MINDFULNESS: DAGLI EFFETTI NEUROPSICOLOGICI ALLE APPLICAZIONI IN AMBITO EDUCATIVO

Cristiano Crescentini
Università di Udine

Mind the Hype: A Critical Evaluation and Prescriptive Agenda for Research on Mindfulness and Meditation

Nicholas T. Van Dam[1], Marieke K. van Vugt[2†], David R. Vago[3†], Laura Schmalzl[4†], Clifford D. Saron[5†], Andrew Olendzki[6†], Ted Meissner[7†], Sara W. Lazar[8†], Catherine E. Kerr[9†*], Jolie Gorchov[10†], Kieran C. R. Fox[11†], Brent A. Field[12†], Willoughby B. Britton[13†], Julie A. Brefczynski-Lewis[14†], and David E. Meyer[15]

Perspectives on Psychological Science
1–26

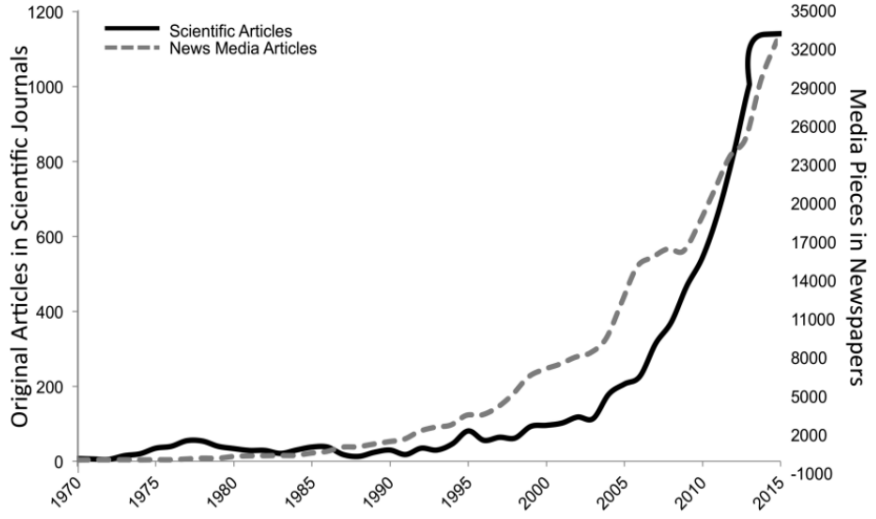
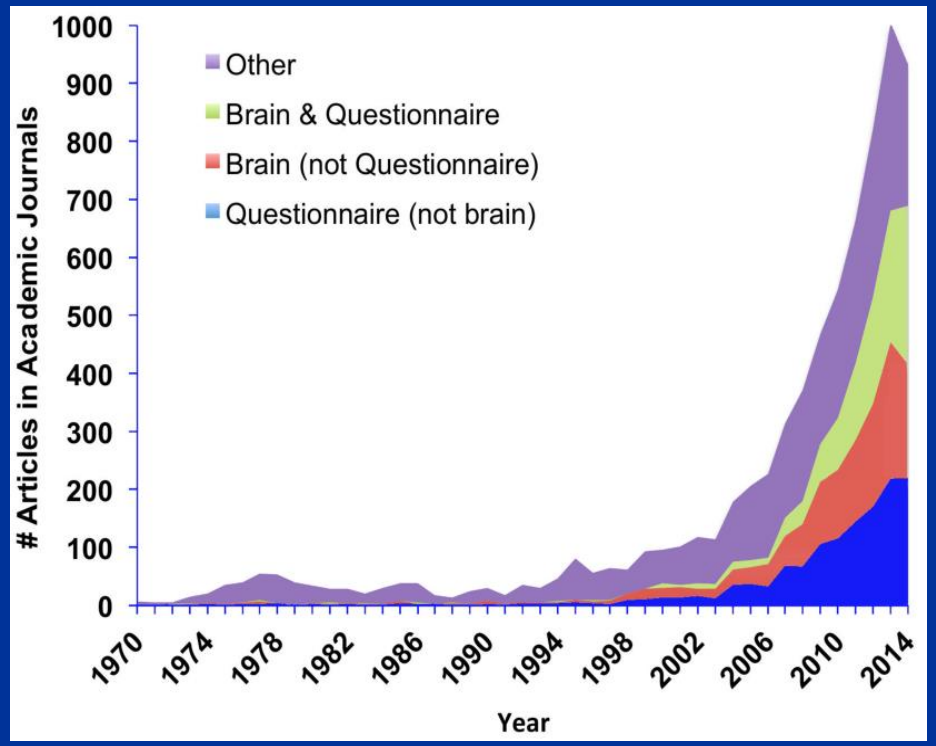


Fig. 1. Scientific and news media articles on mindfulness and/or meditation by year from 1970 to 2015. Empirical scientific articles (black line) with the term *mindfulness* or *meditation* in the abstract, title, or keywords, published between 1970 and 2015 were searched using Scopus. Media pieces (dashed gray line) with the term *mindfulness* or *meditation*, published in newspapers, using a similarity filter to minimize double-counting, published between 1970 and 2015 were searched using LexisNexis.



Mindfulness significa prestare attenzione in un modo particolare: a) con intenzione, b) al momento presente, c) in modo non giudicante (Kabat-Zinn, 1994, 2003)

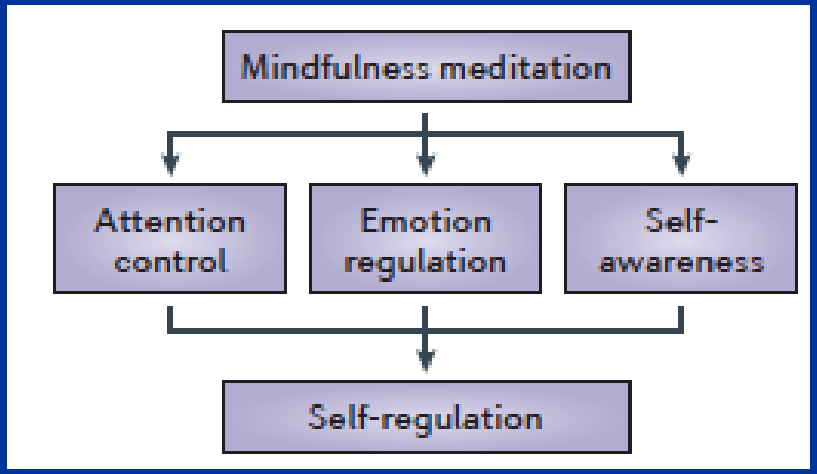
Principali protocolli terapeutici basati sulla mindfulness o che la includono come elemento

- Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990)

- Mindfulness-Based Cognitive Therapy (Segal, Williams, Teasdale, 2001)

