Mindfulness as a Transformational Practice for Living Well

Seoul International Meditation Expo 2022

Zev Schuman-Olivier, M.D.
Director, Center for Mindfulness and Compassion
Cambridge Health Alliance Department of Psychiatry
Assistant Professor in Psychiatry, Harvard Medical School

CHA Cambridge Health Alliance
HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Center for Mindfulness and Compassion

The mission of the CHA Center for Mindfulness and Compassion (CMC) is to enhance health and well-being by integrating mindfulness and compassion into healthcare and our communities with a commitment to inclusivity, accessibility, and diversity.

To cultivate mindfulness and compassion learning and practice in:

- Patient care
- Professional education and training
- Scientific research
- Workplace well-being
- Our communities

www.chacmc.org

Image from https://studenthealth.uconn.edu/mindfulness/

What about Transforming the Way We Live?

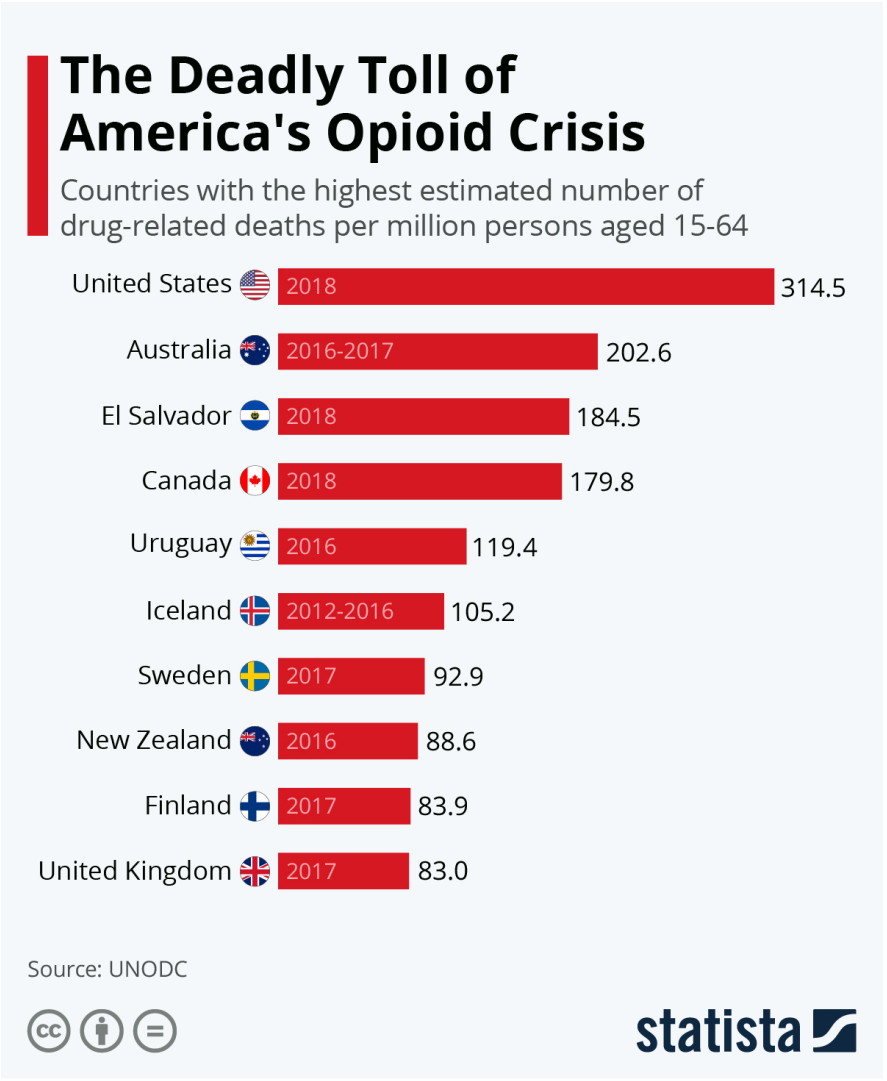
What is Transformational Practice?

- An intentional activity committed to for extended periods of time with the purpose of empowering change and/or transformation.
- Transformation can happen on multiple levels:
  - Individual
  - Relational/interpersonal
  - Organizational
  - Societal/Structural
  - Global
- The **Mindfulness Training for Living Well** Curriculum is designed to help people **warmly be with their present moment experience**, building the capacity to live intentionally and to allow transformational change on the individual and relational levels.

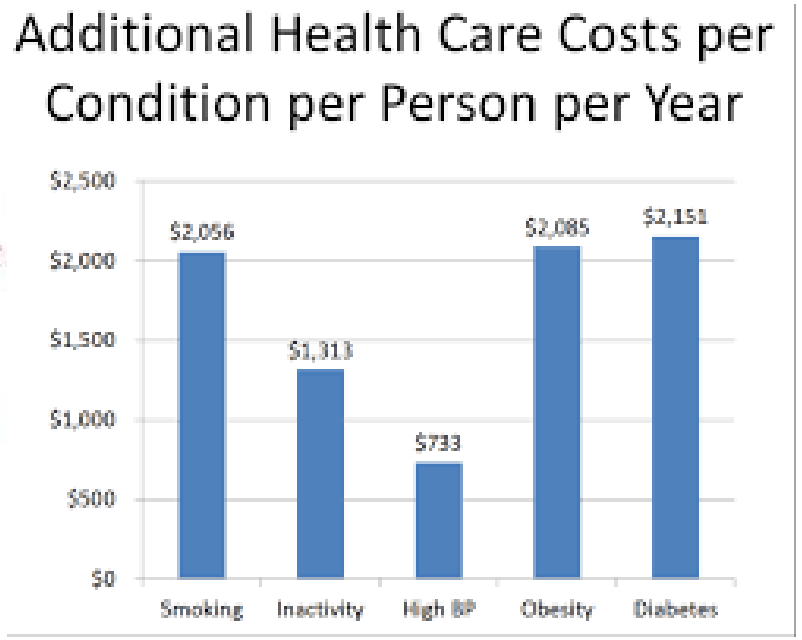
Why Focus on Individual Health Behavior Change and Chronic Illness Self-Management?

- Health Behavior impacts overall well-being
- Health Behavior can prevent chronic illness
- Chronic illness self-management and medical regimen adherence can improve health, extend life and reduce costs.
- Ongoing unhealthy behaviors can lead to multiple chronic illnesses
- Ongoing unhealthy behaviors impact relationship, organization, society, and the world
- Living with chronic illness effects mental state leading to a reciprocal relationship with mental health that impacts self-regulation and can disempower people with chronic illness

Unhealthy behavior hastens death



Health Behavior is Key Driver of Health Costs



CHRONIC DISEASES

Treating chronic diseases accounts for 86 percent of U.S. healthcare costs.

Mindfulness Training for Primary Care (MTPC)

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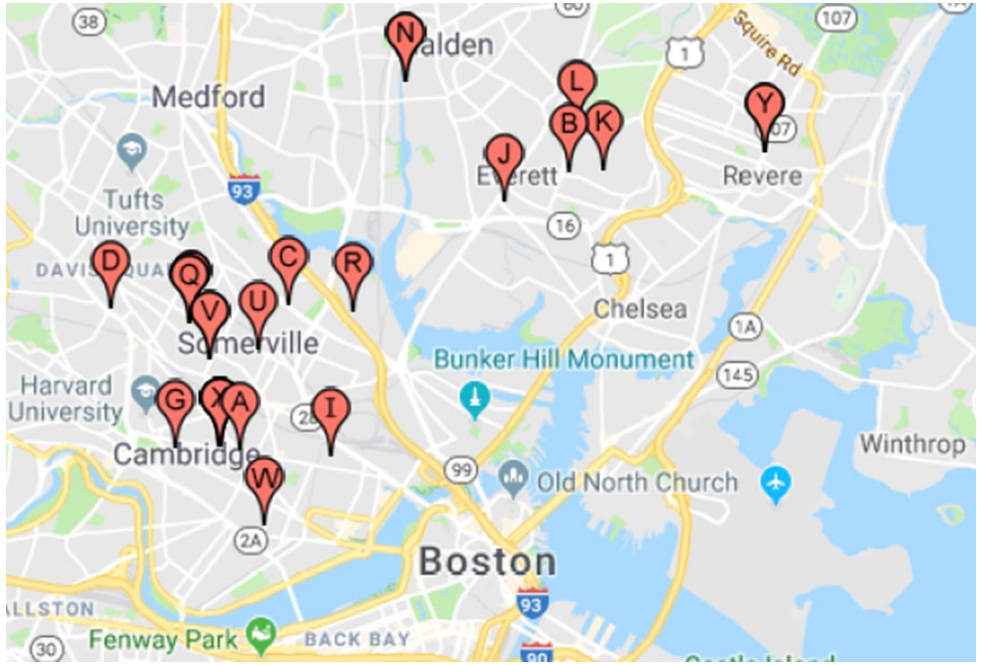
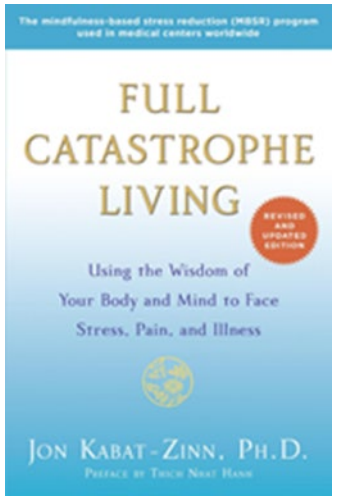
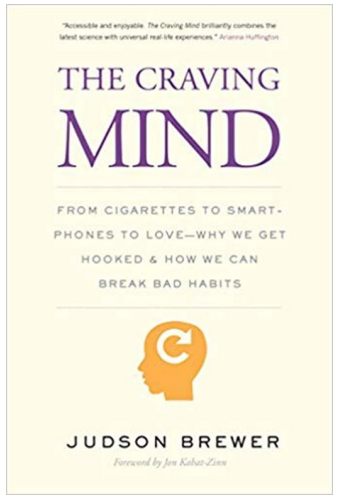
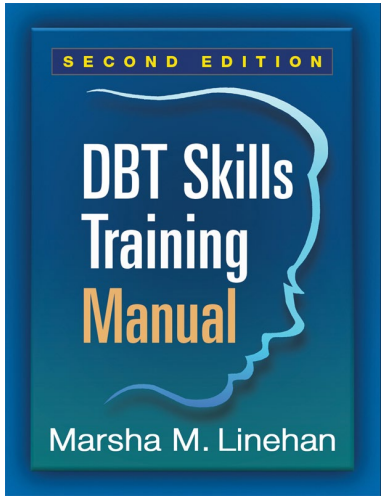
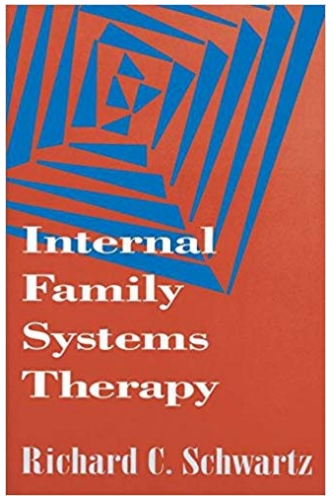


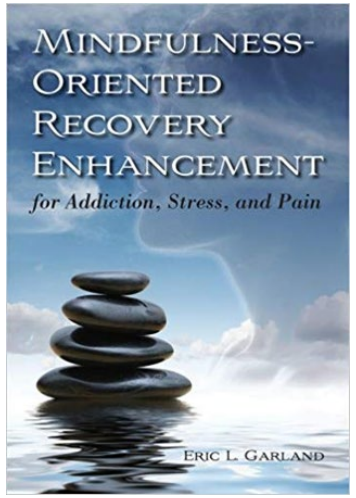
- 8-week groups for primary care patients
- Designed to enhance chronic illness self-management, reduce stress, anxiety, and depression, while motivating behavior change.
- Referral-based, insurance-reimbursable
- Trauma-Informed

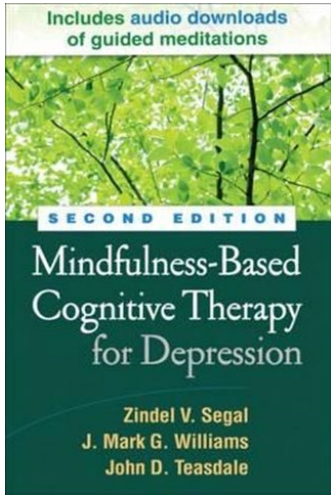

FULL CATASTROPHE LIVING
Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness
JON KABAT-ZINN, PH.D.

