

CMBM Research Summary

This document provides a summary of research that has been done examining The Center for Mind-Body Medicine model. It is broken down by subtopic; you can skip to each section using the following document links:

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Measuring Our Impact:

A Summary of Publications and Research on The Center for Mind-Body Medicine's Clinical Interventions & Trainings

Research Overview

Papers in leading peer-reviewed, scientific journals document the efficacy of The Center for Mind-Body Medicine's model with traumatized children, adolescents and adults. CMBM published the first randomized controlled trial of any intervention with war-traumatized children. In that and subsequent studies, CMBM's group model has repeatedly **reduced the percentage of children and adults who qualify as having Post-Traumatic Stress Disorder (PTSD) by 80% or more**, with gains holding at 3- and 10-month follow ups. Adolescents with clinical depression had significantly less depression and suicidal ideation following a mind-body skills program. Published research also demonstrates **statistically significant decreases in depression, hopelessness, anxiety, anger and sleep disturbance, and increases in mindfulness, self-efficacy, and quality of life.**

In CMBM's training program, healthcare and social service providers, educators, humanitarian workers, clergy and community leaders first experience this small group model themselves, and then learn to implement the approach as an integral part of the work they do in the institutions, communities, and programs in which they work. Published research documents the efficacy of CMBM's training program with healthcare providers and medical students. These studies show **statistically significant decreases in burnout, secondary traumatic stress, anxiety, perceived stress, and personal distress as well as improvement in empathic concern.** In one study, medical students in a Mind-Body Skills Group did not have the same exam-time increases in stress hormones as a comparison group.

Catalog of Publications and Research

Research documenting the impact of CMBM's training and clinical intervention models with specific populations includes:

War -Traumatized Children and Adults

Veterans of the U.S. Armed Forces

- Staples JK, Gordon JS, Hamilton M, Uddo M. Mind-body skills groups for treatment of war-traumatized veterans: A randomized controlled study [published online ahead of print, 2020 Mar 5]. *Psychol Trauma*. 2020;10.1037/tra0000559.

-Randomized controlled trial demonstrated significant reduction in overall PTSD symptoms, hyperarousal and avoidance symptoms and anger, and significant improvements in sleep disturbance in those participating in the mind-body skills groups compared to those receiving standard treatment.

High School students in Kosovo

- Gordon JS, Staples JK, Blyta A, Bytyqi M, Wilson AT. Treatment of posttraumatic stress disorder in postwar Kosovar adolescents using mind-body skills groups: a randomized controlled trial. *J Clin Psychiatry*. 2008; 69(9):1469-1476
 -Randomized controlled study demonstrated 82% reduction in adolescents who qualified as having PTSD. The reduction in PTSD symptoms was maintained at 3-month follow-up. This was the first RCT of any intervention with war-traumatized adolescents. The groups were led by rural high school teachers whose only training in psychology was provided by CMBM.
- Gordon JS, Staples JK, Blyta A, Bytyqi M. Treatment of posttraumatic stress disorder in postwar Kosovo high school students using mind-body skills groups: a pilot study. *J Trauma Stress*. 2004;17(2):143-147.
 -This pilot study demonstrated a significant improvement in PTSD scores in rural high school students who participated in mind-body skills groups led by teachers.

Children and Adults in Gaza

- Staples JK, Abdel Atti JA, Gordon JS. Mind-body skills groups for posttraumatic stress disorder and depression symptoms in Palestinian children and adolescents in Gaza. *Int J Stress Manag*. 2011; 18(3): 246-262.
 -Study demonstrated 91% reduction in participants who qualified as having PTSD and significant decreases in depression and hopelessness. Reductions in hopelessness were fully maintained and reductions in PTSD and depression were largely maintained at 7-month follow-up.
- Gordon JS, Staples JK, He DY, Abdel Atti JA. Mind-body skills groups for posttraumatic stress disorder in Palestinian adults in Gaza. *Traumatology*. 2016: 22(3) 155-164.
 -Study demonstrated 86% reduction in adult participants who qualified as having PTSD and significant improvements in depression, anxiety, and quality of life. All improvements were fully maintained at 10-month follow-up.
- Boys School in Gaza (currently being prepared for publication) - Study demonstrated significantly decreased hyperactivity, physical aggression, and increased prosocial behavior 10 months after the Mind-Body Skills Groups compared to the control group.