- Dialectical Behavior Therapy - DBT (Linehan,1993)
- Acceptance and Commitment Therapy - ACT (Hayes, 1994)
- Compassion Focused Therapy (Gilbert, 2009)
- Mindfulness Based Relapse Prevention (substance abuse) – MBRP (Marlatt & Gordon, 1985)
- Mindfulness-Based CBT for OCD and Anxiety (Hershfield & Corboy, 2013; Didonna, 2014)

Mindfulness e Neuroscienze



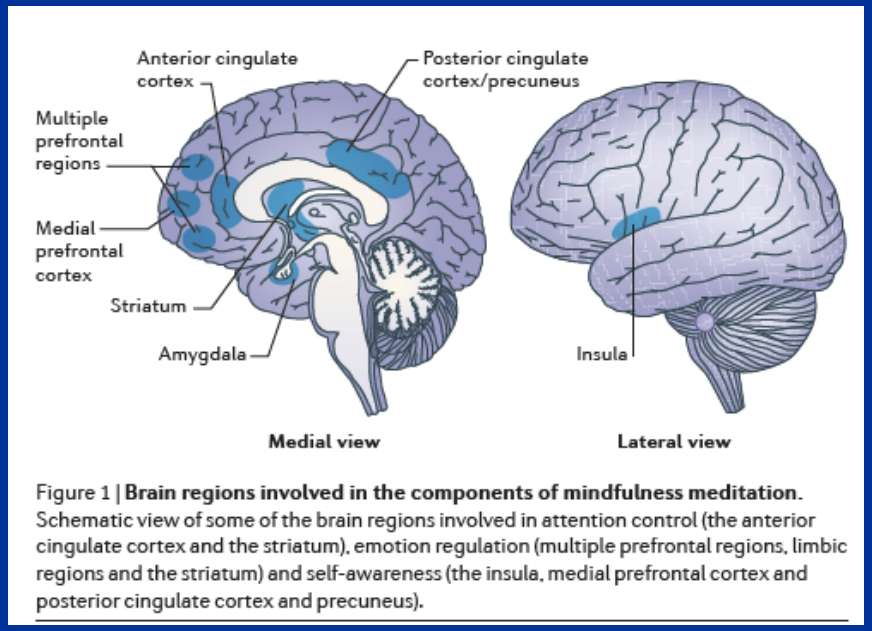
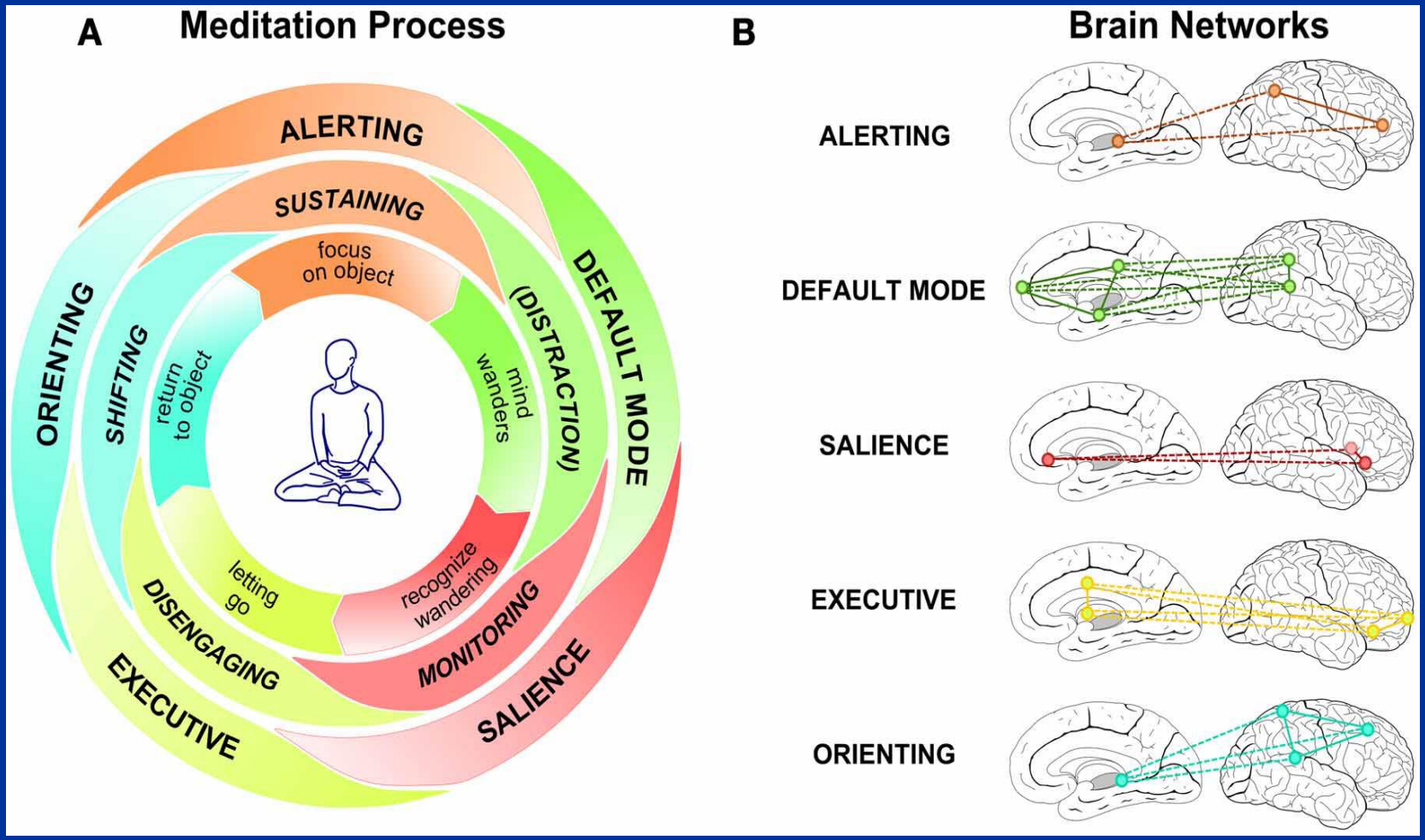


Figure 1 | **Brain regions involved in the components of mindfulness meditation.** Schematic view of some of the brain regions involved in attention control (the anterior cingulate cortex and the striatum), emotion regulation (multiple prefrontal regions, limbic regions and the striatum) and self-awareness (the insula, medial prefrontal cortex and posterior cingulate cortex and precuneus).