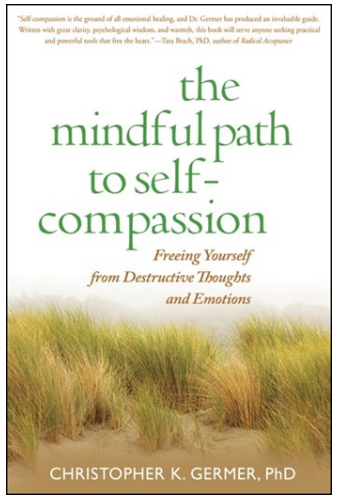

THE CRAVING MIND
FROM CIGARETTES TO SMARTPHONES TO LOVE—WHY WE GET HOOKED & HOW WE CAN BREAK BAD HABITS
JUDSON BREWER

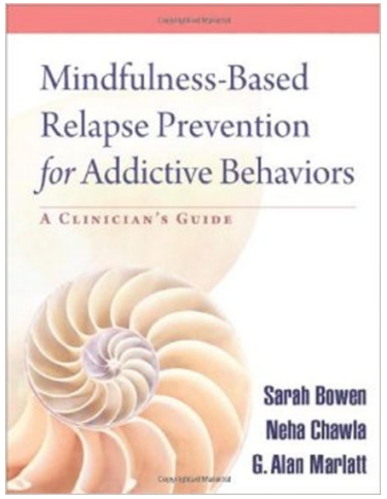

SECOND EDITION
DBT Skills Training Manual
Marsha M. Linehan

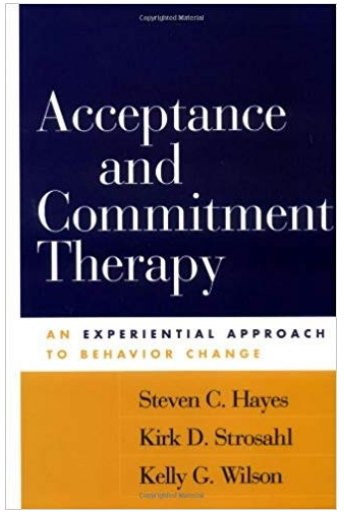

Internal Family Systems Therapy
Richard C. Schwartz

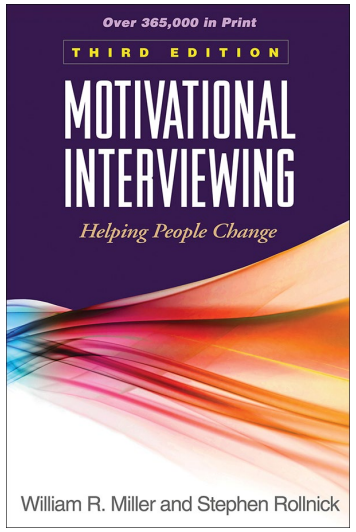

MINDFULNESS-ORIENTED RECOVERY ENHANCEMENT
for Addiction, Stress, and Pain
ERIC L. GARLAND


Includes audio downloads of guided meditations
SECOND EDITION
Mindfulness-Based Cognitive Therapy for Depression
Zindel V. Segal
J. Mark G. Williams
John D. Teasdale


the mindful path to self-compassion
Freeing Yourself from Destructive Thoughts and Emotions
CHRISTOPHER K. GERMER, PhD


Mindfulness-Based Relapse Prevention for Addictive Behaviors
A CLINICIAN'S GUIDE
Sarah Bowen
Neha Chawla
G. Alan Marlatt

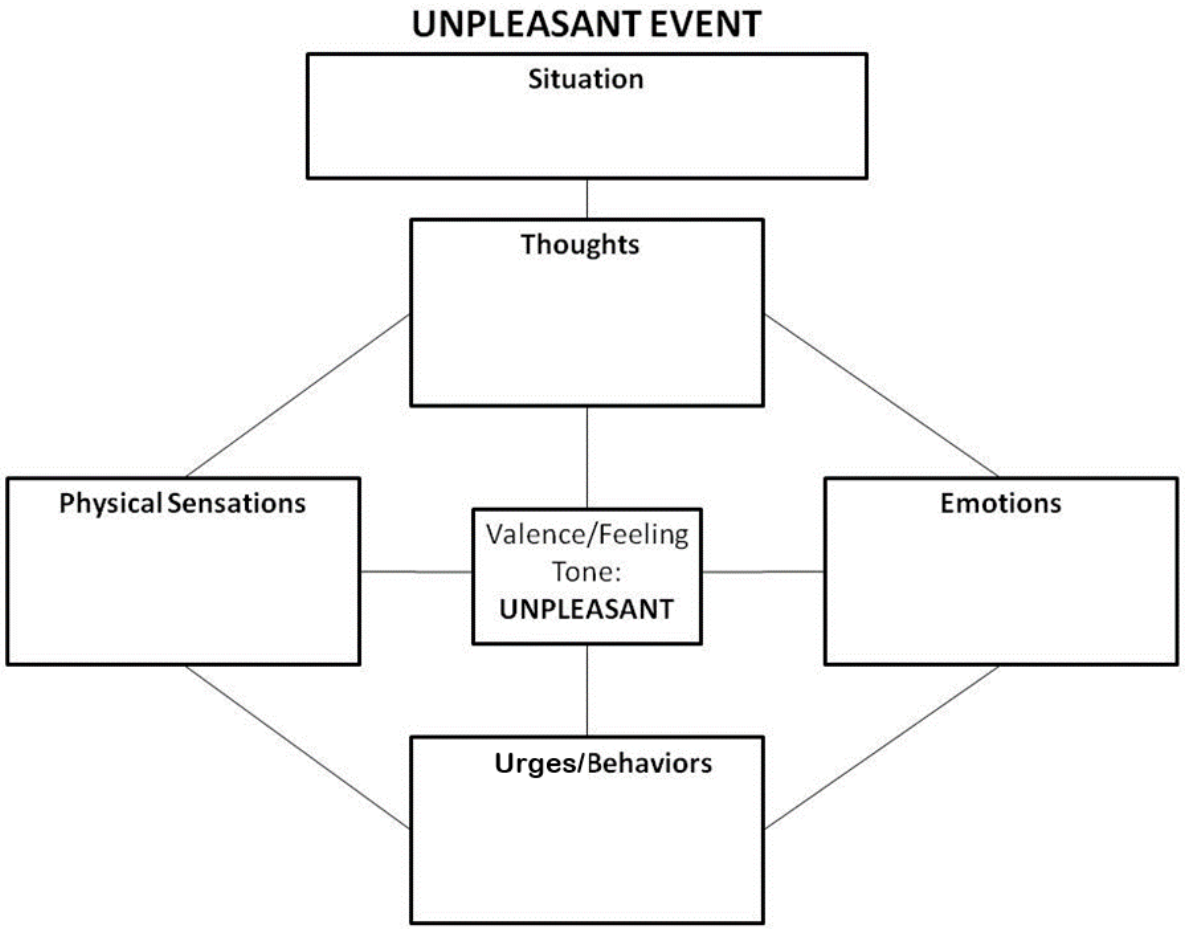

Acceptance and Commitment Therapy
AN EXPERIENTIAL APPROACH TO BEHAVIOR CHANGE
Steven C. Hayes
Kirk D. Strosahl
Kelly G. Wilson


Over 365,000 in Print
THIRD EDITION
MOTIVATIONAL INTERVIEWING
Helping People Change
William R. Miller and Stephen Rollnick

MTPC Structure

- Section 1-4: Cultivating Mindfulness
- Section 5-8:
  - Kindness and Coping
  - Accessing Core Values and Aspiration
  - Living Well through Wise Action
  - Connection, Communication, Community
- 3 threads:
  - Warmth and Common Humanity
  - Interpersonal Mindfulness
  - Behavior Change

Diamond of Experience



Stop or **S**low down

Turn towards experience or (**T**ake notice of breathing)

◊bserve with **O**penness (thoughts, sensations, emotions, urges) (Diamond of Experience)

Pleasantness (notice Pleasant, unPleasant, or neutral feeling tone)

Allow it to be as it is, **A**ccept the ACHE is here or (**A**nchoring to present with breathing)

Compassion/**C**uriosity – bring these qualities to areas of tightness or unpleasantness

Hold the experience with warmth– bring **H**and to **H**eart or **H**olding touch

Expand awareness from ACHE to breathing, then to the body, then to all the senses.

&

Gratitude (that there is something you can do) then **G**rounding in values

Open to life, its challenges and its beauty, and **O**rient towards experience with kindness

Relating to Change

- Reconciling non-striving with need for change
- Everything changes – we need to let it
- Allowing change to emerge
- Holding aspiration just right--like an egg
- Skillful goal-setting with inner kindness

Study Design

Randomized Comparative Effectiveness

8-week MTPC vs Low-Dose Mindfulness Comparator

Mindfulness Training for Primary Care (MTPC) (66% of participants)	Low Dose Comparator (LDC) (33% of participants)
• **Group program**: MTPC groups are 2 hours long for 8 weeks + 7-hour day of silent practice • **Co-located**: Delivered by mental health clinicians/PCP in primary care • **Insurance-reimbursed**: Billed as group psychotherapy or medical group visits with ~10 pts	• 60-minute introduction to mindfulness • Referral to community mindfulness resources (classes, top mobile apps, books, websites) • Called every 2 weeks and encouraged in mindfulness practice • Placed on a 6-month waitlist for group

Accessibility

- Study 1
  - 46% private, 52% subsidized/CMS, 2% other
  - 62% with less than $40K annual income
  - 22% non-white race, 15% English 2nd language

- Study 2
  - 45% private, 53% subsidized/CMS, 2% other
  - 29% with less than $20K annual income
  - 23% non-white race, 17% English 2nd language

Action Plan Initiation Survey

1. Please choose the category of your goal (choose one):

- ☐ **Activity level/exercise**
- ☐ **Diet/eating/drinking**
- ☐ **Self-care practice**
- ☐ **Other** ___

