

Mindfulness-Based Interventions Improve Mental Health

Anxiety

Hofmann, S. G., & Gómez, A. F. (2017). Mindfulness-Based Interventions for Anxiety and Depression. *Psychiatric Clinics of North America*, 40(4), 739–749.

<https://doi.org/10.1016/j.psc.2017.08.008>

This article reviews the ways in which cognitive and behavioral treatments for depression and anxiety have been advanced by the application of mindfulness practices. Research on **mindfulness based interventions** (MBIs) has increased exponentially in the past decade. The most common include Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). **MBIs have demonstrated efficacy in reducing anxiety and depression symptom severity in a broad range of treatment-seeking individuals.** MBIs consistently outperform non-evidence-based treatments and active control conditions, such as health education, relaxation training, and supportive psychotherapy. MBIs also perform comparably to cognitive-behavioral therapy (CBT). **The treatment principles of MBIs for anxiety and depression are compatible with those of standard CBT.**

Hoge, E. et al. (2018). The effect of mindfulness meditation training on biological acute stress responses in generalized anxiety disorder. *Psychiatry Research*, 262, 328–332. <https://doi.org/10.1016/j.psychres.2017.01.006>

Mindfulness-Based interventions have increased in popularity in psychiatry, but the impact of these treatments on disorder-relevant biomarkers would greatly enhance efficacy and mechanistic evidence. If Generalized Anxiety Disorder (GAD) is successfully treated, relevant biomarkers should change, supporting the impact of treatment and suggesting improved resilience to stress. MBSR participants had a significantly greater reduction in ACTH AUC compared to control participants. Similarly, the MBSR group had a greater reduction in inflammatory cytokines' AUC concentrations. **We found larger reductions in stress markers for patients with GAD in the MBSR class compared to control; this provides the first combined hormonal and immunological evidence that MBSR may enhance resilience to stress.**

Zhou, X., et al. (2020). Effects of mindfulness-based stress reduction on anxiety symptoms in young people: A systematic review and meta-analysis. *Psychiatry Research*, 289, 113002. <https://doi.org/10.1016/j.psychres.2020.113002>

The authors evaluated the efficacy of **mindfulness-based stress reduction (MBSR)** for young people with anxiety symptoms. **The meta-analysis suggested that MBSR significantly reduced anxiety symptoms compared to control conditions at post-treatment.** However, the effect of MBSR on anxiety symptoms in young people may be affected by different intervention duration, especially the significance in a short-term intervention (less than 8 weeks). **Current evidence indicates MBSR has superior efficacy compared with control conditions in treating young people with anxiety symptoms.**

Depression

Chi, X., et al. (2018). Effects of Mindfulness-Based Stress Reduction on Depression in Adolescents and Young Adults: A Systematic Review and Meta-Analysis. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.01034>

This systematic review and meta-analysis evaluated the effects of **mindfulness-based stress reduction (MBSR)** in the treatment of depression among adolescents and young adults. Electronic databases and references in articles were searched. Randomized controlled trials (RCTs) evaluating MBSR and reporting outcomes for depressive symptoms among young people aged 12 to 25 years were included. Eighteen RCTs featuring 2,042 participants were included in the meta-analysis. The moderate effect size of MBSR suggests that it is a promising approach in terms of reducing depressive symptoms and can be widely applied to treat depression or depressive symptoms among young people with various levels of depression severity, from expressing depressive symptoms to having a clinical diagnosis of depression. Given an increasing interest in positive education, MBSR that targets positive mental health could be incorporated into school-based educational programs to promote students' emotional well-being. The study also found longer treatment duration (e.g., 8 weeks or more) is associated with larger follow-up effect size. This may suggest that the use of full-length MBSR may be necessary for adolescents and young adults to result in a larger sustaining effect.