Children and Adolescents Facing Depression, Poverty, Health Injustice, and Other Trauma

US Adolescents with Depression, in Primary Care Settings

- Aalsma, MC, Jones LD, Staples, JK, Garabrant JM, Gordon, JS, Richtsmeier Cyr L, Sagado EF Salyers, MP. Mind-body skills groups for adolescents with depression in primary care: a pilot study. *Journal of Pediatric Health Care*. 2020;34(5):462-469 .

-This study with depressed adolescents demonstrated significant improvement in depression symptoms, mindfulness and self-efficacy, and decreased rumination and suicidal ideation. The depression symptoms continued to significantly improve at 3-month follow-up while improvement in mindfulness, self-efficacy, rumination, and suicidal ideation were maintained at follow-up.

- Cunningham LD, Aalsma MC, Salgado EF, Garabrant JM, Staples JK, Gordon JS, Salyers, MP. (2021). Do adolescents consider mind-body skills groups an acceptable treatment for depression: A pilot study. *BMC Pediatrics*. 2021; 21(1): 475.

-This was a qualitative evaluation of the Aalsma et al study with depressed adolescents above. Thirty-nine adolescents were interviewed at post-intervention and 3-month follow-up to understand their perspectives on the acceptability and effectiveness of the Mind-Body Skills Group treatment. At post-intervention and follow-up, 84% of adolescents stated the MBSGs helped them. The areas that were helpful were: learning new MBSG activities and skills, and social connection with others within the group. Most adolescents reported that their life had changed because of the group (72% at post-intervention; 61% at follow-up), and when asked how, common responses included feeling less isolated and more hopeful.

US Adolescents with Chronic Illness

- Cyr, LR, Farrah, K. Mind-Body Skills Groups for adolescents. *Biofeedback*. 2005; 33(2):63-68.

-This paper describes the Mind-Body Skills Group model and reviews its use for adolescents with chronic illness. A case study is presented showing improvement in functioning for a teenager with chronic pain and sleep disturbance.

High School Peer Counselors Working to Address School Violence

- Staples JK, Zapata S, Fredrickson M, Quinn H, Richtsmeier Cyr L, Gavian, ME, Rountree LK, Gordon, JS. A mind-body medicine curriculum for student peer counselors following a school shooting: A qualitative study. *Psychol Sch*. 2023; 60, 2483-2501.

-This qualitative study investigated high school student peer counselors' experience of a mind-body medicine curriculum incorporated into a peer counseling program following a school shooting. A series of focus groups were held with 24 peer counselors in 10th –

12th grade participating in the mind-body medicine curriculum. The mind-body medicine curriculum decreased the peer counselors' stress and helped them regulate their emotions. Other interview themes included increased resilience and self-confidence, working harder for their goals, and choosing supportive friends. The main themes related to their peer counseling work were that the mind-body skills would help them be less reactive and more patient with other students and that the skills would be helpful for these students. This study has important implications for practitioners in the schools because the mind-body medicine curriculum can effectively complement the communication and decision-making skills taught in peer counseling programs.

- Currently being prepared for publication is a second study of our training of Peer Counselors at Marjory Stoneman Douglas High School, following the mass shooting there in 2018. Our study demonstrates significantly decreased anxiety and improved self-regulation, and pathways thinking (ability to develop the specific strategies to reach defined goals) following the year-long training.

CMBM Training of Healthcare Professionals

- Weinlander EE, Daza EJ, Winget M. Impact of mind-body medicine professional skills training on healthcare professional burnout. *Glob Adv Health Med*. 2020;9:2164956120906396.

-This study demonstrated significant improvement in three areas of burnout: emotional exhaustion, depersonalization, personal accomplishment. There was also significant improvement in professional quality of life including compassion satisfaction (satisfaction with work), and secondary traumatic stress. All improvements were sustained at 12 months.

- Staples JK, Gordon JS. Effectiveness of a mind-body skills training program for healthcare professionals. *Altern Ther Health Med*. 2005; 11(4):36-41.

-This study demonstrated significant increases in well-being, personal use of mind-body skills, and use of all modalities with clients.