Tang et al., 2015



Malinowski 2013

Neuroscience and Biobehavioral Reviews 131 (2021) 313–330

Contents lists available at ScienceDirect

Neuroscience and Biobehavioral Reviews

journal homepage: www.elsevier.com/locate/neubiorev

Review article

The Impact of Mindfulness Meditation on the Wandering Mind: a Systematic Review

Susanna Feruglio [a,b,*], Alessio Matiz [a], Giuseppe Pagnoni [c,d], Franco Fabbro [a,e], Cristiano Crescentini [a]

[a] Department of Languages and Literatures, Communication, Education and Society, University of Udine, Udine, Italy
[b] Department of Psychology, Sapienza University of Rome, Rome, Italy
[c] Biomedical, Metabolic & Neural Sciences, University of Modena and Reggio Emilia, Italy
[d] Center for Neuroscience and Neurotechnology, University of Modena and Reggio Emilia, Modena, Italy
[e] Institute of Mechanical Intelligence, Pisa, Italy

ARTICLE INFO

Keywords:
mindfulness meditation
mind wandering
systematic review

ABSTRACT

Through the practice of Mindfulness Meditation (MM), meditators become familiar with the observation of ongoing spontaneous thoughts, while maintaining an attitude of openness and equanimity. The aim of this systematic review is to present a synthesis of available findings of the short and long-term effects of MM on mind wandering (MW). We included studies that considered both first-person and behavioral/physiological measures of MW. The search resulted in 2035 papers, 24 of which were eligible. Reviewed studies revealed a high heterogeneity in designs, outcome measures and interventions. Most of the pre-post intervention studies showed that a protracted practice of MM (at least 2 weeks) reduced MW, limiting its negative effects on different cognitive tasks. Cross-sectional studies highlighted differences between expert meditators and naïve individuals: meditators self-reported less MW and showed decreased Default Mode Network activity, during meditation and resting-state. Further studies are needed to replicate available findings and to more deeply explore how MW is influenced by meditation, also considering its qualitative characteristics that remain largely unexplored.

doi:10.1093/scan/nsm030 SCAN (2007) 2, 313–322

Attending to the present: mindfulness meditation reveals distinct neural modes of self-reference

Norman A. S. Farb,[1] Zindel V. Segal,[1,2] Helen Mayberg,[3] Jim Bean,[4] Deborah McKeon,[4] Zainab Fatima,[5] and Adam K. Anderson[1,5]

[1]Department of Psychology, University of Toronto, ON M5S 3G3, Canada, [2]Department of Psychiatry, University of Toronto and Centre for Addiction and Mental Health, Toronto, ON M5T 1R8, Canada, [3]Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine, Atlanta, GA 30322, [4]Mindfulness-Based Stress Reduction (MBSR) Clinic, St. Joseph's Health Centre, Toronto, Ontario, Canada, M6R 1B5, and [5]Rotman Research Institute, Baycrest, Toronto, Ontario, M6A 2E1

It has long been theorised that there are two temporally distinct forms of self-reference: extended self-reference linking experiences across time, and momentary self-reference centred on the present. To characterise these two aspects of awareness, we used functional magnetic resonance imaging (fMRI) to examine monitoring of enduring traits ('narrative' focus, NF) or momentary experience ('experiential' focus, EF) in both novice participants and those having attended an 8 week course in mindfulness meditation, a program that trains individuals to develop focused attention on the present. In novices, EF yielded focal reductions in self-referential cortical midline regions (medial prefrontal cortex, mPFC) associated with NF. In trained participants, EF resulted in more marked and pervasive reductions in the mPFC, and increased engagement of a right lateralised comprising the lateral PFC and viscerosomatic areas such as the insula, secondary somatosensory cortex and inferior lobule. Functional connectivity analyses further demonstrated a strong coupling between the right insula and the novices that was uncoupled in the mindfulness group. These results suggest a fundamental neural dissociation betw distinct forms of self-awareness that are habitually integrated but can be dissociated through attentional training: the se time and in the present moment.

La mindfulness è una tecnica che permette di ri-diventare consapevoli del proprio corpo (sé esperienziale)

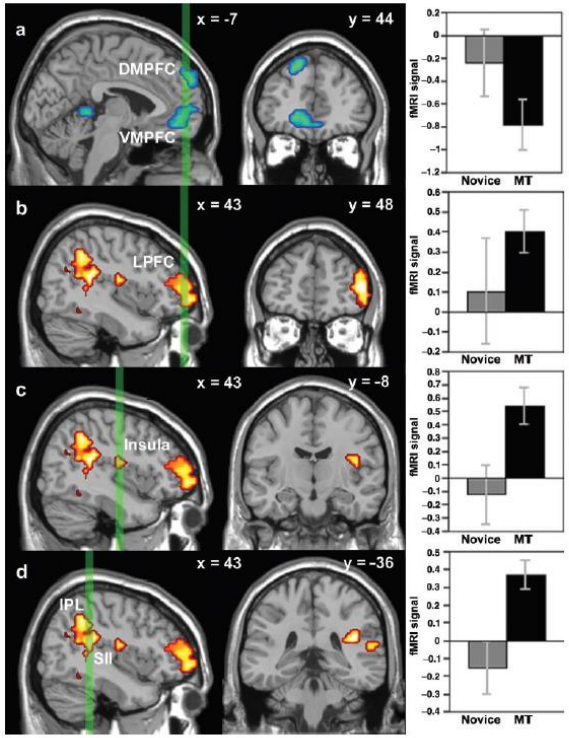


Fig. 3 Experiential *vs* Narrative focus conditions following 8 weeks of MT. Areas of activation showing a greater association with the experiential condition (Experiential > Narrative focus) are in red, and narrative-associated areas (Narrative > Experiential) are in blue: (A) ventral and dorsal MPFC, (B) right LPFC, (C) right Insula and (D) right SII cortex. Bar graphs indicate region of interest analyses of the magnitude of activation associated with the Narrative *vs* Experiential contrast in the MT and novice groups. Left panel green region represents *y* coordinate of each ROI. novice, pre MT group; MT, post MT group; VMPFC, ventromedial prefrontal cortex; DMPFC, dorsomedial prefrontal cortex; LPFC, lateral prefrontal cortex; Insula, insula; IPL, inferior parietal lobule; SII, secondary somatosensory area.

Bodily maps of emotions

Lauri Nummenmaa[a,b,c,1], Enrico Glerean[a], Riitta Hari[b,1], and Jari K. Hietanen[d]

Emotions are often felt in the body, and somatosensory feedback has been proposed to trigger conscious emotional experiences. Here we reveal maps of bodily sensations associated with different emotions using a unique topographical self-report method. In five experiments, participants ($n = 701$) were shown two silhouettes of bodies alongside emotional words, stories, movies, or facial expressions. They were asked to color the bodily regions whose activity they felt increasing or decreasing while viewing each stimulus. Different emotions were consistently associated with statistically separable bodily sensation maps across experiments. These maps were concordant across West European and East Asian samples. Statistical classifiers distinguished emotion-specific activation maps accurately, confirming independence of topographies across emotions. We propose that emotions are represented in the somatosensory system as culturally universal categorical somatotopic maps. Perception of these emotion-triggered bodily changes may play a key role in generating consciously felt emotions.