Heath, N. et al. (2016). The Relationship Between Mindfulness, Depressive Symptoms, and Non-Suicidal Self-Injury Amongst Adolescents. *Archives of Suicide Research*, 20(4), 635–649. <https://doi.org/10.1080/13811118.2016.1162243>

Mindfulness is often part of treatment for **non-suicidal self-injury (NSSI)**; however, there has been limited research examining the role of mindfulness in NSSI. Thus, the current study sought to investigate the relationship between mindfulness, depressive symptoms and NSSI (past year) in adolescents with consideration of gender. Findings revealed that mindfulness and depressive symptoms were negatively correlated, although significantly less so for the NSSI group. Second, the NSSI group reported greater depressive symptoms and less mindfulness. Finally, mindfulness was found to partially mediate the effect of depressive symptoms on NSSI. The present study is the first to provide empirical support for the protective role of mindfulness in NSSI.

Suicide Ideation

Collins, K. et al. (2018). Mind full of life: Does mindfulness confer resilience to suicide by increasing zest for life? *Journal of Affective Disorders*, 226, 100–107. <https://doi.org/10.1016/j.jad.2017.09.043>

Mindfulness is a trainable skill that may enhance resilience to suicidality among vulnerable groups such as young people. The current study examined whether mindfulness protects against suicidal desire in the face of heightened risk and adversity by increasing zest for life in a sample of university students. Findings suggest that mindfulness protects against suicidal desire in conditions of heightened risk and adversity by enhancing one's orientation towards a life worth

living. Theories of suicide should consider the dynamic interplay between risk and life-sustaining resilience, while clinicians treating suicidality could use mindfulness strategies to strengthen the desire to (re)engage with life, thereby complementing direct amelioration of suicide risk factors.

Fang, Y., Zeng, B., Chen, P., Mai, Y., Teng, S., Zhang, M., Zhao, J., Yang, X., & Zhao, J. (2019). Mindfulness and Suicide Risk in Undergraduates: Exploring the Mediating Effect of Alexithymia. *Frontiers in Psychology, 10*.
<https://doi.org/10.3389/fpsyg.2019.02106>

The present study was designed to examine the relationship between dispositional **mindfulness** and suicide risk in undergraduates, and it further explored the potential mediating role of alexithymia in this relationship. The results indicate that mindfulness and suicide risk were negatively correlated, and alexithymia partially mediated the relationship between mindfulness and suicide risk only in the female undergraduates. Moreover, only the difficulty in identifying feelings (DIF) factor of alexithymia mediated the relationship between mindfulness and suicide risk in the female undergraduates. These findings contribute to the potential mechanism that explains the relationship between mindfulness and suicide risk. Furthermore, it is possible to implement mindfulness in the suicide intervention of alexithymic individuals.

Le, T. N., & Gobert, J. M. (2013). Translating and Implementing a Mindfulness-Based Youth Suicide Prevention Intervention in a Native American Community. *Journal of Child and Family Studies, 24*(1), 12–23. <https://doi.org/10.1007/s10826-013-9809-z>

The present study is a feasibility study, aimed at investigating whether a **mindfulness-based prevention intervention** can be translated and implemented in a Native American youth population. Guided by the adaptation process model, a mindfulness youth suicide prevention intervention was developed and implemented in a Native American school. One group of eight youth, ages 15–20, participated in a 9-week pilot of the intervention. Results of the mixed-methods process and outcome evaluation suggest that the intervention is acceptable to Native American youth, with positive indications in terms of better self-regulation, less mind wandering, and decreased suicidal thoughts. It became clearly evident that a collaborative and indigenous research framework is both required and necessary to ensure feasibility and sustainability of mindfulness-based interventions.