2. My Goal (be specific): _____

3. In the last two weeks, did you meet your goal?

Not met at all — Totally met

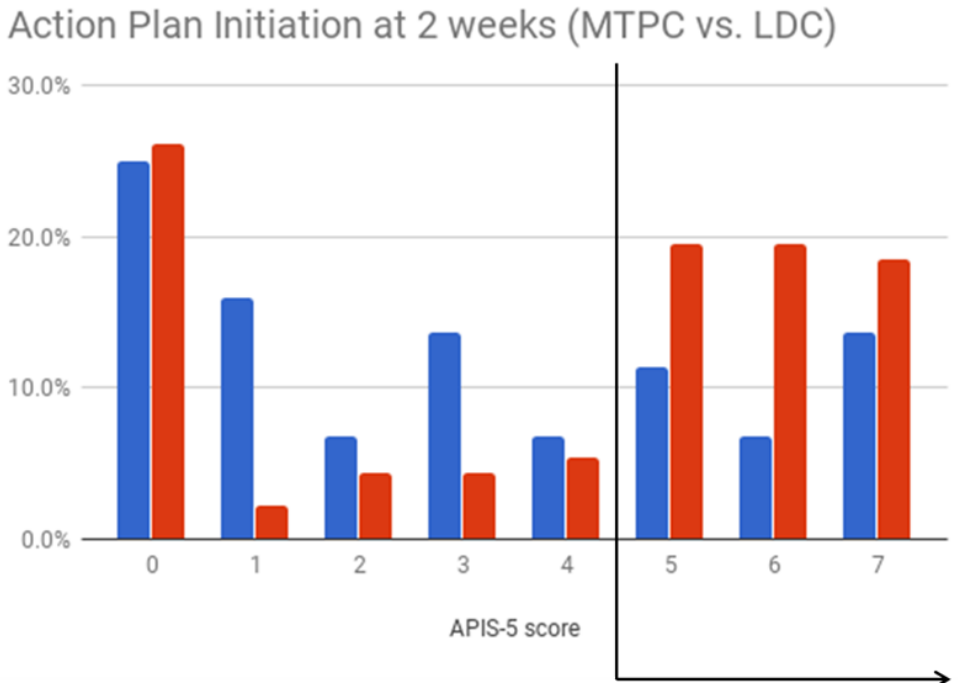
1 2 3 4 5 6 7

STUDY GROUP	WEEK 0	WEEKS 0-1	WKS 1-4	WKS 5-6	WK 7	WK 8	WK 9	WK10	WK24
BOTH GROUPS	Informed Consent Session	Randomization			Action Plan Creation	AP Initiation Survey	AP Initiation Survey	AP Initiation Survey	
	T0 Surveys				T1 Surveys	T2 Surveys			T3 Surveys
	Mindfulness Orientation		Weekly Mindfulness Resource Diary Card Weekly Mindfulness Practice Diary Card						
INTERVENTION		fMRI Pre	MTPC Intervention				fMRI Post		
COMPARATOR			MINDFUL-PC Staff Check-In (Every 2 weeks)						

MINDFUL-PC Studies

Action Plan Initiation

- Study 1-- 2015-2016 N=81 35% v 11% OR: 4.09, p<0.05
- Study 2 -- 2017 N=136 58% v 32% OR: 2.91, p<0.01



(Gawande 2018, JGIM)

Action Plan Initiation (API)

	MTPC	LDC	TOT
Did not Initiate	39 (42%)	30 (68%)	69
Initiated	53 (58%)	14 (32%)	67
TOTAL	92	44	136
	OR=2.91, p=0.006		

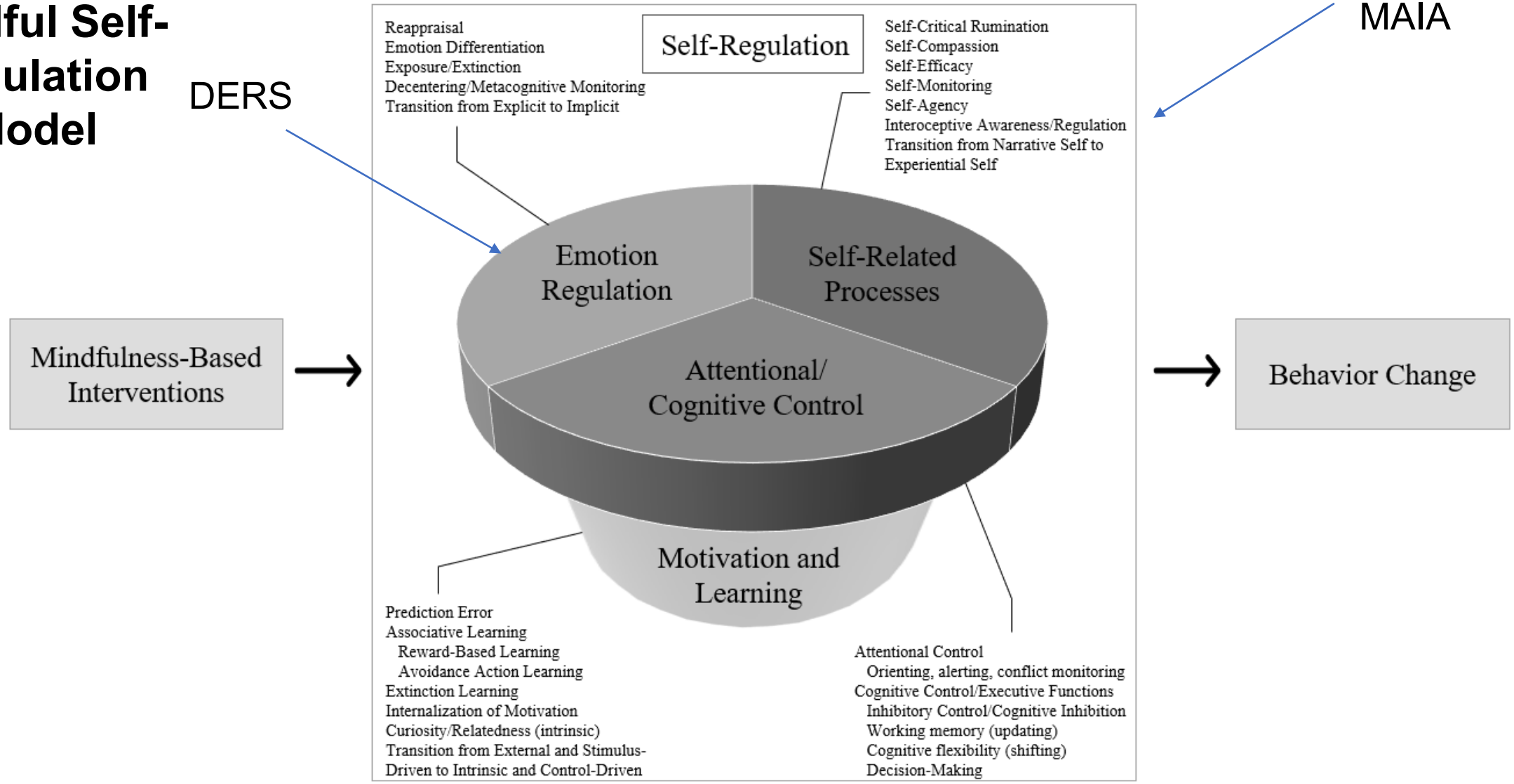
Study 1:
Gawande, et al, Mindfulness (2019) 10:1744–1759
DOI: 10.1007/s12671-019-01116-8

Study 2: Gawande, et al, J Gen Intern Med (2018)
DOI: 10.1007/s11606-018-4739-5

Mindful Self-Regulation Model

DERS

MAIA



doi: 10.1097/HRP.0000000000000277

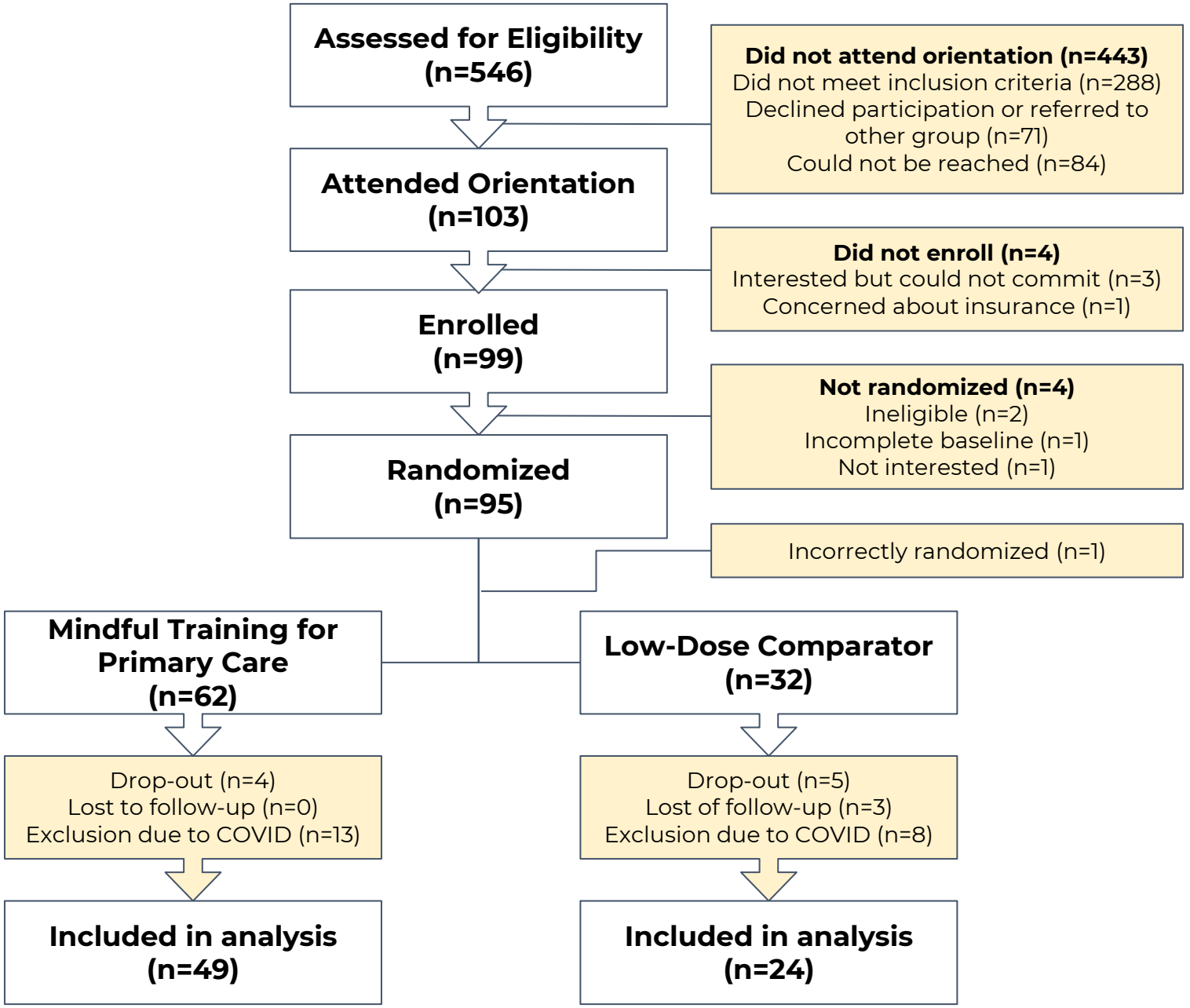
Schuman-Olivier Harvard Review of Psychiatry 2020

Study #3

- Primary Aim: Emotion Regulation
- Secondary Aim: Replication of Action Plan Initiation Outcome

Overall project

- Main Aim: Role of Interoceptive Awareness Facets as mediator
- Secondary Analysis: Change in Interoceptive Appreciation (Body Listen and Body Trust) as mediator of change