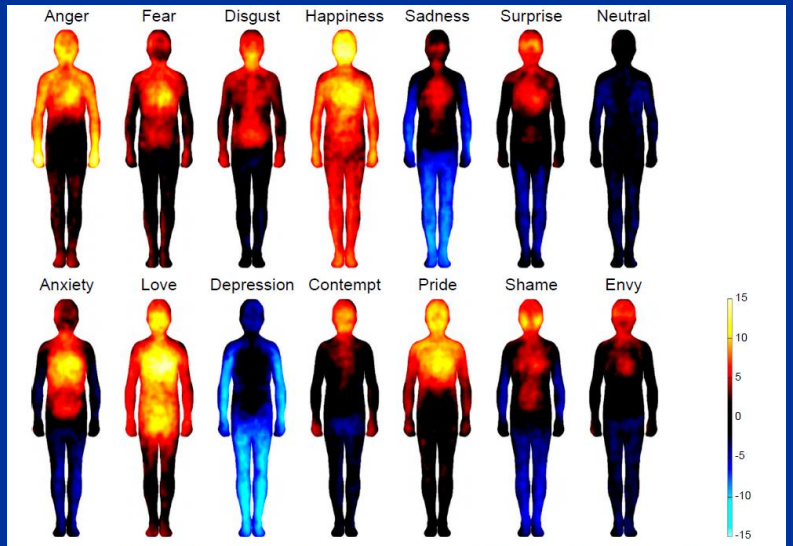


Fig. 2. Bodily topography of basic (*Upper*) and nonbasic (*Lower*) emotions associated with words. The body maps show regions whose activation increased (warm colors) or decreased (cool colors) when feeling each emotion. ($P < 0.05$ FDR corrected; $t > 1.94$). The colorbar indicates the *t*-statistic range.

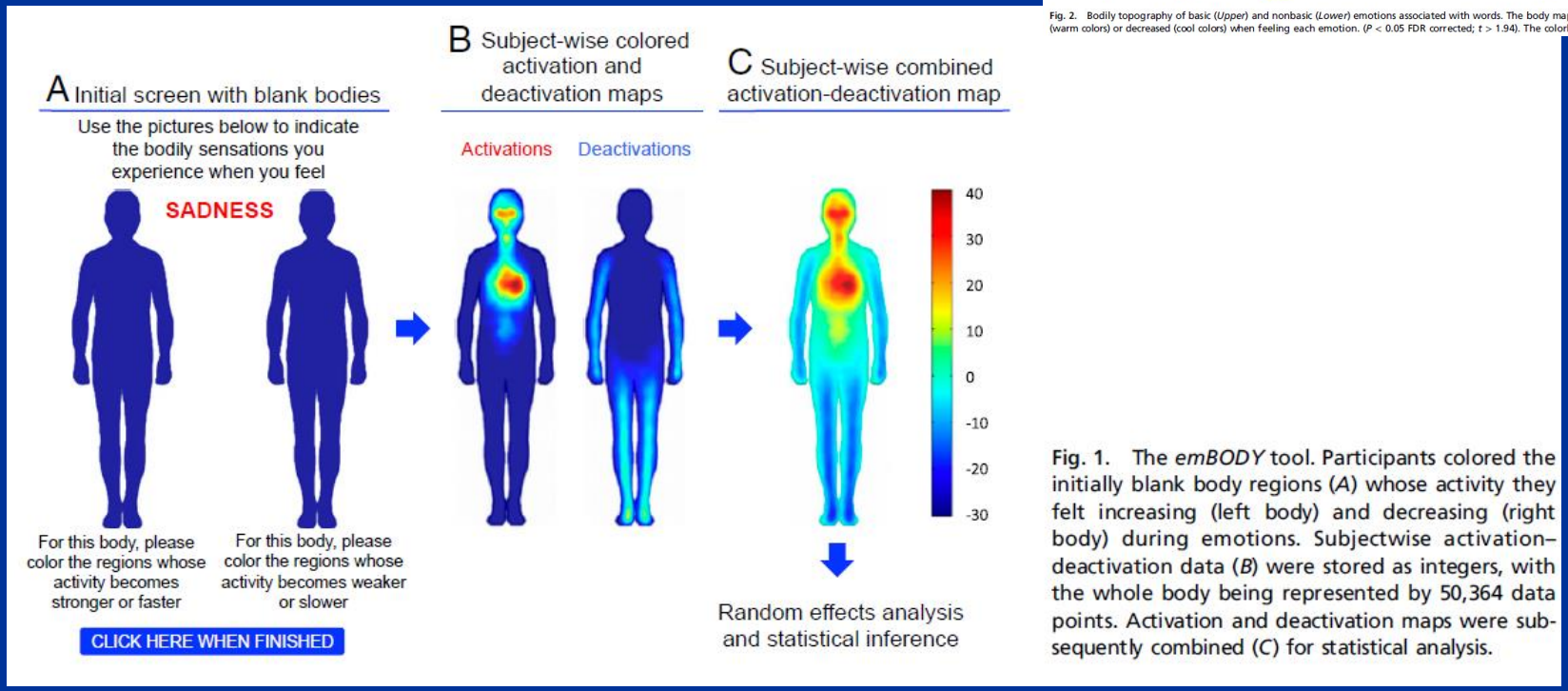


Fig. 1. The *emBODY* tool. Participants colored the initially blank body regions (*A*) whose activity they felt increasing (left body) and decreasing (right body) during emotions. Subjectwise activation–deactivation data (*B*) were stored as integers, with the whole body being represented by 50,364 data points. Activation and deactivation maps were subsequently combined (*C*) for statistical analysis.

Clinical Psychology Review 30 (2010) 849–864

Contents lists available at ScienceDirect

Clinical Psychology Review

Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology

Eric L. Garland [a,*], Barbara Fredrickson [b], Ann M. Kring [c], David P. Johnson [b], Piper S. Meyer [b], David L. Penn [b]

[a] College of Social Work, Florida State University, University Center, Building C, Tallahassee, Fl 32306-2570, United States
[b] Department of Psychology, University of North Carolina – Chapel Hill, United States
[c] Department of Psychology, University of California – Berkeley, United States

ARTICLE INFO

Keywords:
Emotions
Broaden-and-build
Mindfulness
Psychopathology
Neuroplasticity

ABSTRACT

This review integrates Fredrickson's broaden-and-build theory of positive emotions with advances in affective neuroscience regarding plasticity in the neural circuitry of emotions to inform the treatment of emotion deficits within psychopathology. We first present a body of research showing that positive emotions broaden cognition and behavioral repertoires, and in so doing, build durable biopsychosocial resources that support coping and flourishing mental health. Next, by explicating the processes through which momentary experiences of emotions may accrue into self-perpetuating emotional systems, the current review proposes an underlying architecture of state-trait interactions that engenders lasting affective dispositions. This theoretical framework is then used to elucidate the cognitive–emotional mechanisms underpinning three disorders of affect regulation: depression, anxiety, and schizophrenia. In turn, two mind training interventions, mindfulness and loving-kindness meditation, are highlighted as means of generating positive emotions that may counter the negative affective processes implicated in these disorders. We conclude with the proposition that positive emotions may exert a countervailing force on the dysphoric, fearful, or anhedonic states characteristic of psychopathologies typified by emotional dysfunctions.

