Mindfulness-Based Interventions for Physical Conditions

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IBTN Conference
Montreal 2018

Division of Psychosocial Oncology
Helping You Live Well With Cancer

www.albertahealthservices.ca
Hi, we're here for the “Happiness through Meditation” seminar.

Oh... that was a typo.

I told you we should've gone to the movies instead of pursuing happiness!
Outline

• What is mindfulness?
• MBIs
• MBCR
  – Description
  – Research
• Other Health Conditions
• Curriculum
• Instructor Training
What is Mindfulness?
What is Mindfulness?

- Paying attention on purpose in the present moment with an open and accepting attitude
- A way of BEING in the world
- A PRACTICE
What is your mind doing instead?

- 50,000-70,000 thoughts per day!
- 46.9% are NOT in the present moment (mind wandering)

- Happier when in the present moment
Mindfulness

I went to the woods because I wished to live deliberately,
To front only the essential facts of life.
And see if I could not learn
What it had to teach,
And not, when I came to die,
Discover that I had not lived

- Thoreau -
Components of Mindfulness

WHY?
Intention

WHAT?
Attention

HOW?
Attitude

“on purpose”

“paying attention”

“with an open and accepting attitude”

Shapiro & Carlson, 2009; 2016
Mindful Attitudes

- Non-judging
- Patience
- Acceptance

- Letting go
- Non-striving
- Trust
- Beginners Mind

OR - you can be a judgmental, impatient, rejecting, grasping, striving, suspicious know-it all!
What mindfulness is NOT

- Not relaxation
- Not hypnosis
- Not prayer
- Not religious

- Not clearing your mind of all thoughts
- Not always peaceful/calm
Where does mindfulness “fit”? 

- Development of psychological therapies:
- Psychodynamic (Freud; Jung: 1800s)
- Behavioral (Skinner; Pavlov: early 1900s)
- Cognitive-Behavioral (CBT; Beck; Ellis: 1950s)
- Humanistic (Rogers: 1960s)
- “Third-Wave” therapies:
  - Acceptance-based therapies
  - Mindfulness-based therapies
    - MBIs
Why Mindfulness?

The only certainty in life is change

The unwillingness to acknowledge and act upon this reality is the root cause of all suffering

Mindfulness is one process by which we face and accept this inevitability
Book: The Art and Science of Mindfulness

- Shapiro and Carlson 2009
- Clinician training manual
- Includes chapters on theories of mindfulness, the mindful therapist, mindfulness-based therapies and mindfulness-influenced therapy
This being human is a guesthouse
Every morning a new arrival.
A joy, a depression, a meanness,
Some momentary awareness comes
As an unexpected visitor.
Welcome and entertain them all!
Even if they’re a crowd of sorrows,
Who violently sweep your house
Empty of its furniture.
Still, treat each guest honourably.
They may be clearing you out
For some new delight.
The dark thought, the shame, the malice,
Meet them at the door laughing,
And invite them in.
Be grateful for whoever comes,
Because each has been sent
As a guide from beyond.
- Rumi -
Mindfulness-Based Stress Reduction

- Program developed in late 1970’s by Jon Kabat-Zinn and colleagues at the UMass Med Centre, Worcester
- Combines stress reduction with mindfulness meditation techniques
- MBSR has been shown effective for a wide range of physical and psychological disorders and symptoms: see goamra.org for comprehensive research summaries
Mindfulness research studies

Mindfulness Journal Publications by Year, 1980-2017

American Mindfulness Research Association, 2018
Source: goAMRA.org
Mindfulness-Based Cognitive Therapy (MBCT)

- Developed for the treatment of depression relapse
- Zindel Segal, Williams and Teasdale: *MBCT for depression: A new approach to preventing relapse*
- Based on a blend of CBT and MBSR
- Mindfulness helps recovered depressives see more clearly when they are falling into dangerous patterns of thinking
- Become “decentered” from thoughts
- Change ones relationship to thoughts
MBCT Research

- RCT 145 recovered depressed pts.
- MBCT vs. Treatment as usual (meds, counselling, outpatient support)
- 1-year follow-up for relapse
- Rate of relapse halved for those with 3 or more previous episodes of depression (77% of sample)
MBCT Depression Relapse