Assessed for Eligibility (n=546)
Did not attend orientation (n=443)
Did not meet inclusion criteria (n=288)
Declined participation or referred to other group (n=71)
Could not be reached (n=84)
Attended Orientation (n=103)
Did not enroll (n=4)
Interested but could not commit (n=3)
Concerned about insurance (n=1)
Enrolled (n=99)
Not randomized (n=4)
Ineligible (n=2)
Incomplete baseline (n=1)
Not interested (n=1)
Randomized (n=95)
Incorrectly randomized (n=1)
Mindful Training for Primary Care (n=62)
Low-Dose Comparator (n=32)
Drop-out (n=4)
Lost to follow-up (n=0)
Exclusion due to COVID (n=13)
Drop-out (n=5)
Lost of follow-up (n=3)
Exclusion due to COVID (n=8)
Included in analysis (n=49)
Included in analysis (n=24)

Participant Demographics

Variable	**Total (n = 73)**	**MTPC (n = 49)**	**LDC (n = 24)**
Gender: Female, *N* (%)	43 (59%)	28 (57%)	15 (63%)
Age, *Mean* (SD)	37 (12)	37 (13)	36 (12)
Race: White, *N* (%)	55 (75%)	35 (71%)	20 (83)
Race: BIPOC or multi-racial, *N* (%)	18 (25%)	14 (29%)	4 (17%)
MDD Diagnosis, *N* (%)	23 (32%)	14 (29%)	13 (54%)

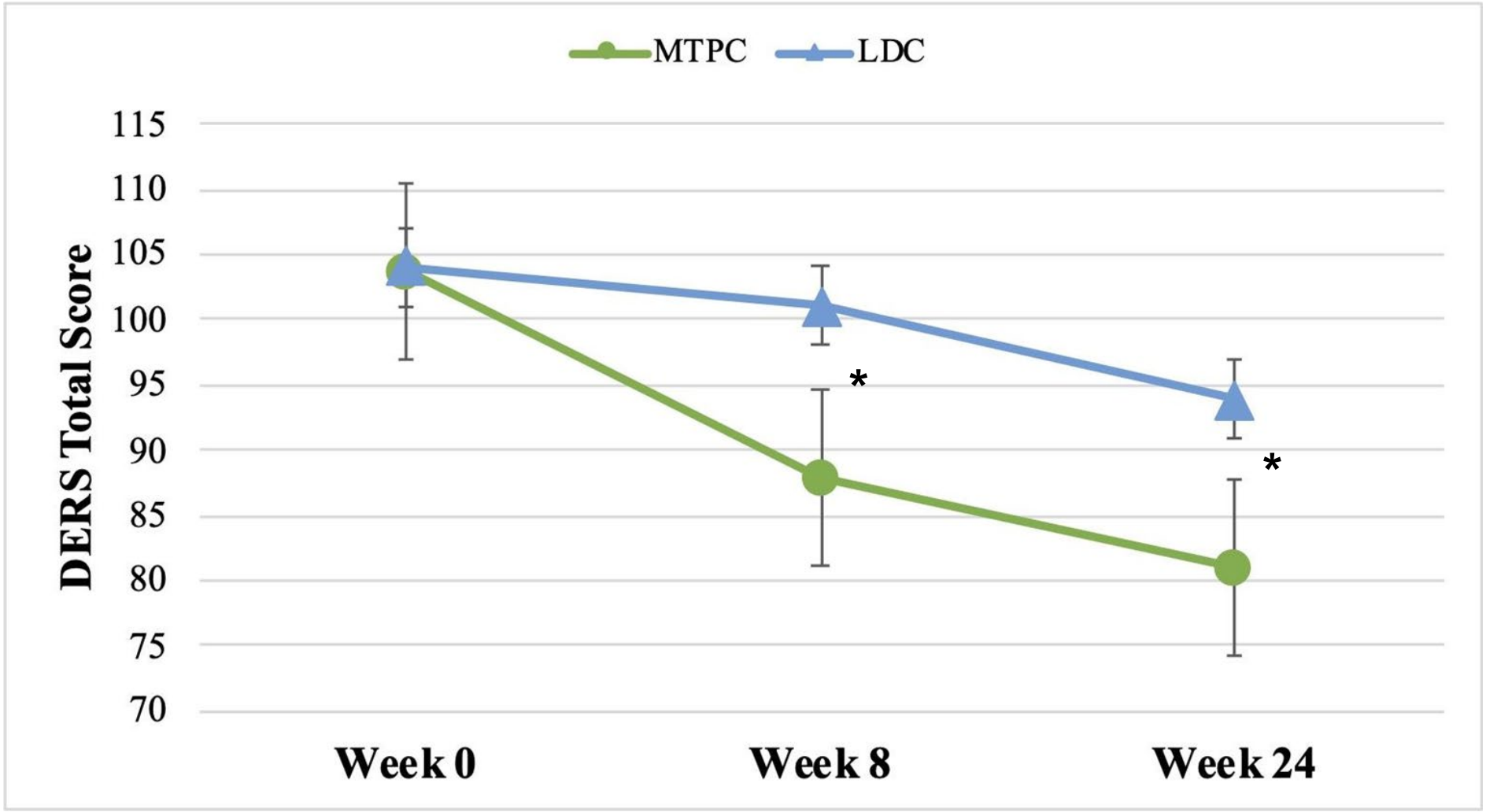
Study 3 Results

Between group effects at Week 8
β = -12.98
95% CI [-23.3,- 2.6]
d = -0.59, *p* = .01

These effects held at Week 24
β = -13.35
95% CI [-24.3,- 2.4]
d = -0.61, *p* = .02

*p<0.05

Change in Difficulties in Emotion Regulation Scale



Study 3 Results

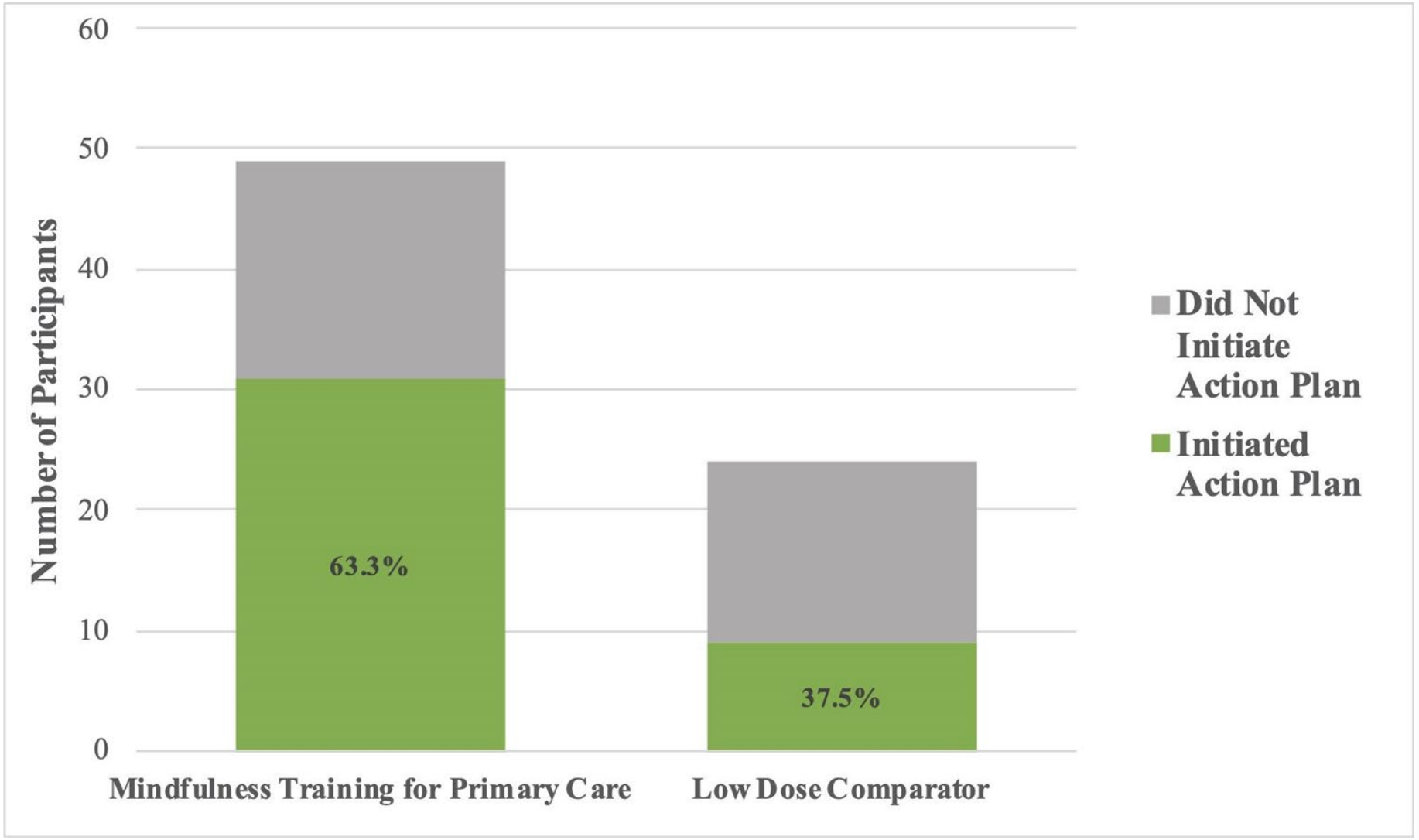
DERS Subscales	**β**	***d***	***p***
Nonacceptance	**3.12**	**0.55**	**0.036**
Goal-directed behavior	**3.48**	**0.82**	**< 0.001**
Impulse control	0.47	0.11	0.687
Lack of emotional awareness	1.13	0.24	0.314
Emotional regulation strategies	**4.99**	**0.74**	**0.001**
Lack of emotional clarity	-0.18	-0.05	0.836

Study 3 Results

80% of all participants rated their API

MTPC had greater odds of initiating their action plan compared to LDC

OR=2.87
95% CI [1.1, 7.9]
p=0.04



MINDFUL-PC Studies

		Action Plan Initiation	
• Study 1-- 2015-2016	N=81	35% v 11%	OR: 4.09, p<0.05
• Study 2 -- 2017	N=136	58% v 32%	OR: 2.91, p<0.01
• Study 3 -- 2018-2020	N=73	63% v. 38%	OR: 2.87, p<0.05

Study 1: Gawande, et al, Mindfulness (2019) 10:1744–1759
DOI: 10.1007/s12671-019-01116-8

Study 2: Gawande, et al, J Gen Intern Med (2018)
DOI: 10.1007/s11606-018-4739-5

Study 3: Gawande, et al, under review

Losing trust in body sensations: Interoceptive awareness and depression symptom severity among primary care patients

Julie Dunne [a,b,*], Michael Flores [c,d], Richa Gawande [a,d], Zev Schuman-Olivier [a,d]

Table 2c

Adjusted Estimates of Multidimensional Assessment of Interoceptive Awareness Subscale Scores by Depression Severity Categories with Anxiety and Other Covariates.