- Staples JK, Wilson AT, Pierce B, Gordon JS. Effectiveness of CancerGuides a study of an integrative cancer care training program for health professionals. *Integr Cancer Ther*. 2007;6(1):14-24. doi:10.1177/1534735406298145

-This study demonstrates that immediately following the training participants experienced reduction in Anger-Hostility and Tension-Anxiety as measured by the Profile of Mood States. Six months after the training, there was a significant increase in the use and/or recommendation of complementary and alternative medicine modalities in

clinical practice. Participants also reported positive change in their patient care and in their clinical practices.

- Wellness Training for Eskenazi Health's Midtown Community Mental Health Staff (Currently being prepared for publication) - a study of health professionals 3 months after the training showed a significant decrease in burnout, and an increase in the following health promoting lifestyles/behaviors: nutrition, spiritual growth, interpersonal relations, and health responsibility. Stress management and friendliness were significantly improved after the training, with gains maintained at 3-month follow-up. Qualitative results at follow-up showed that participants were using the tools both personally and professionally, that they placed a higher priority on self-care, and that they had more balance in their lives.

CMBM's Mind-Body Skills Groups with Medical and Nursing Students, Psychiatric Residents and Medical School Faculty

- Gordon JS. Mind-body skills groups for medical students: reducing stress, enhancing commitment, and promoting patient-centered care. *BMC Med Educ.* 2014;14:198. Published 2014 Sep 22. doi:10.1186/1472-6920-14-198

-This paper summarizes the use of Mind-Body Skills Groups (MBSGs) with medical students led by CMBM-trained faculty at 15 US medical schools. The author describes the model in detail and presents the results of a survey on its use in medical schools. He also summarizes published research on the use of the model with medical students, and discusses benefits as well as obstacles to successful implementation. The paper concludes that MBSGs have demonstrated effectiveness in reducing stress in medical students; in enhancing the students' experience of medical education; and in helping them look forward more confidently and hopefully to becoming physicians.

- Maclaughlin BW, Wang D, Noone A-M, et al. Stress biomarkers in medical students participating in a mind body medicine skills program. *Evid Based Complement Alternat Med.* 2011;2011:950461-950461.

-Controlled study demonstrates the 11-week mind-body skills groups helped medical students maintain normal levels of stress hormones during final exams compared to students who did not attend the course.

- Greeson JM, Toohey MJ, Pearce MJ. An adapted, four-week mind-body skills group for medical students: reducing stress, increasing mindfulness, and enhancing self-care. *Explore (NY).* 2015;11(3):186-192

-Mixed methods study demonstrates that there was a 32% decrease in perceived stress and a 16% increase in mindfulness after the 4 week mind-body skills course. Students

also stated that the program helped them cope more skillfully with the stress and emotional challenges of medical school and helped increase self-care behaviors such as exercise, sleep and engaging in social support.

- Saunders PA, Tractenberg RE, Chaterji R, et al. Promoting self-awareness and reflection through an experiential mind-body skills course for first year medical students. *Med Teach*. 2007;29(8):778-784..

-In a qualitative study, students reported increased connectedness, self-discovery and stress relief after the 4-week mind-body skills workshop.

- Finkelstein C, Brownstein A, Scott C, Lan YL. Anxiety and stress reduction in medical education: an intervention. *Med Educ*. 2007;41(3): 258-264. doi:10.1111/j.1365-2929.2007.02685.x

-In this controlled study, medical students participating in a Mind-Body Medicine elective had higher initial anxiety before the course than non-participating students. Anxiety in the Mind-Body Medicine participants declined significantly during the course. After the course, anxiety levels in participating students were the same as the control group. Decreased anxiety levels were sustained for 3 months following the conclusion of the course.

- van Vliet M, Jong M, Jong MC. Long-term benefits by a mind-body medicine skills course on perceived stress and empathy among medical and nursing students. *Med Teach*. 2017;39(7):710-719.

-Twelve-month outcomes from a controlled study with Dutch medical students and Swedish nursing students showed the following: medical students had significantly increased empathic concern and fantasy and decreased personal distress; nursing students had significantly decreased levels of perceived stress and personal distress.

- van Vliet M, Jong MC, Jong M. A mind-body skills course among nursing and medical students: a pathway for an improved perception of self and the surrounding world. *Glob Qual Nurs Res*. 2018;5:2333393618805340.