Lu, R., et al. (2019). The effects of mindfulness training on suicide ideation among left-behind children in China: A randomized controlled trial. *Child: Care, Health and Development, 45*(3), 371–379. <https://doi.org/10.1111/cch.12650>

The population of left-behind children is growing rapidly in China in recent years. Without parents' company, left-behind children may develop severe emotional problems, which can trigger extreme behaviours such as self-harm and suicide. Previous literature suggests that **mindfulness-based intervention** could effectively alleviate a variety of sufferings such as anxiety and suicide ideation. The current study sought to examine the effectiveness of mindfulness-based intervention on suicide ideation among left-behind children in China. The findings from this study support that the use of mindfulness-based intervention can effectively reduce the suicide ideation and social anxiety of left-behind children in China.

Raj, S., et al. (2019). Effectiveness of mindfulness based cognitive behavior therapy on life satisfaction, and life orientation of adolescents with depression and suicidal ideation. *Asian Journal of Psychiatry*, 39, 58–62.
<https://doi.org/10.1016/j.ajp.2018.12.001>

Suicide and depression are among the most alarming phenomena prevalent throughout the world. Various approaches have tried to explain the intricacies in depression and suicide, as a consequence of faulty psychological adjustment of the individual. Several therapeutic approaches have been developed to strengthen one's coping process, among which cognitive behaviour therapy has shown promising results. **Mindfulness-based approaches** to cognitive behavioural therapy have further accelerated the well-being of such individuals. This study was conducted with an aim to see the effect of mindfulness-based cognitive behaviour therapy on life satisfaction and life orientation in adolescents with depression and suicidal behaviour. **The analysis of pre and post tests revealed a significant enhancement in life satisfaction, life orientation, and family functioning as well as a reduction in depressive symptoms and suicidal ideation. It is concluded that mindfulness-based cognitive behaviour therapy serves as an effective medium to enhance the psychological functioning of depressive and suicidal adolescents.**

Tucker, R. et al., (2014). Mindfulness tempers the impact of personality on suicidal ideation. *Personality and Individual Differences*, 68, 229–233.
<https://doi.org/10.1016/j.paid.2014.05.001>

The Five Factor Model (FFM) domains of neuroticism and extraversion have consistently been related to suicidal ideation, such that individuals high in neuroticism or low in extraversion are at greater risk for suicidal thinking. **Mindfulness has been shown to moderate the relationship between neuroticism and depression.** The current study examined the relationship of the FFM domains, mindfulness, and suicidal ideation, and tested whether mindfulness would moderate the relationship between FFM domains and suicidal thinking. **Results indicated that mindfulness weakened the relationship between neuroticism and suicidal ideation. The possible importance of incorporating mindfulness practices in the prevention of suicidal thinking is discussed.**

Substance Abuse

Alizadehgoradel, J., Imani, S., Nejati, V., Fathabadi, J. (2019). Mindfulness-based substance abuse treatment (MBSAT) improves executive functions in adolescents with substance use disorders. *Neurology, Psychiatry and Brain Research* (34) 13-21.
<https://doi.org/10.1016/j.npbr.2019.08.002>

Studies show promise for the treatment of substance abuse through mindfulness practice. However, the neural mechanisms of mindfulness practice for treating substance use disorders are still unclear. Evidence suggests that major deficits in executive functions such as inhibitory control, risky behavior and decision-making, psychological flexibility, and working memory are associated with a craving to use. The current study investigated the efficacy of mindfulness practice on improving executive functions, assessed by neuroscientific tools, in a group of adolescents with methamphetamine use disorders. **Results showed that mindfulness-based intervention improved executive functions in the experimental group compared to controls. This**

study is the first to support the benefits of mindfulness-based practice in improving executive functions of adolescents with methamphetamine use disorders.