	Noticing			Emotional Awareness			Self-regulation			Body Listening			Trusting		
	Coef	SE	95%CI	Coef	SE	95%CI	Coef	SE	95%CI	Coef	SE	95%CI	Coef	SE	95%CI
PROMIS Depression (Reference None to slight)															
Mild	-0.30	0.17	-0.64 to 0.04	-0.21	0.18	-0.57 to 0.14	-0.31	0.16	-0.63 to 0.01	-0.33	0.19	-0.70 to 0.03	-0.74***	0.21	-1.16 to -0.32
Moderate to Severe	-0.47*	0.19	-0.86 to -0.09	-0.52**	0.19	-0.89 to -0.15	-0.40*	0.17	-0.74 to -0.07	-0.57**	0.2	-0.96 to -0.18	-0.75***	0.23	-1.21 to -0.30

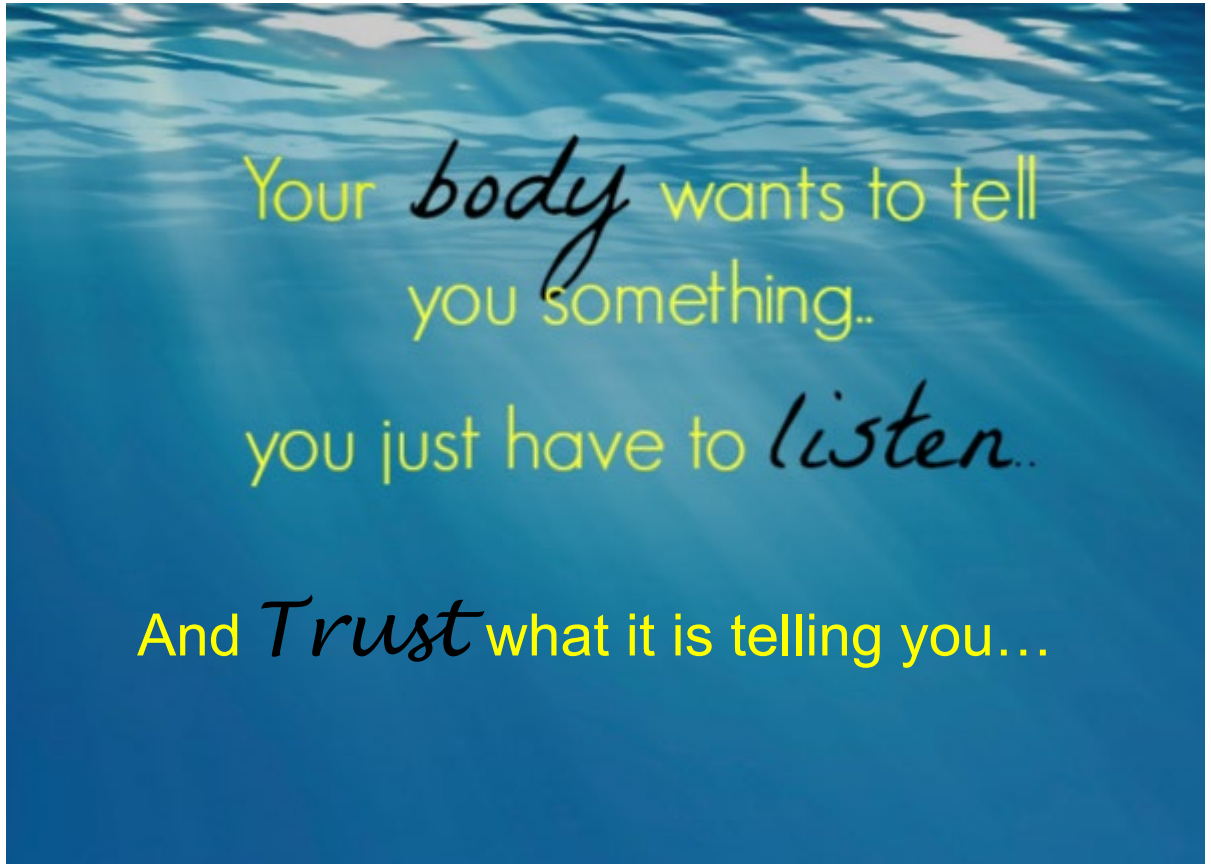
†p<0.10*p<0.05; **p<0.01 (significant after correction for multiple comparisons).

Adjusting for gender, race/ethnicity, age, education level, marriage status, employment status, PROMIS Anxiety, any PTSD diagnosis, any substance use disorder diagnosis, any antidepressent prescription.

N=281

Journal of Affective Disorders 282 (2021) 1210–1219

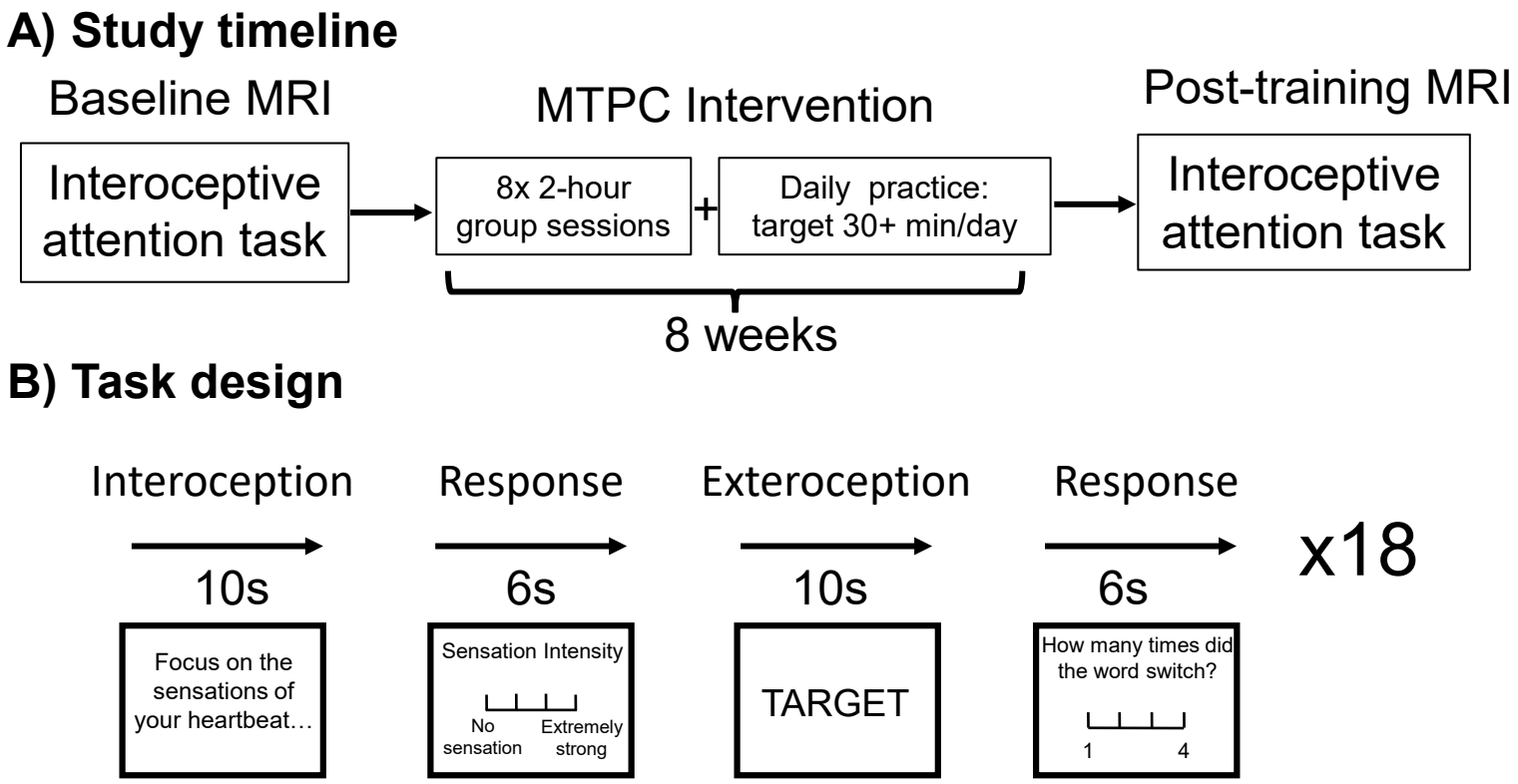
Interoceptive Appreciation



Neuroimaging Study Methods

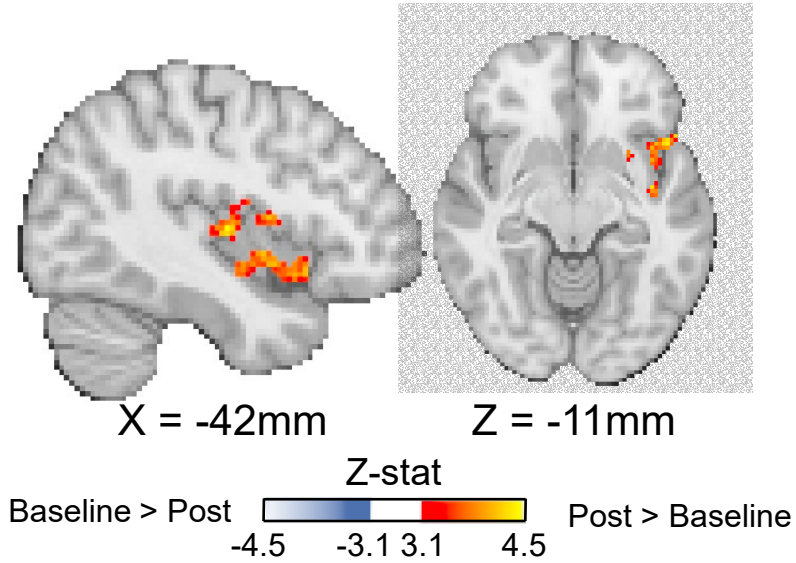
- 41 Participants (23 women, 18 men)
- 21-60 years of age (mean 33.78)
- History of either Major Depressive Disorder, dysthymia, or generalized anxiety disorder
- No significant current or former meditation or intense yoga practice
- 7 participants did not complete post-training visits
- 6 participants were excluded from the fMRI analysis due to excessive head motion (>2mm max displacement)
- N = 28 participants included in the final analysis (14 women, 14 men)

Neuroimaging Methods

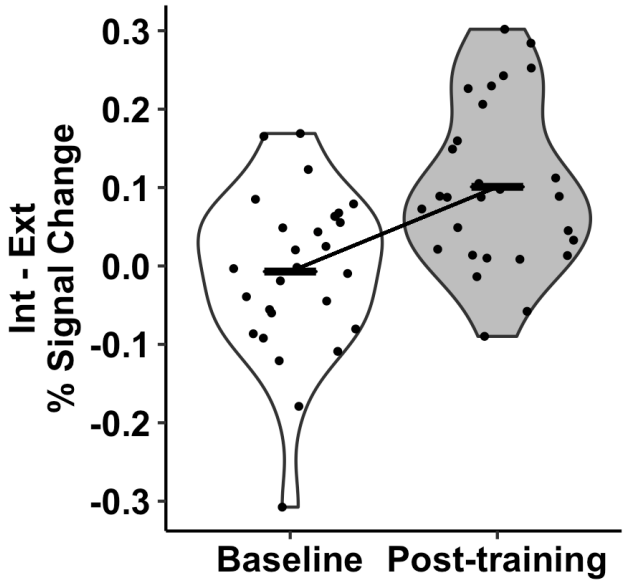


Interoceptive Attention and Insula Results

A) Post-training change in brain response to interoceptive attention



B) Insula cluster mean (from A)