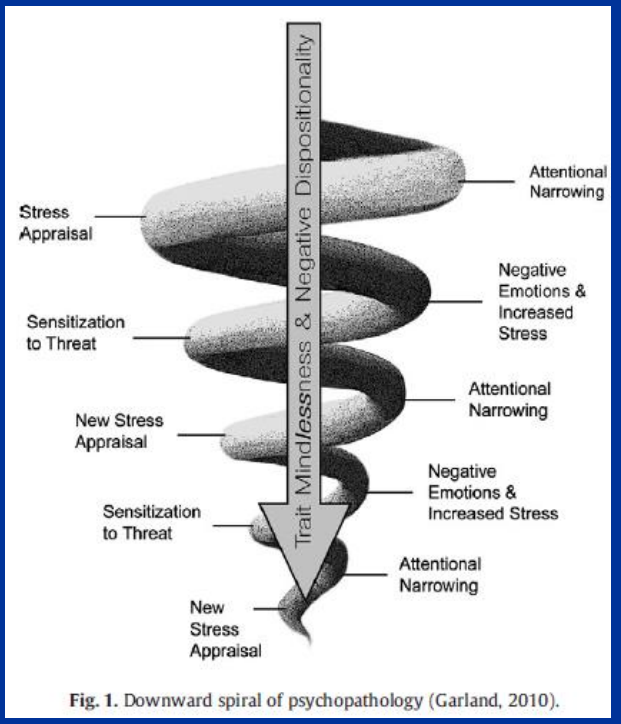


Fig. 1. Downward spiral of psychopathology (Garland, 2010).

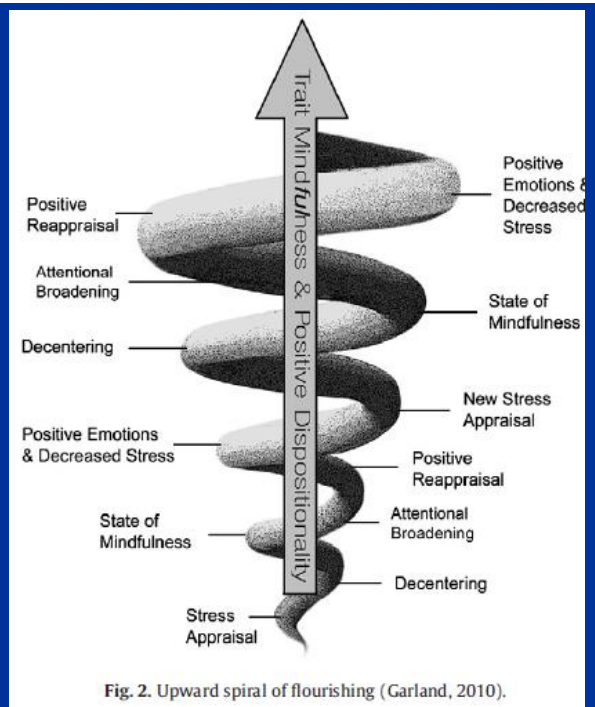


Fig. 2. Upward spiral of flourishing (Garland, 2010).

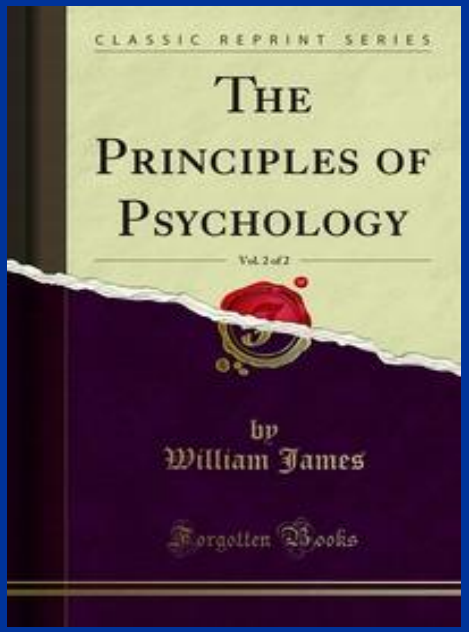
Meditazione mindfulness: Applicazioni nell'età evolutiva

"The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will... An education which should improve this faculty would be the education par excellence"
-William James 1890

W. James (1842-1910)

La facoltà di riportare costantemente indietro l'attenzione vagante, è la vera radice della saggezza, del carattere, della volontà.....Un'educazione che favorisse lo sviluppo di questa facoltà sarebbe l'educazione per eccellenza. Ma è più facile definire questo ideale che fornire delle istruzioni pratiche per crearla

-William James,
Principi di psicologia (1890)



Zoogman et al., 2014

Mindfulness
DOI 10.1007/s12671-013-0260-4

ORIGINAL RESEARCH

Mindfulness Interventions with Youth: A Meta-Analysis

Zenner et al., 2014

frontiers in PSYCHOLOGY

ORIGINAL RESEARCH ARTICLE
published: 30 June 2014
doi: 10.3389/fpsyg.2014.00603

Mindfulness-based interventions in schools—a systematic review and meta-analysis

*Charlotte Zenner, Solveig Herrnleben-Kurz and Harald Walach **

Kallapiran et al., 2015

Child and Adolescent Mental Health
a journal for all professionals working with children and young people

Child and Adolescent Mental Health 20, No. 4, 2015, pp. 182–194

Felver et al., 2016

Mindfulness
DOI 10.1007/s12671-015-0389-4

ORIGINAL PAPER

A Systematic Review of Mindfulness-Based Interventions for Youth in School Settings

THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE
Volume 23, Number 5, 2017, pp. 331–339

DOI: 10.1089/acm.2016.0336

REVIEW ARTICLE

Autism and Mind–Body Therapies: A Systematic Review

Sarah Hourston, ND, MS,[1,2] and Rachel Atchley, PhD[1]

Article

The Effectiveness of Mindfulness-Based Therapies for ADHD: A Meta-Analytic Review

Journal of Attention Disorders
1–17

DOI: 10.1177/1087054715625301
jad.sagepub.com
SAGE

Molly Cairncross[1] and Carlin J. Miller[1]

The Effects of Mindfulness-Based Intervention on Children's Attention Regulation

Journal of Attention Disorders
1–10

DOI: 10.1177/1087054714548032
jad.sagepub.com
SAGE

Joshua C. Felver[1,2], Jessica M. Tipsord[2], Maxwell J. Morris[2,3], Kristina Hiatt Racer[2], and Thomas J. Dishion[2,4]

Table 1. MFSR Intervention.

