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A Review and a Proposal for Reducing the Symptoms of Attention-Deficit/Hyperactivity Disorder in Adolescents by Combining Mindfulness-Based Stress Reduction Training and Methylphenidate Medication as a Treatment

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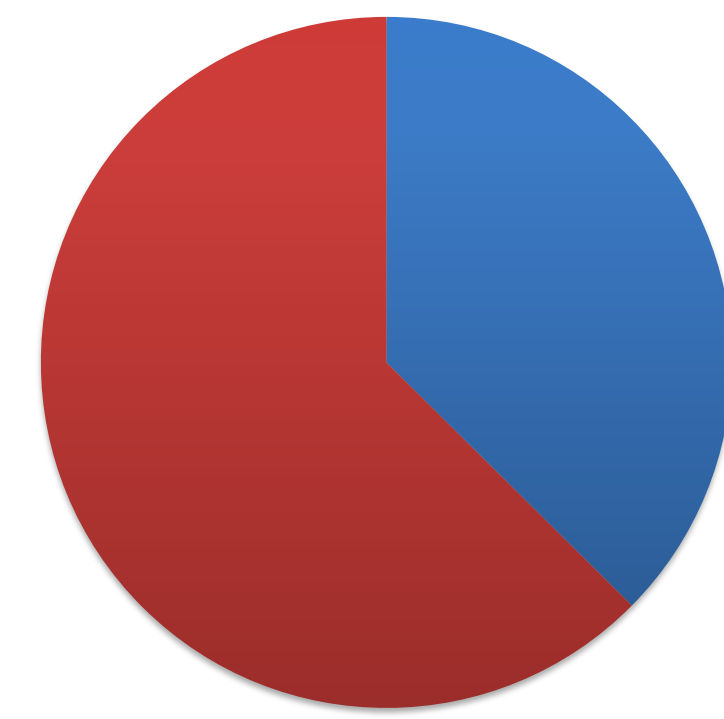
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Background

➤ National Health Interview Survey reports increase in ADHD prevalence:

■ 1997 (6.1%) ■ 2016 (10.2%)



- First-line therapy → medication (Methylphenidate)
- Challenges of medication → side-effects, short-term effect, and financial burden
- Alternative treatment to manage ADHD symptoms in adolescents → mindfulness-based practices

Methodology

Medication

Advantages and disadvantages of Methylphenidate

Mindfulness

Mindfulness-based research on children and adolescents with ADHD

References

- Xu, G., Strathearn, L., Liu, B., Yang, B., & Bao, W. (2018). Twenty-Year trends in diagnosed attention-deficit/hyperactivity disorder among US children and adolescents, 1997-2016. *JAMA Network Open*, 1(4), e181471. <https://doi.org/10.1001/jamanetworkopen.2018.1471>
- Swensen, A., Birnbaum, H. G., Ben Hamadi, R., Greenberg, P., Cremieux, P. Y., & Secnik, K. (2004). Incidence and costs of accidents among attention-deficit/hyperactivity disorder patients. *Journal of Adolescent Health*, 35(4), 346.e1-346.e9. <https://doi.org/10.1016/j.jadohealth.2003.12.003>
- Matza, L. S., Paramore, C., & Prasad, M. (2005). A review of the economic burden of ADHD. *Cost Effectiveness and Resource Allocation*, 3(5), 1-9. <https://doi.org/10.1186/1478-7547-3-5>

Literature Review

Medication

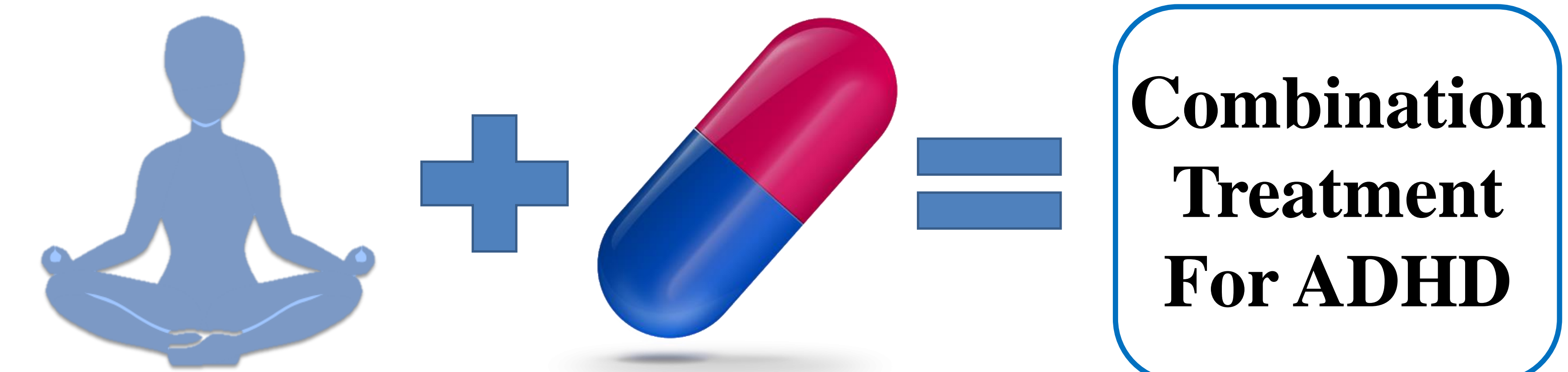
- Improved attention
- Reduced hyperactivity/impulsivity
- **Side Effects:** insomnia, body pain, stress, headache, dizziness, mood changes, depression risk, and more
- **Short-Term Effect:** discontinued medication → symptoms triggered
- **Financial Burden:** higher dose leads to more spending. ~ \$2,200 annual spending for treatment. In addition to medication costs are hospital/doctor visits, educational spending, and treatment for comorbid disorders (ex. bipolar, anxiety, depression)

Mindfulness

- Increased attention, self-awareness, and self-control
- Strengthened peer relationships
- Improved sleep quality and neurocognitive tasks
- Reduction in disruptive and aggressive behavior
- Reduction in stress and somatic symptoms
- **Balancing with Medication:** No reported side effects. Long lasting (6-8 week follow up studies) and cost-effective (at-home practice)

Discussion

- Problem → Limitations in medication
- Possible Solution → Mindfulness-based practices
- Gap in literature → **No** exploration of a combination therapy
- **Proposal** → Methylphenidate Medication + Mindfulness-based intervention for adolescents with ADHD



Future Directions

- (1) Execute the proposal: explore the efficacy of the combination treatment for adolescents with ADHD.
- (2) Evaluate the long-term effectiveness and possible side effects undiscovered in mindfulness-based practice.

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