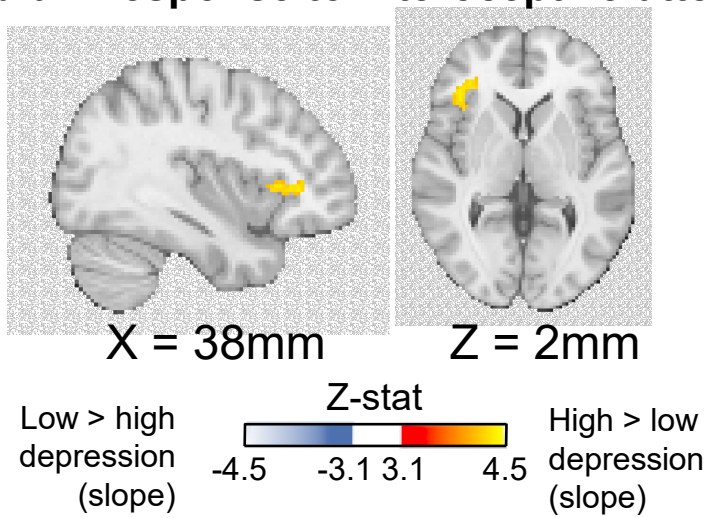


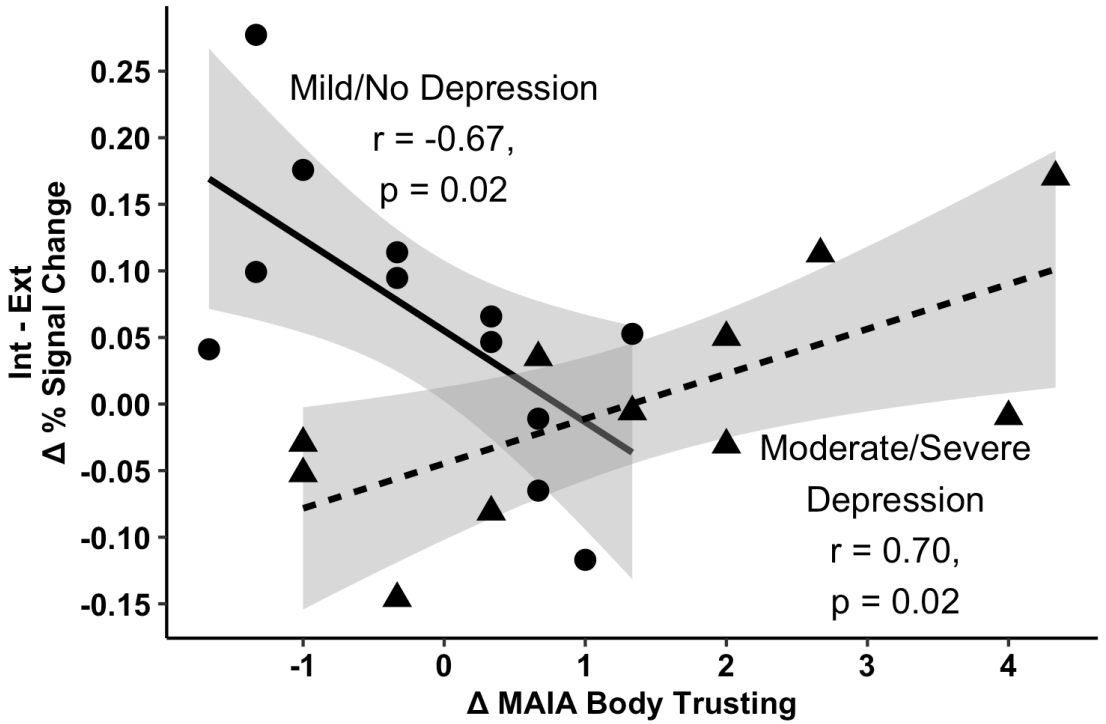
Effects of Mindfulness on Interoceptive Attention, Interoceptive Body Trust and Insula Activity

Two sub-groups within our sample:

- Anxiety + moderate/severe depression (n =13)
- Anxiety alone (none/mild depression) (n= 15)

Depression moderates the association between post-training change in MAIA Body Trusting and brain response to interoceptive attention