Cumulative Proportion of Patients Not Relapsing

Weeks of Study

- Mindfulness-based CT (4+ sessions)
- Treatment-as-usual
Other MBIs

- Mindfulness-based Relapse Prevention (MBRP)
- Mindfulness-based Eating Awareness Training (MB-EAT)/Mindful Eating Conscious Living
- Mindfulness-based Art Therapy
- Mindfulness-based Childbirth and Parenting (MBCP)
- Mindful Self-Compassion (MSC)
- Mindfulness at Work (MAW)

- See UCSD centre for mindfulness for training schedules: http://cme.ucsd.edu/mindfulness/index.html
## Mindfulness Research Areas

<table>
<thead>
<tr>
<th>Mental Health</th>
<th>Physical Health</th>
<th>Outcomes in Healthy Populations</th>
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</thead>
<tbody>
<tr>
<td>Depression</td>
<td>CVD/Hypertension</td>
<td>Inflammation/Immune function</td>
</tr>
<tr>
<td>Anxiety</td>
<td>HIV/AIDS</td>
<td>Attention</td>
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<tr>
<td>PTSD/Trauma</td>
<td>Cancer</td>
<td>Stress (Acute/Chronic)</td>
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<tr>
<td>Bipolar Disorder</td>
<td>Hot flashes/menopause</td>
<td>Cognition</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>Irritable bowel syndrome</td>
<td>Health status</td>
</tr>
<tr>
<td>Eating Disorders</td>
<td>Solid organ transplant</td>
<td>Seniors Health</td>
</tr>
<tr>
<td>Obesity</td>
<td>Pain</td>
<td>Wound Healing</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>Asthma</td>
<td>Infectious Diseases/Colds</td>
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<tr>
<td>Substance Abuse/Smoking cessation</td>
<td>Diabetes</td>
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<tr>
<td>Insomnia</td>
<td>Fibromyalgia</td>
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<tr>
<td>Psychotic</td>
<td>Headache/Migraine</td>
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<tr>
<td>Disorders/Schizophrenia</td>
<td>Multiple Sclerosis</td>
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<td>Skin Diseases/Psoriasis</td>
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<td></td>
<td>Stroke</td>
<td></td>
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<td></td>
<td>Tinnitus</td>
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<td></td>
<td>Emphysema/COPD</td>
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Mindfulness-Based Cancer Recovery

Division of Psychosocial Oncology
Helping You Live Well with Cancer
The cancer experience

"My life's a mess, Doc. Ya gotta help me! I just seem to be spinning out of control!"
The cancer experience

- Life threat/mortality
- Loss of control
- Loss of certainty/predictability/routine
- Grief, fear, anger, depression
- Symptoms: pain, fatigue, sleeplessness
- Fear of recurrence

Attitudes of ACCEPTANCE, LETTING GO (Non-Attachment), PATIENCE and NON-STRIVING can help
TBCC MBSR Program

- Developed in 1996 by Michael Speca, Maureen Angen and Eileen Goodey
- Based on personal yoga/meditation practices
- Refined based on the UMass Model ~ 1998

- Open to cancer patients and family members
- 2,500 participants
- Ongoing clinical program with research studies embedded
Book: Mindfulness-Based Cancer Recovery

- Carlson & Speca
- Published Feb 2011
- Patient-centered
- Covers full MBCR curriculum with detailed exercises
Program Design

- 8 (9)-week intervention
  - 1.5hr (1hr45min) weekly meetings with 2 instructors
  - Discussion followed by mindful yoga and meditation (body scan, sitting, walking)
  - Follow booklet which outlines the program/ includes a bibliography
  - Daily meditation practice encouraged and monitored - formal and informal (CD provided)
  - Homework log of time spent in meditation
  - 6-hour silent “retreat” between weeks 6 and 7
Program Components

- Mindfulness – overarching theme
- Relaxation – abdominal breathing
- Gentle yoga
- Mind-body connection
- Visualization/Imagery
- Cognitive Coping Strategies
- Personal Empowerment
- Social Support
Research Results
TBCC program research