Lesson title	Activities and practices
Week 1: Autopilot and defining mindfulness	Concentrating on listening to sound
	Mindful stretching (yoga)
	Mindful eating
	Mindful abdominal breathing (sitting meditation)
	Mindfulness of somatic sensations (body scan)
Week 2: Wandering mind and barriers to practice	Sitting meditation, body scan
	Discussion of barriers to home practice
Week 3: Experiences with sitting meditation	Sitting meditation, discussion
	Yoga, discussion of yoga
Week 4: Acceptance and pleasant/unpleasant events	Sitting meditation, yoga, body scan
	Distress tolerance activity, discussion
Week 5: Stress and responding versus reacting	Sitting meditation, yoga, body scan
	Stress activity (walking in airport)
	Brief mindfulness exercise (3-min meditation)
Week 6: Thoughts are not facts, mindful communication	Imagery meditation
	Mindful communication exercise, discussion
	Sitting meditation
Week 7: Points of view, perspective taking	Perspective-taking activity, discussion
	Sitting meditation
	Point of view exercise, discussion
	Yoga
Week 8: Summary, continuing practice	Sitting meditation, yoga, body scan
	Writing letter to future self
	Discussion of continuing practice
	Wrap-up activity—MFSR graduation

Note. MFSR = Mindful Family Stress Reduction.

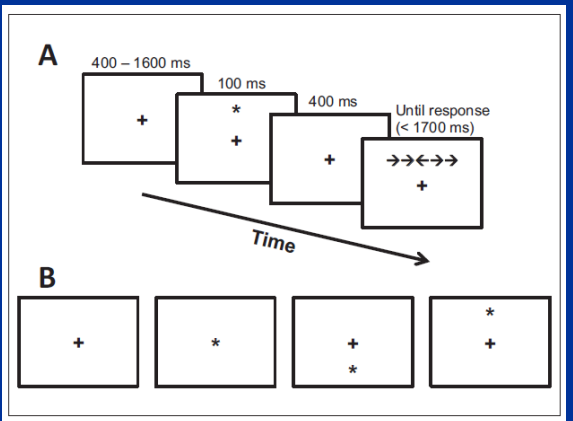


Figure 1. Visual presentation and timing of the ANT.
Note. **A** denotes a schematic of ANT trial events, depicting a fixation cross (between trials), spatial cue, fixation cross (delay), and a left arrow target with incongruent flankers. **B** denotes possible cue conditions, depicting no-cue (also used for fixation cross), central cue, lower spatial cue, and upper spatial cue. ANT = Attention Network Task.

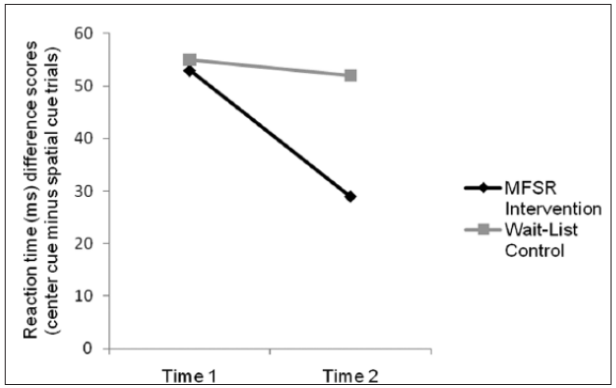


Figure 3. ANT orienting scores in milliseconds for MFSR intervention and control groups at Times 1 and 2.
Note. ANT = Attention Network Task; MFSR = Mindful Family Stress Reduction.

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Research in Developmental Disabilities
24 (2003) 158–169
Research in Developmental Disabilities

Soles of the Feet: a mindfulness-based self-control intervention for aggression by an individual with mild mental retardation and mental illness

Nirbhay N. Singh[a,*], Robert G. Wahler[b], Angela D. Adkins[c], Rachel E. Myers[d]

The Mindfulness Research Group[1]

Table 1
Soles of the Feet training

Skill

Controlling the urge to be physically or verbally aggressive

Rationale

When an incident occurs or a situation arises that typically makes you angry and you feel like either verbally threatening or hitting someone, it is important to control these feelings. We try not to threaten or hurt people when we disagree with them. There is a simple way of quickly calming yourself

Steps of the Skill

1. If you are standing, stand in a natural rather than an aggressive posture, with the soles of your feet flat on the floor
2. If you are sitting, sit comfortably with the soles of your feet flat on the floor
3. Breathe naturally, and do nothing
4. Cast your mind back to an incident that made you very angry. Stay with the anger
5. You are feeling angry, and angry thoughts are flowing through your mind. Let them flow naturally, without restriction. Stay with the anger. Your body may show signs of anger (e.g., rapid breathing)
6. Now, shift all your attention to the soles of your feet
7. Slowly, move your toes, feel your shoes covering your feet, feel the texture of your socks or hose, the curve of your arch, and the heels of your feet against the back of your shoes. If you do not have shoes on, feel the floor or carpet with the soles of your feet
8. Keep breathing naturally and focus on the soles of your feet until you feel calm
9. Practice this mindfulness exercise until you can use it wherever you are and whenever an incident occurs that may lead to you being verbally or physically aggressive
10. Remember that once you are calm, you can walk away from the incident or situation with a smile on your face because you controlled your anger. Alternatively, if you need to, you can respond to the incident or situation with a calm and clear mind without verbal threats or physical aggression

Scenes to use in role-plays

1. Responding to someone who is saying something that offends you
2. Responding to a peer who threatens to hit you
3. Responding to a staff member or co-worker who is not nice to you
4. Responding to someone who pushes you around

Special considerations when teaching this Skill

1. Angry thoughts occur to all of us but not all of us act on all of them. In addition, anger can be justifiable and necessary depending on the context. Therefore, we do not want to eliminate anger entirely
2. Anger is a strength because it provides us with information about the situation we are in, and alerts us to do something positive to change the situation
3. Do not ask the individual to actively stop angry thoughts. The thoughts stop by themselves when the focus of attention shifts fully to the soles of the feet
4. Remind the individual to breathe naturally. It is not necessary to take deep breaths
5. This type of meditation can be done while standing, sitting, or walking slowly. Of course, with some modifications, it can be done while lying down but may not be convenient in the rush of daily activities