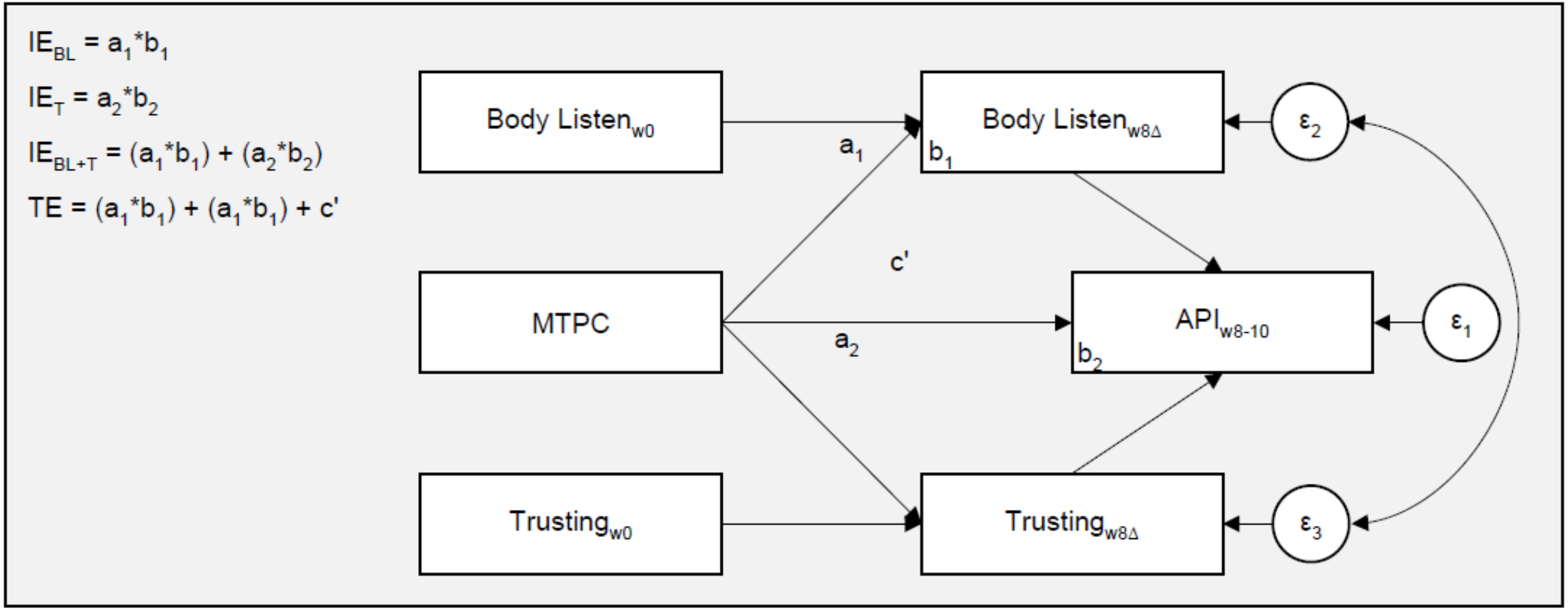


Figure 1. Path diagram specifying causal mediation analyses

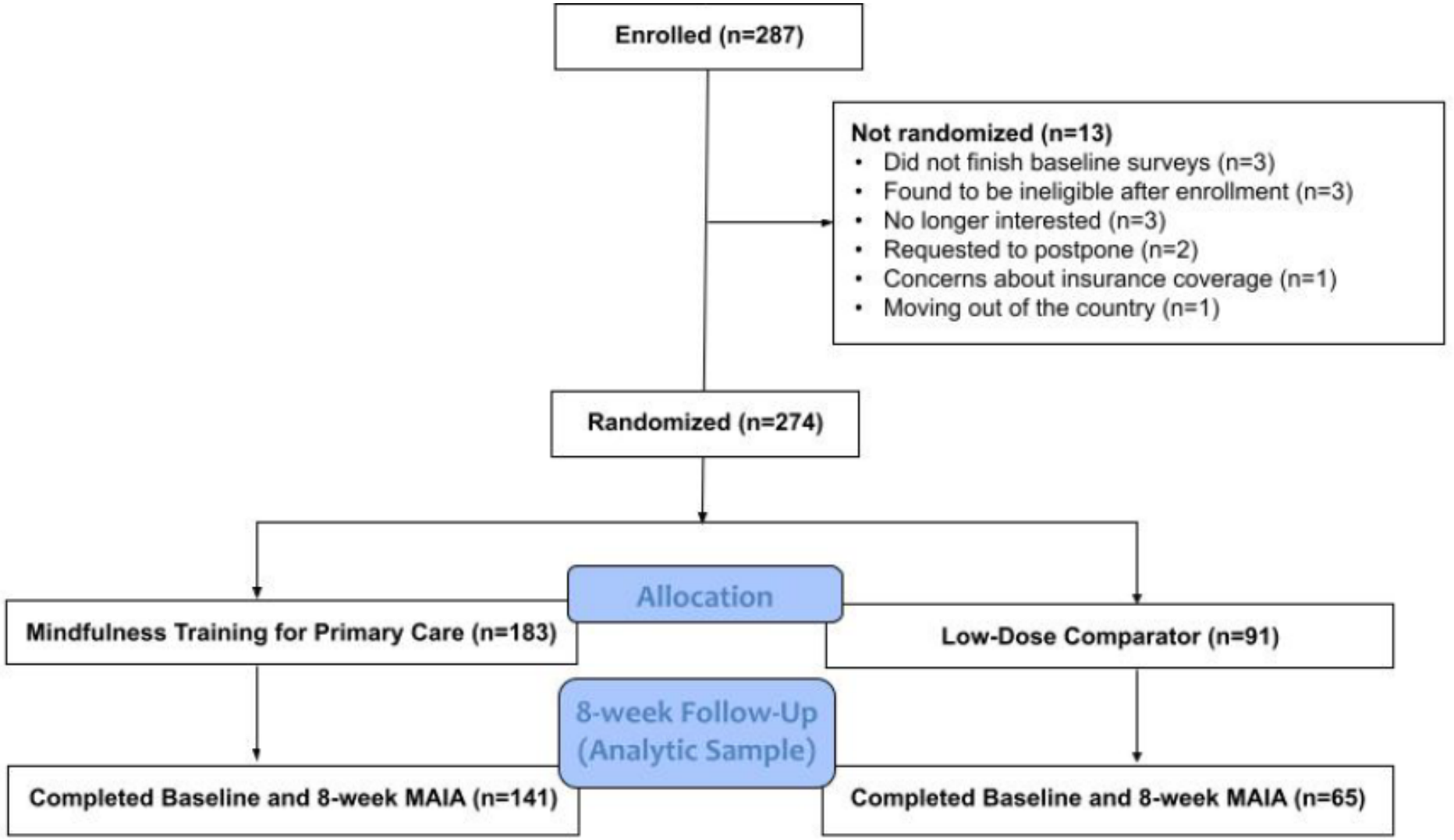


Figure 2. Consort Diagram

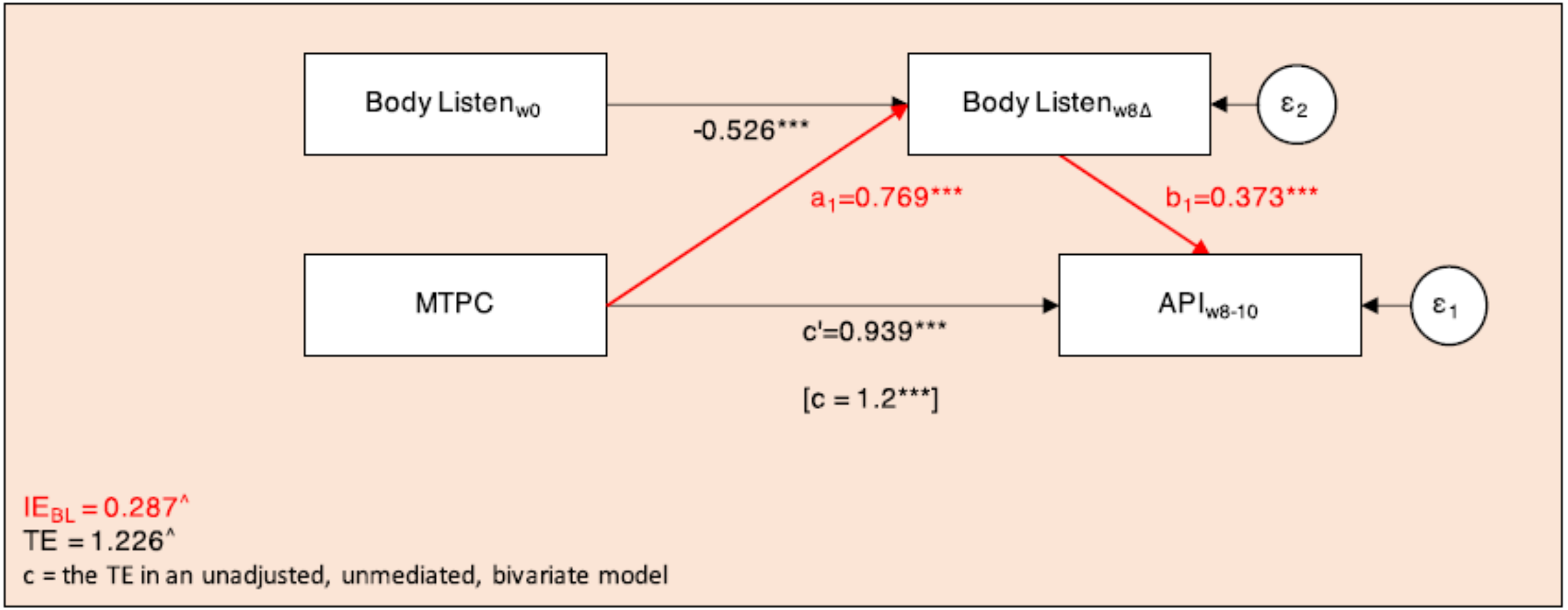
Demographics

Variable	Subtotal (n=206)		MTPC (n=141)		LDC (n=65)	
Female N (%)^	138	(67)	94	(67)	44	(68)
Age (years), mean (SD)	40	(13)	40	(13)	39	(13)
Race, N (%)						
White	165	(80)	111	(79)	54	(83)
Black	10	(5)	8	(6)	2	(3)
Multiple	6	(3)	4	(3)	2	(3)
Other	25	(12)	18	(13)	7	(11)
Ethnicity Hispanic, N (%)	27	(13)	20	(14)	7	(11)
Annual income < $20K, N (%)	51	(25)	40	(28)	11	(17)

Variable	Subtotal (n=206)		MTPC (n=141)		LDC (n=65)	
Primary DSM-V dx, N (%)						
MDD	59	(29)	38	(27)	21	(33)
GAD	40	(20)	28	(20)	12	(19)
Anxiety NOS	23	(11)	16	(11)	7	(11)
Adjustment disorder	36	(18)	24	(17)	12	(19)
Other depressive d/o	22	(11)	15	(11)	7	(11)
Other[d]	25	(12)	20	(14)	5	(8)
2+ DSM-V dx	66	(32)	49	(35)	17	(26)
Any PTSD dx, N (%)	15	(7)	13	(9)	2	(3)
Any depressive dx, N (%)	98	(48)	66	(47)	32	(49)

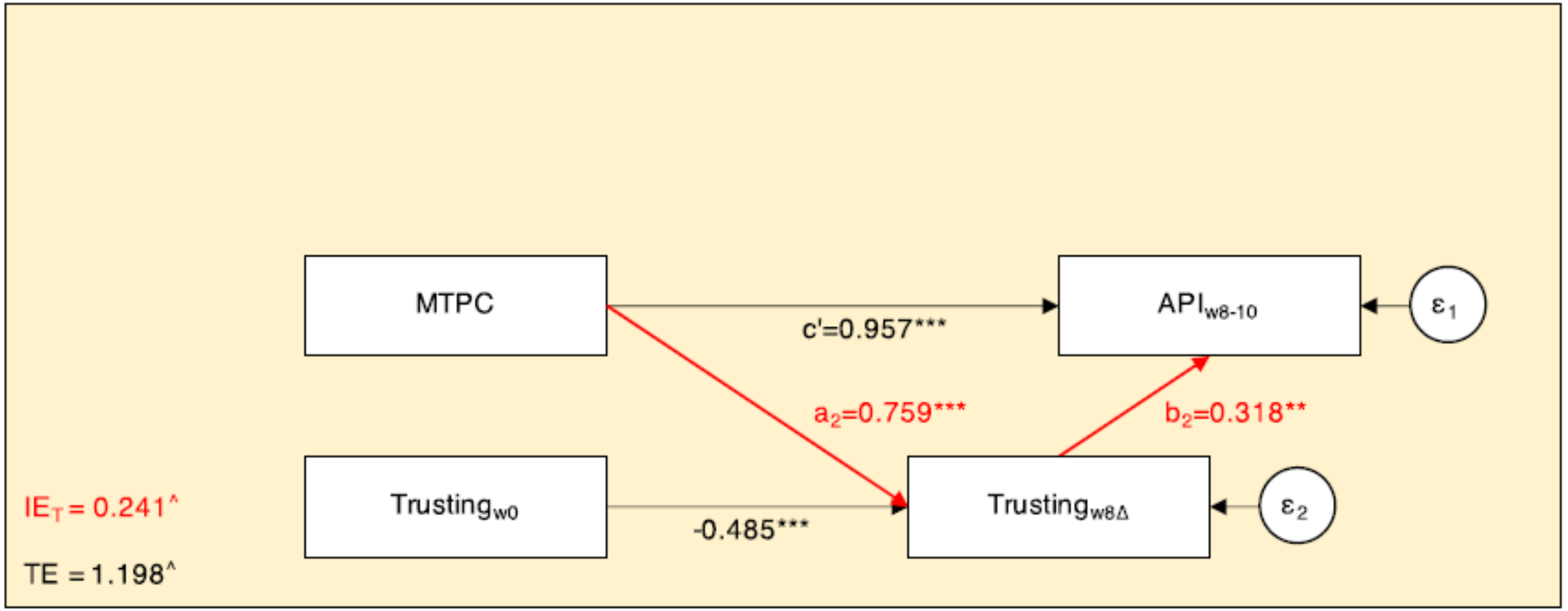
No significant differences between groups, $p<0.05$

Fig. 3a. Body Listen paths only



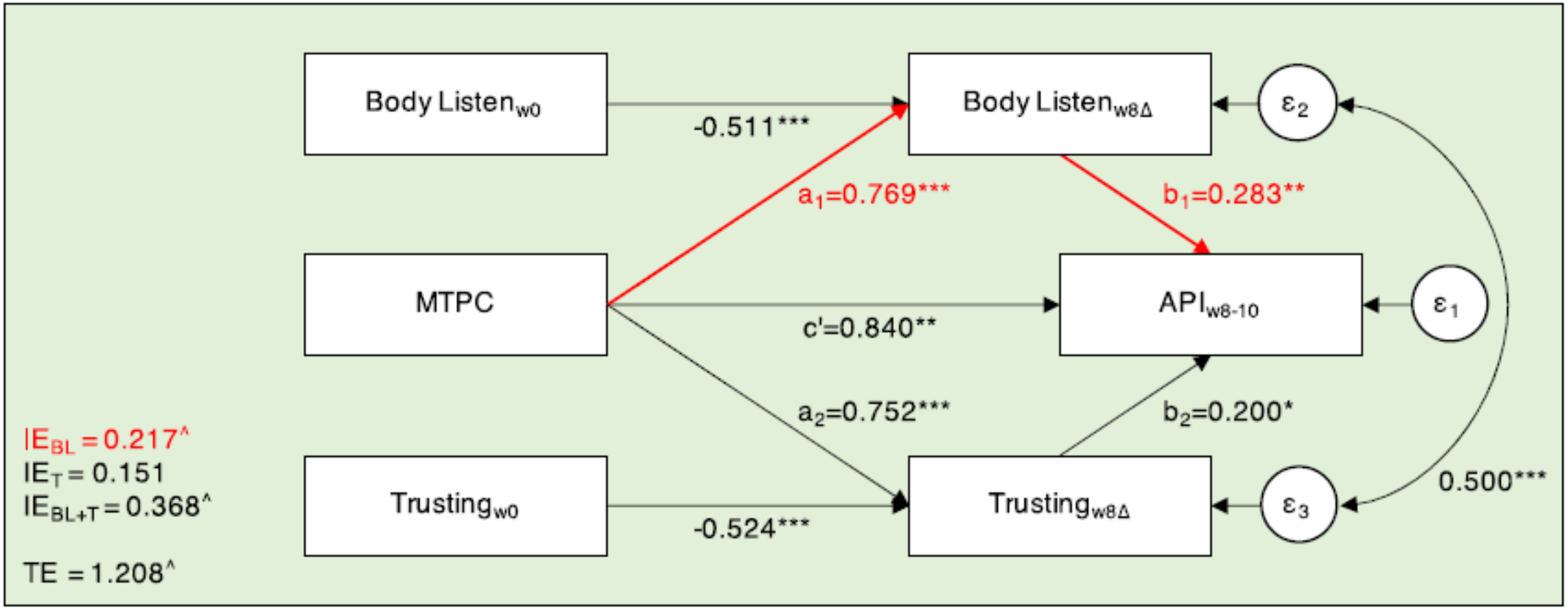
IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.

Fig. 3b. Trusting path only



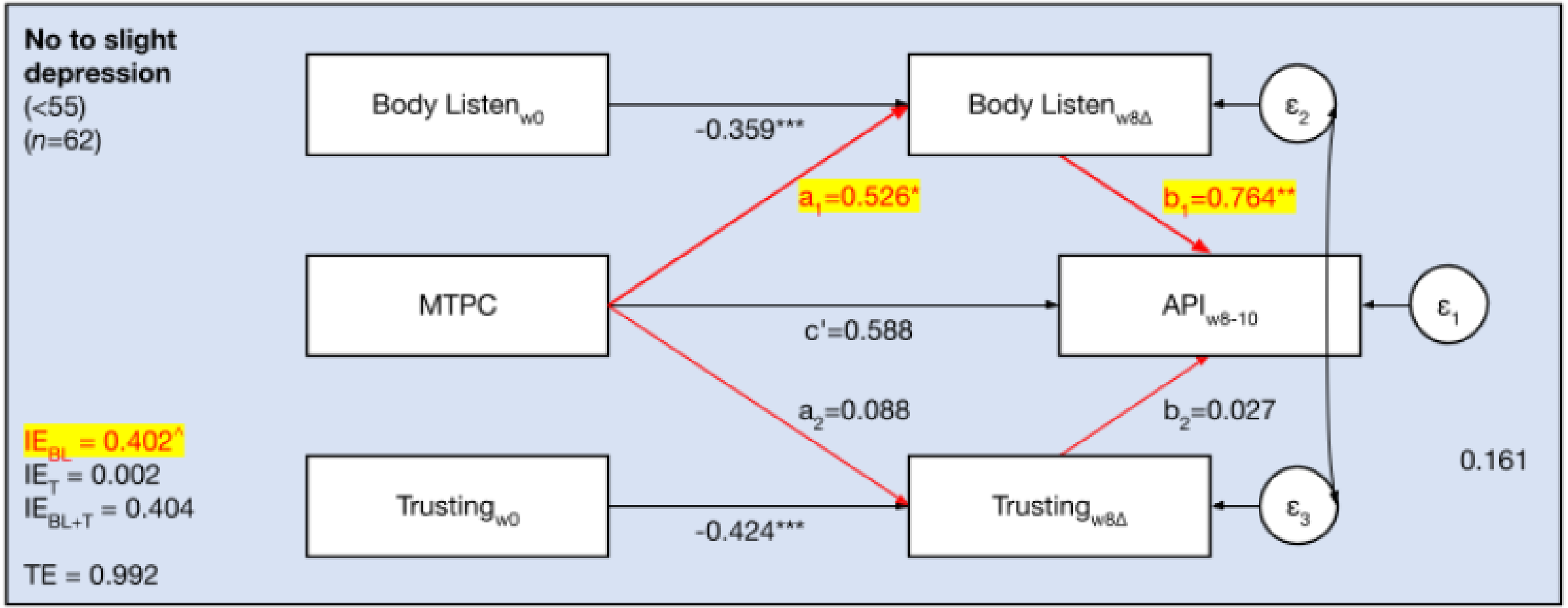
IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.