Dakwar, E., Levin, F. (2009). The Emerging Role of Meditation in Addressing Psychiatric Illness, with a Focus on Substance Use Disorders. *Har Rev Psychiatry*, 17(4) 254-267. <https://doi.org/10.1080/10673220903149135>

Over the past 30 years the practice of meditation has become increasingly popular in clinical settings. In addition to evidence-based medical uses, meditation may have psychiatric benefits. In this review, the literature on the role of meditation in addressing psychiatric issues, and specifically substance use disorders, is discussed. Each of the three meditation modalities that have been most widely studied—transcendental meditation, Buddhist meditation, and **mindfulness-based meditation**—is critically examined in terms of its background, techniques, mechanisms of action, and evidence-based clinical applications, with special attention given to its emerging role in the treatment of substance use disorders. The unique methodological difficulties that beset the study of meditation are also considered. **A brief discussion then integrates the research that has been completed thus far, elucidates the specific ways that meditation may be helpful for substance use disorders, and suggests new avenues for research.**

Garland, E.L. , et al.(2019). Mindfulness-Oriented Recovery Enhancement reduces opioid misuse risk via analgesic and positive psychological mechanisms: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*. <https://www.ncbi.nlm.nih.gov/pubmed/31556669>

Despite the heightened urgency of the current prescription opioid crisis, few psychotherapies have been evaluated for chronic pain patients receiving long-term opioid analgesics. Current psychological pain treatments focus primarily on ameliorating negative affective processes, yet basic science suggests that risk for opioid misuse is linked with a dearth of positive affect. Interventions that modulate positive psychological processes may produce therapeutic benefits among patients with opioid-treated chronic pain. The randomized controlled trial assessed the Mindfulness-Oriented Recovery Enhancement (MORE), an integrative intervention designed to promote positive psychological health. **Participants in MORE reported significantly greater reductions in pain severity by posttreatment ($p = .03$) and opioid misuse risk by 3-month follow-up ($p = .03$) and significantly greater increases in positive psychological health ($p < .001$) than SG participants. Increases in positive psychological health mediated the effect of MORE on pain severity by posttreatment ($p = .048$), which in turn predicted decreases in opioid misuse risk by follow-up ($p = .02$).** Targeting positive psychological mechanisms via MORE and other psychological interventions may reduce opioid misuse risk among chronic pain patients receiving long-term opioid therapy.

Pokhrel, P., et al. (2013). Adolescent Neurocognitive Development, Self-Regulation, and School-Based Drug Use Prevention. *Prevention Science*, 14(3), 218–228. <https://doi.org/10.1007/s11121-012-0345-7>

Adolescence is marked by several key development related changes, including neurocognitive changes. Cognitive abilities associated with self-regulation are not fully developed until late adolescence or early adulthood whereas tendencies to take risks and seek thrilling experiences



and novel experience seem to increase significantly throughout this phase, resulting in a discrepancy between increased susceptibility to poor regulation and lower ability to exercise self-control. Increased vulnerability to drug use initiation, maintenance, and dependence during adolescence may be explained based on this imbalance in the self-regulation system. **In this paper, the authors highlight the relevance of schools as a setting for delivering adolescent drug use prevention programs that are based on recent findings from neuroscience concerning adolescent brain development.** They discuss evidence from school-based as well as laboratory research that suggests that suitable training may improve adolescents' executive brain functions that underlie self-regulation abilities and, as a result, help prevent drug use and abuse. **In particular, preliminary findings suggest that computerized training and mindfulness meditation practices could be effectively integrated into school-based prevention programming.**

Riggs, N., Greenberg, M., Dvorakova, K. (2019). A Role for Mindfulness and Mindfulness Training in Substance Use Prevention. *Prevention of Substance Use, Advances in Prevention Science*, https://doi.org/10.1007/978-3-030-00627-3_21

Substance use during adolescence remains a significant public health issue and there continues to be significant room for the improvement of substance use preventive interventions. **Neurodevelopmental theory, empirically supported mindfulness-based SUD treatments, and the feasibility and acceptability of youth mindfulness-based preventive interventions in fields related to substance use suggest the potential value of mindfulness practices as an approach to youth substance use prevention.**