-In a qualitative study, Dutch medical students and Swedish nursing students reported the “ability to be more present,” “increased perception and awareness of self,” and “connection on a deeper level with others” after participating in a Mind-Body Medicine Skills course.

- Talisman N, Harazduk N, Rush C, Graves K, Haramati A. The impact of mind-body medicine facilitation on affirming and enhancing professional identity in health care professions faculty. *Acad Med*. 2015;90(6):780-784.

-Study demonstrated that medical school faculty acting as facilitators of Mind-Body Skills Groups experienced decreased stress and increased mindfulness. Facilitators also reported better self-confidence, communication, connection with community, empathy, active listening, and self-care.

- Ranjbar N, Ricker M, Villagomez A. The Integrative Psychiatry Curriculum: development of an innovative model. *Glob Adv Health Med.* 2019;8:2164956119847118.

-This paper describes the development of a required Integrative Psychiatry Curriculum (IPC) for all residents and fellows at the University of Arizona that began in 2015. The IPC includes Introduction to Integrative Medicine, Mind-Body Medicine, Physician Well-Being, Motivational Interviewing, Neural and Mental Health, Complementary Medicine, Dietary Supplements, Nutrition, and Special Topics. The Mind-Body Medicine component involves 10 weeks of Mind-Body Skills Groups (MBSGs). Responses to the MBSGs were very positive across all years of the IPC. Participants noted that they adopted the mind-body techniques for their own selfcare and utilized the techniques in their patient encounters.

- Ranjbar N, Erb M, Tomkins J, Taneja K, Villagomez A. Implementing a Mind-Body Skills Group in psychiatric residency training [published online ahead of print, 2021 Aug 2]. *Acad Psychiatry.* 2021;1-6.

-This paper describes the evaluation of a 10-week Mind-Body Skills Group program offered to University of Arizona-Tucson psychiatric residents. Eighty-four percent of the residents were satisfied or very satisfied with the Mind-Body Skills Group. Eighty percent used skills learned in the course for their own self-care and 61% used the skills with patients on at least a weekly basis. Eighty-nine percent indicated they were likely or very likely to use mind-body skills with patients in the future. Ninety-five percent would strongly recommend or likely recommend the course to colleagues. Results for in-person and online groups were not significantly different.

- Moir E, Yang JO, Yao J, Weinlander E. Do as I Do: Physician- and Learner-Led Mind-Body Medicine Group visits. *PRiMER.* 2021;5:4. Published 2021 Feb 1. doi:10.22454/PRiMER.2021.548093

-This study evaluated physician-led mind-body skills groups for patients with chronic health conditions. There were significant improvements in depression, ability to cope with stress, and sense of control over their diagnosis.

- Williams MK, Estores IM, Merlo LJ. Promoting resilience in medicine: The effects of a mind-body medicine elective to improve medical student well-being. *Glob Adv Health Med.* 2020;9:2164956120927367. Published 2020 May 21.

-An evaluation of first and second-year medical students participating in an 11-week Mind-Body Medicine elective course showed that the greatest improvements were in mindfulness, relationships with peers, and having a safe place in medical school to receive support. Learning mindfulness/meditation skills and increasing social support were noted as the primary factors impacting student well-being.

- Barnhill JL, Gerkin JS, Moura VL, Weil AB. Mindful opportunity to reflect on experience: interdisciplinary mind-body medicine skills training for health-care professionals. *Glob Adv Health Med.* 2020;9:2164956120907876. Published 2020 Feb 14.

-After participation in an 8-week mind-body skills group program, health professionals had a significant increase in their personal practice of biofeedback and guided imagery.

A study conducted in Israel:

- Halberstadt N, Staples JK, Addeky R, Gordon JS. Mind-body groups: concepts, practice, and results (The First International Conference of the Unit of Applied Neuroscience on Training the Mind: Mindfulness, Brain, and Behavior, Dec 30, 2009 Herzliya Interdisciplinary Center, Israel).
- Data gathered at the Initial and the Advanced Mind-Body Medicine Training Programs in Israel in 2006 showed an increase in the use of mind-body modalities, both personally and professionally, as well as an increase in optimism, a decrease in anxiety, anger and fatigue, and improved spirituality scores.