Methylphenidate alone and methylphenidate in combination with cognitive therapy improve attention behavior in children with Attention Deficit/Hyperactivity Disorder (ADHD)

CITATION: Brown, R. T., Wynne, M. E., & Medenis, R. (1985). Methylphenidate and cognitive therapy: A comparison of treatment approaches with hyperactive boys. *Journal of Abnormal Child Psychology, 13,* 69–87.

LEVEL OF EVIDENCE: IA1a

RESEARCH OBJECTIVE/ QUESTION
To compare the effects of cognitive behavioral therapy (CBT), methylphenidate (MPH) alone, and combination therapy (MPH + CBT) in the treatment of children with ADHD.

DESIGN

X	RCT		Single case		Case control
	Cohort		Before-after		Cross-sectional

RCT = randomized control trial (parallel).

SAMPLING PROCEDURE

	Random		Consecutive
X	Controlled		Convenience

SAMPLE

N=30	M Age = 5–12	Male=30	Ethnicity=NR	Female=0

NR = Not reported

PARTICIPANT CHARACTERISTICS
NR

MEDICAL DIAGNOSIS/CLINICAL DISORDER
ADHD

OT TREATMENT DIAGNOSIS
N/A

OUTCOMES
Core symptoms
Global symptoms
Inattention/hyperactivity/impulsivity
Academic

Measures	Reliability	Validity
"Attentional deployment" and cognitive style: Children's Checking Task (CCT) Matching Familiar Figures Test (MFFT) Children's Embedded Figures Test (CEFT) Wechsler Intelligence Scale for Children–Revised (WISC–R; Arithmetic, Digit Span, and Coding subtests) Academic performance: Wide Range Achievement Test (WRAT; Arithmetic and Reading subtests) Detroit Tests of Learning Aptitude Behaviors associated with ADHD: Conners Parent Rating Scale Conners Abbreviated Teachers Scale	Y	Y

NR = Not reported

Outcome—OT terminology
Performance areas:
- Work and productive areas: educational activities

Performance components:
- Cognitive integration and cognitive components
- Psychosocial skills and psychological components

Outcome—ICIDH-2 terminology
Activity limitations
Impairments

INTERVENTION
MPH
MPH + Cognitive Behavioral Therapy (CBT)
CBT

Description
The CBT program consisted of individual sessions and consultation sessions for both parents and teachers

MPH

Who delivered
Not specified

Setting
Mental health clinic outpatient
Home

Frequency
24 1-hour individual sessions 2 times per week

Duration
12 weeks

Follow-up
N/A

RESULTS
- Statistical significance was not reported.
- Results showed that only those children in the 2 medication conditions demonstrated improvement in both attentional and behavioral ratings and that the combination therapy was not any more effective that MPH alone.

	MPH (Mean ± SD)	MPH +CBT	CBT
Academics Reading:			
Detroit 13	51.5 ± 10.4	51.4 ± 6.7	59.4 ± 9.9
Detroit 16	11.5 ± 4.6	13.0 ± 4.8	14.1 ± 2.0
Detroit 6	37.4 ± 8.2	41.8 ± 12.1	44.0 ± 4.3
WRAT	65.4 ± 15.2	59.8 ± 15.1	62.5 ± 10.2
Arithmetic: WRAT	27.0 ± 7.8	26.4 ± 5.3	29.4 ± 7.6
Core/Global Symptoms Conners (parent)	7.4 ± 5.8	7.5 ± 2.6	13.1 ± 4.1
Conners (teacher)	15 ± 3.1	15.1 ± 4.6	15.7 ± 2.9
Inattention/Hyperactivity/Impulsivity			
Inattention CCT	10.9	7.4	16.8
CEFT	14.3 ± 5.0	16.6 ± 6.1	22.0 ± 4.5
Teacher Rating Scale of Attention	48.2 ± 10.4	46.6 ± 7.5	51.4 ± 9.1

WISC–R	69.5 ± 11.5	72.8 ± 21.5	70.6 ± 11.9
Impulsivity: Children Rating Scale of Impulsivity	67.9 ± 4.2	67.4 ± 5.8	71.8 ± 12.5
MFFT	4.4 ± 4.1	4.7 ± 2.7	6.8 ± 3.3
Teacher Rating Scale of Impulsivity	61.7 ± 3.2	61.6 ± 8.1	61.2 ± 9.0
Listening: Durell Analysis of Listening Comprehension	33.6 ± 5.6	30.2 ± 5.9	32.4 ± 7.9

CONCLUSIONS
Findings suggest that methylphenidate alone and methylphenidate in combination with cognitive therapy are effective in improving attention and behavior in children with hyperactivity. However, the combined treatment may be no more effective than methylphenidate alone.

LIMITATIONS
Lack of nondrug placebo group

- Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

This work is based on the evidence-based literature review completed by Erna Imperatore Blanche, PhD, OTR/L, FAOTA, and Gustavo Reinoso, OTR/L. Contributions to the evidence brief were provided by Michele Youakim, PhD.

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.