	N	d
Apsche (unpublished) (2006)	Juvenile sex offenders	Outcomes	PP	143	1.28
Apsche & Bass (2006)	Adolescent males with CD/PD	Outcomes	PP	40	1.24
Apsche & Bass (2006)	Outpatient	Outcomes	PP	30	.92
Apsche & Bass (2006)	Family	Outcomes	PP	13	.8
Apsche & Ward Bailey (2004)	Children/adolescent with reactive CD or PD who sexually abuse	Outcomes	PP	20	1.16
Apsche & Ward (2002)	Adolescents with personality beliefs, sexual offending and aggression	Outcomes	PP	14	1.05
Apsche, Bass & Houston (2006)	Adolescent males with aggression	Outcomes	PP	20	1.29
Apsche, Bass & Houston (2007)	Family	Outcomes	PP	20	1
Apsche, Bass & Murphy (2004)	Adolescent male sex offenders with reactive disorder	Outcomes	PP	20	.24
Apsche, Bass & Murphy (2004)	Adolescent males with CD and sexually reactive bxs	Outcomes	PP	30	.92
Apsche, Bass & Siv (2006)	Outpatient	Outcomes	PP	20	1.31
Apsche, Bass & Siv (2005)	Adolescent males with CD/PD	Outcomes	PP	21	1.51
Apsche, Bass & Siv (2006)	Suicidal adolescents with PD/traits	Outcomes	PP	20	.97
Apsche, Bass & Siv (2006)	MDT, SST & CBT- two year post tx	Outcomes	PP	21	1.17
Apsche, Bass, Jennings & Siv (2005)	Adolescent males with CD/PD	Outcomes	PP	40	1.20
Apsche, Bass, Jennings, Murphy, Hunter & Siv (2005)	Adolescent males with physical/sexual aggression	Outcomes	PP	21	1.13
Apsche, Bass, Siv & Matteson (2005)	Aggressive adolescent males	Outcomes	PP	20	1.22
Apsche, Bass, Zeiter & Houston (2009)	FMDT, residential, adolescents with CD/multi axial	Outcomes	PP	20	.89
Apsche, Siv & Bass (2005)	Adolescents with CD and fire setting bxs	Outcomes	PP	20	.29
Swart, J. & Apsche, J. A. (in press).	Family	Outcomes	PP	20	.89
Swart, J., & Apsche, J. A. (in press).	Family	Outcomes	PP	20	1.22
Swart, J., & Apsche, J. A. (in press).	Family	Outcomes	PP	61	1.4
Apsche, J.A. & Blossom, P. (2013).	Family	Outcomes	PP	41	1.31
Blossom, P. & Apsche, J.A. (2013)	Family	Outcomes	PP	20	.91
TOTAL				734	

this group was 1.82. STAXI effect size scores for Subjects who had offended sexually (SO) were similar to aggressive CD population. Inner control was 1.0. Outward expression of anger control was 1.10. External aggression was among the largest of all groups at 1.9.

Family studies

Table 4 shows the effect sizes of the studies which looked at the family in treatment using Mode Deactivation Therapy. Of the studies chosen Cohen's d produced large effect sizes on most of the categories. The CBCL effect size for internalization was 1.4 whereas, the externalization size was 1.6. The total effect size for CBCL was 1.5. STAXI scores showed 1.3 effect sizes for internal anger control and its expression. Outward anger control was 1.2. The total effect size for anger and its expression was 1.6. Physical expression of anger was large at 1.4 but, the verbal expression of anger showed a medium effect size (.7). Finally, related to physical aggression; Property aggression also showed a large effect size (1.1).

Mediation effects

An analysis of the varying mediation effects showed significant improvement in all of the scales utilized. There was significant reduction of all negative behaviors from intake to post treatment utilizing the STAXI-II and the CBCL. Table 5 shows the results of the analysis. CBCL effect sizes for internalization was .850 and .895 for externalizing behaviors. Total effect size for the CBCL was .9357. The STAXI-II showed effect sizes for Anger Con In of .7311 and .8433 for Anger Con out with total anger expression of .7132.

Conclusion

There have been numerous articles to support the effectiveness of the Mode Deactivation framework. The findings of this study show unequivocally that MDT is an effective-evidenced based methodology with the specific target population of male adolescents. Also, the study further validates the MDT hypothesis that adolescent externalizing disorders are the function of adolescent internalizing disorders.