Fig. 3c. Body Listen and Trusting paths

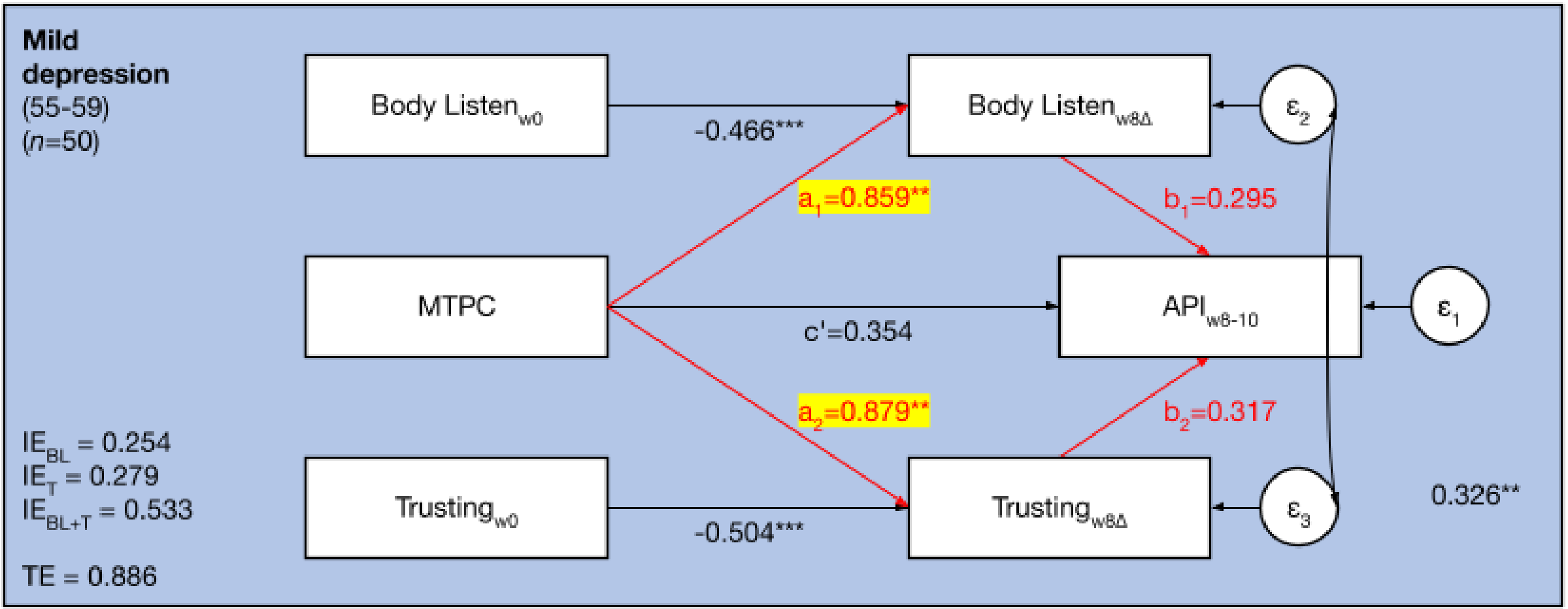


IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.

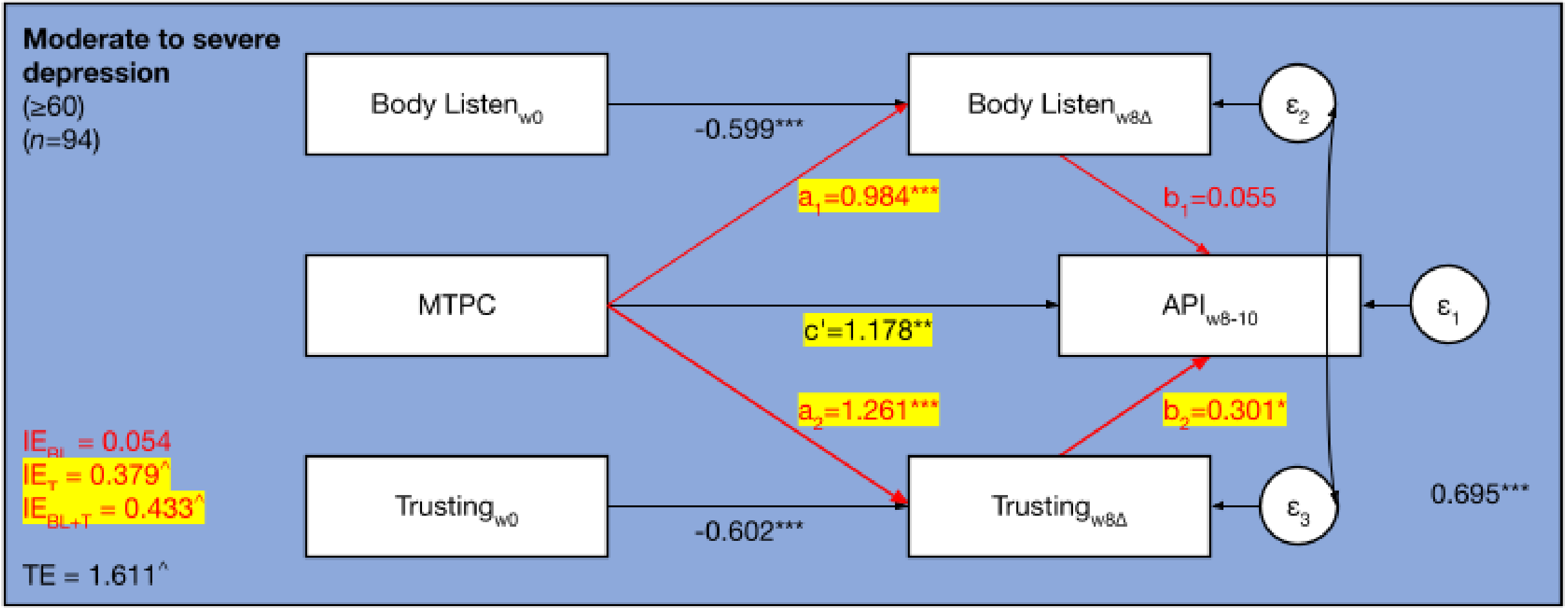
Fig. 4. Body Listen and Trusting paths, moderated by baseline depression level



IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.



IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.



IE, indirect effect; TE, total effect; BL, body listen; T, trusting; *p<0.05; **p<0.01; ***p<0.001; ^95% CI did not cross critical value threshold; computed using bootstrap standard errors with the percentile method and 10,000 replications.

Conclusions

- **MTPC is implementable in a diverse safety net health care system and is accessible to socio-economically and culturally diverse population in primary care in a safety net healthcare system.**
- **MTPC supports primary care patients with anxiety, depression, and stress related to living with chronic illness to be able to initiate health behavior change and chronic illness self-management behaviors.**
- **MTPC improves emotion regulation, especially in aspects related to acceptance of emotions, goal-directed behaviors, and emotion regulation strategies.**
- **MTPC increases insula activation during an interoceptive attention task among primary care patients with anxiety and depression.**
- **Change in insula activation during an interoceptive attention task is largest among those with depression who have an increase in body trust during MTPC**

Conclusions

- ***Interoceptive appreciation*** **partially mediates the effect of mindfulness on behavior change by helping people trust the body and listen to bodily signals that motivate change.**
- **The combined indirect effect of *interoceptive appreciation* (Body-Listen & Body-Trust) was greater than either individually (B=0.37, 95% CI=0.17-0.59).**
- **Among those without depression (n=62), Body-Listen alone was a significant MTPC-API mediator (B=0.40, 95% CI=0.02, 0.88).**
- **Among those with moderate-to-severe depression (n=94), Body-Trust was a significant MTPC-API mediator (B=0.38, 95% CI=0.02-0.082).**
- **In depression, feeling safe in and regaining trust with the body may be a key step on the mindful path towards change.**

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Disclosures & Gratitude

- We have no conflicts of interest to disclose.
- Thank you to our incredible team!

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MINDFUL-PC Took a Team!

Thank you to our dedicated MINDFUL-PC team members (current & past):

- **Medical Director:** Todd Griswold, MD
- **Project Manager:** Richa Gawande, PhD
- **Co-Investigator:** Timothy Creedon, PhD, Ben Lê Cook, PhD
- **Neuroimaging Team:** Vitaly Napadow, PhD, Gaelle Desbordes, PhD, Michael Datko, PhD, Jacqueline Lutz, PhD
- **Research Coordinators:** Lexie Comeau, Elizabeth Pine, My Ngoc To, Lydia Smith, Caitlyn Wilson, Tom Fatkin, Alex Brunel
- **Research Assistants**: Fabio Marcovski, Tim Martin, Andrea Chen, Angela Lozada, Farah Samawi, Alyssa Craparotta, Danielle Giachos, Kayley Okst, Audrey Evers, Rachel Petersen, Alana Rozembarque, Bridget Kiley, Tenzin Desel, Jenny Gan, Hadley Rahrig
- **MTPC Group Leaders:** Richa Gawande, PhD, Laura Warren, MD, Kiera Fredericksen, LICSW, Barbara Hamm, PhD, Janet Yassen, LICSW, Nayla Khoury, MD, Nick Barnes, MD, Zayda Vallejo, MA, Elana Rosenbaum, LICSW, Alexandra Oxnard, MD, Chris Carter-Husk, LICSW, Cristian Onofrio, PhD, Pedro Barbosa, PhD, Jillian Burley, PhD, Susan Pollak, EdD, Barbara Ogur, MD, Jason Samlin, PhD, Jessika Bailey, PhD, Mary Catherine Ward, LICSW
- **Collaborators:** SOBC Mindfulness Research Collaborative team – Eric Loucks, PhD, Willoughby Britton, PhD, Jean King, PhD, Sara Lazar, PhD, David Vago, PhD, Carl Fulwiler, MD, PhD, Judson Brewer, MD, PhD,
- **Collaborators:** Marcelo Trombka, MD, PhD, Elizabeth Gaufberg, MD, Emily Benedetto, LICSW, Colleen O'Brien, PhD, Maria Carvalho, Michael Williams, LICSW, Ellie Grossman, MD, CHA primary care providers and behavioral health, front desk staff, Paula Gardiner, MD, Marcelo Demarzo, MD, Javier Garcia-Campayo, MD