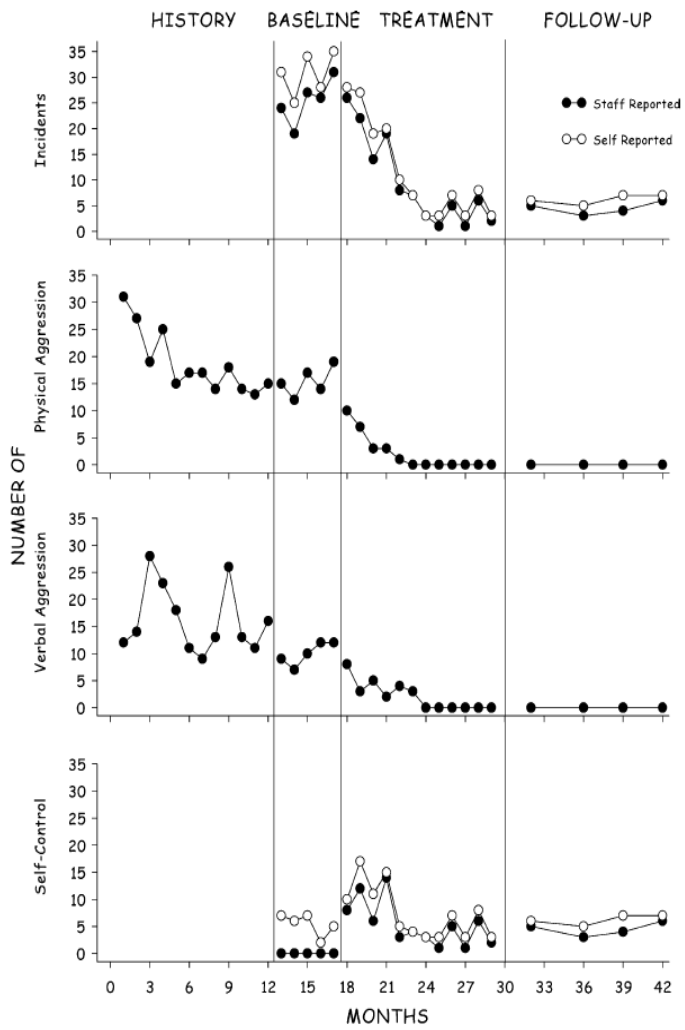

Fig. 1. Number of staff- and self-reported incidents and self-control responses, physical aggression and verbal aggression across phases.

frontiers in Psychology

ORIGINAL RESEARCH
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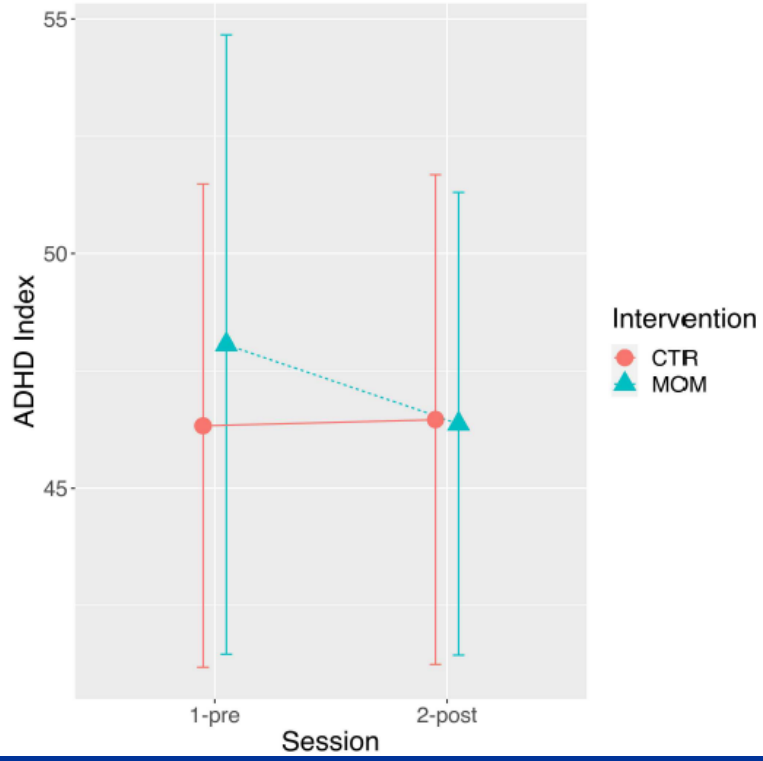
Mindfulness-Oriented Meditation for Primary School Children: Effects on Attention and Psychological Well-Being

Cristiano Crescentini[1†], Viviana Capurso[1,2†], Samantha Furlan[3] and Franco Fabbro[1,4]*



Mindfulness nel contesto educativo

L'insegnante consapevole:

- Osservazione dei problemi
- Gestione dei genitori
- Cambiamenti nell'ambiente scolastico
- Consapevolezza del ruolo
- Consapevolezza delle emozioni (anche quelle sgradite)
- Gestione dello stress e dell'ansia

Mindfulness per insegnanti

Published in final edited form as:
Mind Brain Educ. 2013 September ; 7(3): . doi:10.1111/mbe.12026.

Mindfulness for teachers: A pilot study to assess effects on stress, burnout and teaching efficacy

Lisa Flook*, **Simon B. Goldberg**, **Laura Pinger**, **Katherine Bonus**, and **Richard J. Davidson**
University of Wisconsin-Madison

Journal of Educational Psychology

Mindfulness Training and Reductions in Teacher Stress and Burnout: Results From Two Randomized, Waitlist-Control Field Trials

Robert W. Roeser
Portland State University

Kimberly A. Schonert-Reichl
University of British Columbia

J Child Fam Stud (2010) 19:184–189
DOI 10.1007/s10826-009-9344-0

ORIGINAL PAPER

Mindfulness-Based Stress Reduction (MBSR) for Primary School Teachers

Eluned Gold · Alistair Smith · Ieuan Hopper · David Herne · Glenis Tansey · Christine Hulland

Mindfulness
DOI 10.1007/s12671-012-0094-5

REVIEW

Integrating Mindfulness Training into K-12 Education: Fostering the Resilience of Teachers and Students

John Meiklejohn · Catherine Phillips · M. Lee Freedman · Mary Lee Griffin · Gina Biegel · Andy Roach · Jenny Frank · Christine Burke · Laura Pinger · Geoff Soloway · Roberta Isberg · Erica Sibinga · Laurie Grossman · Amy Saltzman