• Study 1 – Randomized controlled trial:
  – 89 patients with mixed cancer diagnoses
  – On or off treatment
  – MBSR or wait-list

• Improved symptoms of stress and less mood disturbance (Speca 2000)

• Maintenance of these improvements over 6-months (Carlson 2001)
Stage of Cancer - Both Groups

- Stage 1: 38%
- Stage 2: 21%
- Stage 3: 21%
- Stage 4: 20%
Profile of Mood States - Total Mood Disturbance

POMS-Pre | MBSR | Control
---|---|---
POMS-Post | MBSR | Control
Change | MBSR | Control
POMS Subscale Change scores

- Anxiety
- Depression
- Anger
- Vigor
- Fatigue
- Confusion

Treatment vs Control
Symptoms of Stress Inventory Total Symptom Score

- SOSI - Pre
- SOSI - Post
- Change

MBSR
Control
SOSI Subscale Change Scores

-6  -5  -4  -3  -2  -1  0

Habitual Patterns  Muscle Tension  Cardio  Irritability  Anxiety

Treatment  Control

Division of Psychosocial Oncology
Helping You Live Well with Cancer
MBCR Research results...

- Improved symptomatology
  - Stress symptoms
  - Mood, anger, anxiety, depression
  - Sleep, fatigue
  - Rumination, worry
  - Similar improvements in partners

- Improved psychological well-being
  - Quality of life
  - Spirituality
  - Post-traumatic growth
  - Overall mindfulness

- Improved biological functions
  - Decreases in systolic blood pressure
  - Normalized cortisol rhythms
  - Less inflammation
  - Maintains Telomere Length

-Over 40 publications; see www.lindacarlson.ca
Randomized Controlled Trials

- Completed
  1. MINDSET
  2. I CAN-Sleep
  3. eCALM

- Ongoing
  1. MATCH
  2. One-MIND
  3. SEAMLESS
MINDSET Study
Innovations in MINDSET

• Included only distressed participants
• Comparative effectiveness of two empirically supported treatments
• Included 3rd control arm → re-randomized
• Psychological and biological outcomes
• Powered for moderator analyses
• Followed up for a full year
• Largest study of its kind (multisite)
Supportive-Expressive Group Therapy (SET)

- Developed by Spiegel and Yalom – 1970s
- Principles of emotional expression and engendering mutual support. Topics discussed include:
  - enhancing openness and emotional expressiveness
  - integrating a changed self and body image into the view of self,
  - improving coping skills and doctor-patient relationships
  - detoxifying feelings around death and dying.
MINDSET Research Questions

1) What are the comparative changes pre-to post-intervention among the three groups on the primary psychological outcome variables?

2) What are the comparative changes pre-to post-intervention on the biological outcome variables?

3) What baseline factors are related to improvements on primary outcomes for participants in each of the two interventions?

4) What are the long-term effects (6-months, 1-year) of the interventions on psychological and biological parameters compared to each other?
Baseline Measures

- Distress thermometer (DT)
- Demographics
- Disease Characteristics
- Health Behaviors
- Contamination (other therapies)

- Background (Moderators)
  - Emotional Repression:
    - Weinberger Adjustment Inventory (WAI)
  - Emotional Suppression
    - Courtauld Emotional Control Scale (CECS)
  - Personality:
    - NEO FFI
  - Patient Preferences
Psychological Outcome Measures

- Mood
  - Profile of Mood States (POMS)

- Stress
  - Calgary Symptoms of Stress Inventory (C-SOSI)

- Quality of Life
  - Functional Assessment of Cancer Treatment – breast (FACT-B)

- Spirituality
  - Functional Assessment of Chronic Illness Therapy – Spirituality (FACIT-Sp)

- Social Support
  - Medical outcomes survey social support scale (MOS-SSS)

- Benefit-finding
  - Post-traumatic growth inventory (PTGI)
Biological outcome measures

- Salivary cortisol slopes
  - 3 days of collection, 4 times/day
- Telomere Length
  - T/S ratio
- Cytokines
  - Multiplex assays
MINDSET Research Questions