Other

Carsley, D., Khoury, B., & Heath, N. L. (2017). Effectiveness of Mindfulness Interventions for Mental Health in Schools: a Comprehensive Meta-analysis. *Mindfulness*, 9(3), 693–707. <https://doi.org/10.1007/s12671-017-0839-2>

Mindfulness interventions have increasingly been incorporated in elementary and high school classrooms to support students' mental health and well-being; however, there is little research examining the specific factors contributing to the effectiveness of the interventions. The purpose of this meta-analysis was to examine the specific effects of and moderators contributing to school based mindfulness interventions for mental health in youth. A systematic review of studies published in PsycINFO, ERIC, Social Work Abstracts, Social Services Abstracts, and CINAHL was conducted. A total of 24 studies (n = 3977) were included in the meta-analysis. **Overall, mindfulness interventions were found to be helpful, with small to moderate significant effects pre-post intervention compared to control groups; however, interventions that were delivered during late adolescence (15–18) and that consisted of combinations of various mindfulness activities had the largest effects on mental health and well-being outcomes.** Furthermore, the effects on specific mindfulness and mental health outcomes differed according to whether the intervention was delivered by an outside facilitator compared to trained educators/teachers. These results suggest that individual differences and program characteristics can impact receptivity and effectiveness of mindfulness training. These findings represent a significant contribution as they can be used to inform future designs and applications of mindfulness interventions in the school setting.

Dunning, D. L., et al. (2018). Research Review: The effects of mindfulness-based Interventions on cognition and mental health in children and adolescents – a meta-analysis of randomized controlled trials. *Journal of Child Psychology and Psychiatry*. <https://doi.org/10.1111/jcpp.12980>

Mindfulness based interventions (MBIs) are an increasingly popular way of attempting to improve the behavioural, cognitive and mental health outcomes of children and adolescents, though there is a suggestion that enthusiasm has moved ahead of the evidence base. Most evaluations of MBIs are either uncontrolled or nonrandomized trials. This meta-analysis aims to establish the efficacy of MBIs for children and adolescents in studies that have adopted a randomized, controlled trial (RCT) design. **Across all RCTs the authors found significant positive effects of MBIs, relative to controls, for the outcome categories of Mindfulness, Executive Functioning, Attention, Depression, Anxiety/Stress and Negative Behaviours, with small effect sizes.** However, when considering only those RCTs with active control groups, significant benefits of an MBI were restricted to the outcomes of Mindfulness only. This meta-analysis reinforces the efficacy of using MBIs for improving the mental health and wellbeing of youth as assessed using the gold standard RCT methodology. Future RCT evaluations should incorporate scaled-up definitive trial designs to further evaluate the robustness of MBIs in youth, with an embedded focus on mechanisms of action.

Mak, C., et al. Efficacy of Mindfulness-Based Interventions for Attention and Executive Function in Children and Adolescents—a Systematic Review. *Mindfulness* 9, 59–78 (2018). <https://doi.org/10.1007/s12671-017-0770-6>

The purpose of this study was to evaluate the efficacy of **mindfulness-based interventions** including mindful movements such as yoga on attention and executive function in children and adolescents. Systematic searches were conducted on five databases (PubMed, PsycINFO, CINAHL, Web of Science, and Scopus). Included studies consisting of randomized or quasi-randomized controlled trials with a mindfulness-based intervention were assessed for quality, and relevant data was extracted and collated. Thirteen randomized control trials were identified as meeting inclusion criteria. Studies recruited adolescents or children that were typically developing, diagnosed with attention-deficit hyperactivity disorder, orphans, or had reading difficulties, or in correctional schools/institutions. **The study found that mindfulness-based interventions are a promising approach to targeting attention and executive function in children and adolescence, especially with the use of computerized measures as outcome measures.** All identified studies included interventions with multiple treatment components, so the effects attributable to mindfulness-based training still remain undetermined. Further quality trials are needed to assess the effectiveness of mindfulness-based interventions in enhancing attention and executive function in children and adolescents.