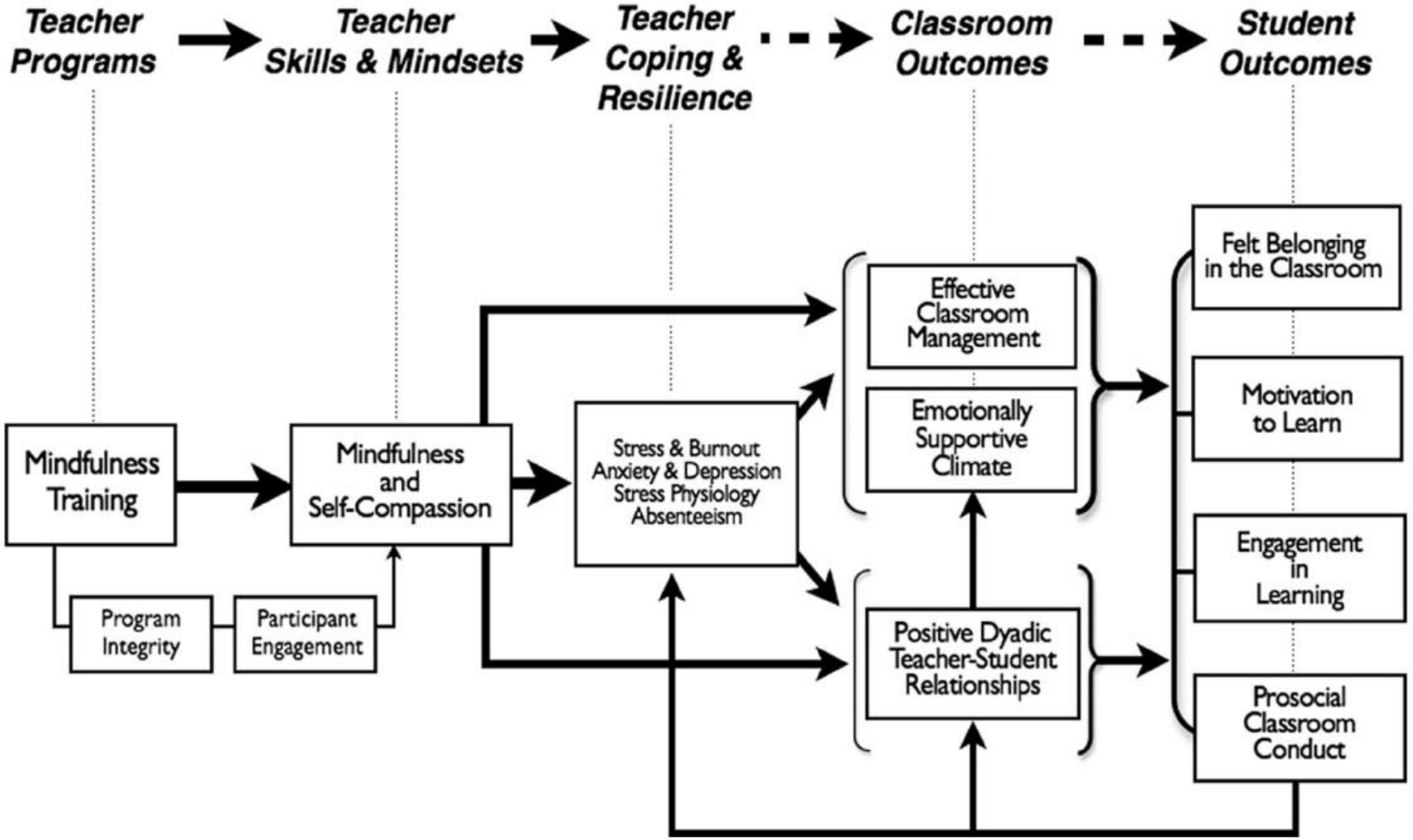


Figure 1. Teacher mindfulness training logic model and theory of change.

Roeser et al., 2013

Perceptual and Motor Skills
0(0) 1–18
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DOI: 10.1177/0031512520908708
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SAGE

Effects of Mindfulness Training on School Teachers' Self-Reported Personality Traits As Well As Stress and Burnout Levels

Anastasia Fabbro[1,2], Franco Fabbro[2,3], Viviana Capurso[2], Fabio D'Antoni[1] and Cristiano Crescentini[4]

International Journal of *Environmental Research and Public Health*

MDPI

Article

Positive Impact of Mindfulness Meditation on Mental Health of Female Teachers during the COVID-19 Outbreak in Italy

Alessio Matiz [1,*], Franco Fabbro [1,2], Andrea Paschetto [1], Damiano Cantone [3], Anselmo Roberto Paolone [1] and Cristiano Crescentini [1]

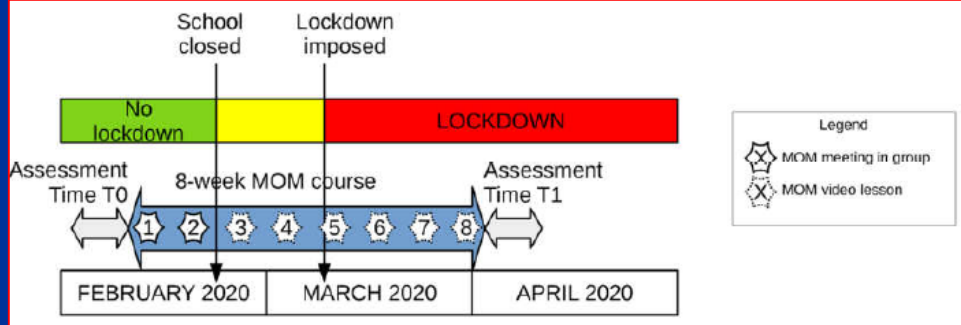

Figure 1. Timeline of Mindfulness-Oriented Meditation (MOM) training delivered to a group of Italian school teachers during the Covid-19 health emergency. The MOM training started with group meetings and continued with individual lessons via the internet.

Mindful parenting

Clin Child Fam Psychol Rev (2009) 12:255–270
DOI 10.1007/s10567-009-0046-3

A Model of Mindful Parenting: Implications for Parent–Child Relationships and Prevention Research

Larissa G. Duncan · J. Douglas Coatsworth · Mark T. Greenberg

Published in final edited form as:
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Can Mindful Parenting Be Observed? Relations between Observational Ratings of Mother-Youth Interactions and Mothers' Self-Report Mindful Parenting

Larissa G. Duncan, Ph.D.[1], J. Douglas Coatsworth, Ph.D.[2], Jochebed G. Gayles, Mary H. Geier, M.S.[3], and Mark T. Greenberg, Ph.D.[3]

Table 1 Role of mindful parenting practices in parenting interactions

Mindful parenting dimensions	Effective parenting behaviors promoted through this practice	Parenting behaviors decreased through this practice
Listening with full attention	• Correctly discern child's behavioral cues • Accurately perceive child's verbal communication	• Reduced use and influence of cognitive constructions and expectations
Nonjudgmental acceptance of self and child	• Healthy balance between child-oriented, parent-oriented, and relationship-oriented goals • Sense of parenting self-efficacy • Appreciation for child's traits	• Reduction in self-directed concerns • Fewer unrealistic expectations of child's attributes
Emotional awareness of self and child	• Responsiveness to child's needs and emotions • Greater accuracy in responsibility attributions	• Less dismissing of child's emotions • Less discipline that results from parent's strong negative emotion (e.g., anger, disappointment, shame)
Self-regulation in the parenting relationship	• Emotion regulation in the parenting context • Parenting in accordance with goals and values	• Less overreactive/"automatic" discipline • Less dependence on child's emotions
Compassion for self and child	• Positive affection in the parent–child relationship • More forgiving view of own parenting efforts	• Less negative affect displayed in the parent–child relationship • Less self-blame when parenting goals are not achieved