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Vancouver = 60
Calgary = 53

SET: 104
Vancouver = 55
Calgary = 49

SMS: 54
Vancouver = 28
Calgary = 26

MBCR
Post Assessment: 74
Vancouver = 38
Calgary = 36

SET
Post Assessment: 73
Vancouver = 36
Calgary = 37

SMS
Post Assessment: 37
Vancouver = 15
Calgary = 22

33% Attrition

Re-randomization

MBCR: 21
Vancouver = 7
Calgary = 14

SET: 13
Vancouver = 6
Calgary = 7

MBCR
Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

SET
Post-2 Assessment: 6
Vancouver = 2
Calgary = 4

6 month F/U: 67
Vancouver = 33
Calgary = 34

6 month F/U: 57
Vancouver = 29
Calgary = 28

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 59
Vancouver = 29
Calgary = 30

6 month F/U: 10
Vancouver = 1
Calgary = 9

6 month F/U: 9
Vancouver = 5
Calgary = 4

12 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 4
Vancouver = 1
Calgary = 3

Carlson et al, JCO, 31, 2013
## Results - Demographics

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<tr>
<th></th>
<th>Conditions</th>
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<tbody>
<tr>
<td></td>
<td>SET (N=93)</td>
<td>MBSR (N=106)</td>
<td>Control (N=50)</td>
<td></td>
</tr>
<tr>
<td>Age $M$ (SD)</td>
<td>53.78 (9.66)</td>
<td><strong>54.27 (9.52)</strong></td>
<td>55.75 (10.60)</td>
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<tr>
<td><strong>Months since diagnosis</strong> $M$ (SD)</td>
<td>28.32 (38.10)</td>
<td>26.56 (25.08)</td>
<td>22.96 (15.06)</td>
<td></td>
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<tr>
<td><strong>Marital status</strong> $N$ (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>15 (16.1%)</td>
<td>18 (17.0%)</td>
<td>6 (12.0%)</td>
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<tr>
<td>Cohabiting/ Married</td>
<td>63 (67.7%)</td>
<td>64 (60.4%)</td>
<td>33 (66.0%)</td>
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<tr>
<td>Divorced/ Widowed /Separated</td>
<td>15 (16.2%)</td>
<td>24 (22.8%)</td>
<td>11 (22.0%)</td>
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<tr>
<td><strong>Employment status</strong> $N$ (%)</td>
<td></td>
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<tr>
<td>Full-time</td>
<td>30 (32.3%)</td>
<td>43 (40.6%)</td>
<td>19 (38.0%)</td>
<td></td>
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<tr>
<td>Part-time</td>
<td>23 (24.7%)</td>
<td>25 (23.6%)</td>
<td>8 (16.0%)</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>10 (10.8%)</td>
<td>14 (13.2%)</td>
<td>7 (14.0%)</td>
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<tr>
<td>Retired/ Disability</td>
<td>30 (32.2%)</td>
<td>24 (22.6%)</td>
<td>16 (32.0%)</td>
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<tr>
<td><strong>Highest education</strong> $N$ (%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Primary/ Secondary/ High school/ GED</td>
<td>10 (10.8%)</td>
<td>13 (12.3%)</td>
<td>13 (24.0%)</td>
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<tr>
<td>Some university/ College/ Technical school</td>
<td>45 (48.4%)</td>
<td>49 (46.2%)</td>
<td>22 (44.0%)</td>
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<tr>
<td>University degree</td>
<td>29 (31.2%)</td>
<td>33 (31.1%)</td>
<td>13 (26.0%)</td>
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<tr>
<td>Post-graduate/ Masters/ Doctoral degree</td>
<td>9 (9.6%)</td>
<td>11 (10.2%)</td>
<td>3 (6.3%)</td>
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<tr>
<td><strong>Stage of cancer</strong> $N$ (%) Total $N=227$</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stage 0</td>
<td>1 (1.1%)</td>
<td>3 (3.3%)</td>
<td>2 (4.2%)</td>
<td></td>
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<tr>
<td>Stage I</td>
<td>40 (46.0%)</td>
<td>39 (42.4%)</td>
<td>21 (43.8%)</td>
<td></td>
</tr>
<tr>
<td>Stage II</td>
<td>31 (35.6%)</td>
<td>40 (43.5%)</td>
<td>16 (33.3%)</td>
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<tr>
<td>Stage III</td>
<td>13 (14.9%)</td>
<td>9 (9.8%)</td>
<td>9 (18.8%)</td>
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<tr>
<td>Stage VI</td>
<td>2 (2.3%)</td>
<td>1 (1.1%)</td>
<td>0 (0%)</td>
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</tbody>
</table>
Primary outcomes: Intent-to-treat