Table 2. Participant demographic characteristics

Characteristics	%
Axis I	
Conduct disorder	53%
ODD	42%
PTSD	54%
Other secondary	28%
Axis II beliefs	
Mixed	58%
BPD	38%
NPP	28%
HPD	2%
DPD	30%
APD	20%
Ethnicity/Race	
African-American	53%
Caucasian	42%
Latin	4%
Other	1%
Ages	
14.5	10%
15	18%
16	42%
17	30%
Background	
Experienced 4 types of abuse ¹	90%
Witnessed violence	58%
Parasuicidal	24%
Recidivism (two years post-treatment)	
General recidivism	< 7%
SO recidivism	< 4%

N = 734, ¹Sexual, physical, verbal, neglect

The meta-analysis data demonstrated the effectiveness of MDT with adolescent males, ages 14 through 18. The effect size for the target behaviors, physical aggression for both the conduct groups and the sexual abusing groups, showed significant effect sizes. While the differences in aggressive behavior were statistically the same for sexually offending juveniles and those who have had histories of conduct disorder, sexual aggression was statistically significant in both populations. This suggests that some aggressive adolescents, like those who have histories of sexual offense may begin to use sex as outward expressions of internal anger states. This study illustrated that both the conduct disordered and sexual abusing groups had large effect sizes for their sexual behaviors while in treatment and for two years post-treatment. This finding suggests that Mode Deactivation therapy is a superior form of cognitive behavioral therapy that addresses not just the acting out behavior, but internal states as well. In this study as well as its predecessors; MDT had a

Table 3. Individual studies

Category	Cohen's standard	<i>d</i>	<i>r</i>	% of non-overlap
SO-physical aggression	Large	1.81	.710	75.3
CD-physical aggression	Large	1.85	.679	51.6
Total-physical aggression	Large	1.86	.674	48.4
Sexual aggression	Large	1.94	.774	72.9
CBCL-INT	Large	1.10	.450	70.2
CBCL-EXT	Large	1.25	.551	74.1
CBCL total	Large	1.78	.581	72.7
CD-STAXI anger con in	Large	1.40	.521	66.7
CD-anger con out	Large	1.51	.612	63.2
CD-anger ex	Large	1.82	.710	75.1
SO-STAXI anger con in	Large	1.00	.428	75.4
SO-anger con out	Large	1.10	.410	50.1
SO-anger ex	Large	1.90	.670	79.5
J-SOAP total	Large	1.89	.721	79.4
<i>N</i> = 17				

large effect size in all areas of the CBCL and STAXI. As symptoms of externalizing disorders are addressed, internalizing disorders can be treated. The results of this reevaluation of data show that MDT reduces internalizing disorders. It further supports the idea that these internalizing disorders are the behavioral function of the reduced externalizing disorders. Thus, as symptoms of externalizing disorders decrease, internalizing disorders may appear as comorbid behavioral issues.

This study included several new articles looking at the effectiveness of MDT within the family milieu. For this population, verbal expressions of feeling and internal state maybe met with inconsistent family support. MDT addresses this support issue and operates within the family dynamic to increase needed support by the family unit. Working with families can insure that adolescents receive the wrap around

support needed for socially acceptable behaviors. This approach to service is done by teaching family members and youngsters effective ways to engage in dialogue. Its important to note that the entire family is identified client, not just the youngster. Follow-up studies have consistently shown that families who have undergone MDT show less aggression, property destruction and increase in family synchronization. Limitations of this study include the fact that it was conducted with the founder of MDT and his research team. Secondly, the mediators were measured only at intake and post treatment, simultaneous to measurements of anger and aggression outcome. A final known limitation was the sample population. Our population was one of convenience as all were mandated to a treatment condition. Despite these limitations, all methods used were conducted with the utmost professionalism and ethical standard.

Table 5. Mediation effects

Category	Cohen's standard	<i>d</i>	<i>r</i>
Anger con-in (STAXII)	Medium	1.81	.731
Anger con-out (STAXI)	Large	3.14	.843
STAXII total	Medium	1.54	.713
CBCL-INT	Large	3.24	.850
CBCL-EXT	Large	3.95	.895
CBCL-Total	Large	5.76	.935
<i>N</i> = 734			

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Table 4. Family studies

Category	Cohen's standard	<i>d</i>	<i>r</i>	% of non-overlap
CBCL-INT	Large	1.5	.570	52.3
CBCL-EXT	Large	1.6	.625	56.2
CBCL total	Large	1.5	.600	55.5
STAXI-anger con in	Large	1.3	.545	58.9
STAXI-anger con out	Large	1.4	.554	70.5
STAXI-anger ex	Large	1.6	.625	77.4
Behaviors-physical aggression	Large	1.4	.513	63.1
Behaviors-verbal aggression	Medium	0.7	.330	46.0
Property destruction	Large	1.4	.188	58.9
<i>N</i> = 15				

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■ Author contact information

Jack Apsche, Ed.D., ABPP

School of Psychology
College of Social and Behavioral Sciences
Walden University
155 Fifth Ave. South, Suite 100
Minneapolis, MN 55401
Email: jack@aol.com

Christopher Bass

Clark Atlanta University