

Source: Jensen, P. S. (Ed.) (2001). Special Section: ADHD comorbidity and treatment outcomes in the MTA. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 134-179.

Jensen, P. S., *Introduction*, 134-136.

Jensen, P. S., Hinshaw, S. P., Kraemer, H. C., et al., *ADHD comorbidity findings from the MTA study: Comparing comorbid subgroups*, 147-158.

Conners, C. K., Epstein, J. N., March, J. S., et al., *Multimodal treatment of ADHD in the MTA: An alternative outcome analysis*, 159-167.

Swanson, J. M., Kraemer, J. C., Hinshaw, S. P., et al., *Clinical relevance of the primary findings of the MTA: Success rates based on severity of ADHD and ODD symptoms at the end of treatment*, 168-179.

The Collaborative Multisite Multimodal Treatment Study of Children with Attention-Deficit Hyperactivity Disorder (MTA) of the National Institute of Mental Health is the largest clinical trial done in this country on a child mental health disorder. The articles to be reviewed here, all prepared by the team of MTA collaborators, demonstrate the complexity of analyzing data and interpreting findings from large-scale studies, even well-conducted studies, and at the same time call into question some of the initial conclusions.

The MTA was essentially a randomized clinical trial of four treatment strategies: medication management, behavioral treatment, the combination of these two, and usual treatment available in the community. In the medication management group, a specific algorithm was used to determine the use of medication. Also, families met monthly for 30 minutes with the prescribing doctor, dosage was higher and more frequent than in the community, and teachers' input was solicited to guide medication adjustments. The participants were 579 children with ADHD from seven sites across the U.S. and Canada.

The initial finding was that both the combination and medication management groups were statistically significantly more effective than the community comparison group, medication management was more effective than the behavioral group alone, and there were no significant differences between the medication management group and the combination group. This last finding of no difference between the medication management group and the combination group raised considerable interest since the behavioral intervention, used as part of the combination intervention, was extensive and intensive and thought to include some of the strongest psychosocial components for addressing ADHD, and multimodal treatment was considered to be the treatment of choice by many for ADHD.

While it was concluded that there were no differences between these two groups on the child outcome measures, it was found that parents whose children received the combination treatment were more satisfied with the treatment than parents whose children received medication management alone. In fact, 71% of parents in the combination group indicated that they were strongly satisfied compared to 32% of parents in the medication management group.

The present studies shed important additional light on the findings, and help illustrate how the results of a study can very much depend on how the analyses are conducted. In the first study briefly reviewed here, Jensen et al. divided the participants into four groups, based on the presence of comorbid conditions: ADHD alone; ADHD with an anxiety disorder; ADHD with either oppositional defiant disorder or conduct disorder; and ADHD with both an anxiety disorder and either oppositional defiant disorder or conduct disorder. This division of the participants reveals that the relative effectiveness of the different treatments depends on the condition of the children. Participants with ADHD and anxiety responded equally well to all three experimental conditions – medication alone, behavioral alone, or the combination. ADHD-only and

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ADHD plus conduct problems responded only to treatments including medication. The group with all three conditions “appeared to derive substantially greater benefits from combination interventions compared with all other treatments” (p. 155). This is a very important finding partly because of its implications for understanding and treating ADHD in children and partly because it illustrates the importance of conducting analyses in which the subjects are disaggregated and not viewed as if they were a homogeneous entity. This type of analysis allows researchers to determine how to best match treatments with characteristics of individuals.

The second study, by Conners et al., focused more on the measurement of improvement. The original findings of the MTA study were based on the use of 19 outcome measures. With the use of multiple outcome measures, the researchers chose to use a statistical correctional procedure to adjust for the multiple tests they were conducting. This procedure results in a loss of statistical power, and a reduction in the likelihood of obtaining positive results. Conners et al., in their re-analysis of the data, used factor analysis procedures to construct a single “composite” measure of children’s overall functioning. With this single composite measure, they found that the combination treatment was significantly more effective than the medication management with an effect size of .28. While an effect size of .28 is in the small to modest range, the authors concluded that it demonstrated that “combined multimodal therapy has a clinically meaningful and statistically significant advantage over monotherapies and community treatment” (p. 166). This is an important conclusion that differs from the conclusion reached after the initial analyses of the MTA study.

A similar finding was reached by Swanson et al. in their paper. Swanson et al. developed a single measure as well but they chose to develop a categorical outcome, maintaining that clinicians are faced with decisions about which treatment to use and that findings on a categorical outcome were more similar to the decisions that clinicians had to make than findings on a continuous outcome measure. The measure that they developed was based largely on parent and teacher ratings of ADHD and oppositional defiant disorder symptoms. With this approach, they found that the overall success rates of the interventions were 68% for the combination treatment, 56% for medication management alone, 34% for the behavioral treatment alone, and 25% for the community comparison condition. The authors concluded that the superiority of the multimodality intervention in comparison to the medication management intervention was small to moderate, with the difference in success rates (68% versus 56%) representing a 21.4% difference in the rate of excellent response.

Overall, these studies greatly enhance the value and contribution of the MTA study. It is clearly commendable that the entire distinguished team of MTA collaborators, rather than strictly adhering to their original conclusions, engaged in these additional analyses to help better understand the findings. It is perhaps noteworthy that a hint of these results might have been contained in the data on parent satisfaction, which indicated greatest satisfaction in the group whose children received the combined treatment. While it is easy for the findings of complex studies to be summarized in brief sound bites, these analyses illustrate that such an approach is a real disservice, and argue for the type of complex analyses that can best present the full picture.