Main effect of Time. Interaction: MBSR > SET and control, p<.05
Intent-to-treat

C-SOSI Stress symptoms

Main effect of time. Significant Interaction: MBCR>SET and control, p<.05
Main effect of time. Interaction: MBCR>Control, p<.05

FACT-B Quality of Life

Mean score

Baseline Post-intervention

MBSR SET SMS
MINDSET Research Questions

1) What are the comparative changes pre- to post-intervention among the three groups on the primary psychological outcome variables?

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Telomere Length (TL)

- Telomeres are protein complexes that form the ends of chromosomes
- Provide genomic stability
- Shorten with aging
- Dysfunction may result in DNA damage or cell death
- TL associated with many diseases; CVD, diabetes
- In cancer, shorter TL associated with ↑ risk and ↓ survival
- TL associated with life stress
TL Methods

- TL data on only 88 participants (Calgary only)
- Assessed the T/S ratio
  - Relative telomere length using RT-qPCR
- The reference sample is the average T/S of all samples run
- Higher (over 1.0) T/S ratio indicates longer TL

- NO DIFFERENCES pre-post between MBCR and SET
- Combined treatment groups and compared to control
TL Results
Changing Our DNA through Control?

A study finds meditating cancer patients are able to affect their genes.

By Emily An 
December 9, 2014

"I think, therefore I am" is perhaps the most familiar one-liner in Western philosophy. Even if the stoics, philosophers and quantum mechanically-anxious skeptics who believe we're living in an illusion are right, few existential quips hit with such profundity and appreciation of simplicity. The only catch is that in Descartes’ equation, "we" – our thoughts, our personalities, our "minds" – are mostly divorced from our bodies.

The polymath Frenchman and other dualist philosophers proposed that while the mind exists outside interaction with the world, there is a clear delineation between us and our material forms are simply temporary housing for our intangible centuries of science argue against a corporeal crash pad. The body structurally instead. And findings from a new study published in Cancer Care shows.

World-first evidence suggests that meditation alters cancer survivors' cells

For the first time, scientists have found clear biological evidence that meditation and support groups can affect us on a cellular level.

Fiona Macdonald  8 Nov 2014

We're often told that being happy, meditating and mindfulness can benefit our health. We all have that one friend of a friend who says they cured their terminal illness by quitting their job and taking up surfing - but until now there's been very little scientific evidence to back up these claims.

Now researchers in Canada have found the first evidence to suggest that support
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Program preferences and randomization

55% preferred MBSR, 13% SET, 16% SMS, 16% no preference

50 patients (31%) were randomized into their preferred program
Effects of preference on stress symptoms

CSOSI: Stress symptoms

Mean

Pre-CSOSI  Post-C-SOSI

In preferred program

In non-preferred program
Effect of preference on quality of life

FACITb: Quality of life

- In preferred program
- In non-preferred program
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     Vancouver = 33
     Calgary = 34
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     Vancouver = 28
     Calgary = 30

SET: 104
   Vancouver = 55
   Calgary = 49
   Post Assessment: 73
     Vancouver = 36
     Calgary = 37
   6 month F/U: 57
     Vancouver = 29
     Calgary = 28
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     Vancouver = 29
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Re-randomization

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   Calgary = 14
   Post-2 Assessment: 13
     Vancouver = 3
     Calgary = 10

SET: 13
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   Calgary = 7
   Post-2 Assessment: 6
     Vancouver = 2
     Calgary = 4

6 month F/U: 10
   Vancouver = 1
   Calgary = 9

6 month F/U: 9
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   Calgary = 9

12 month F/U: 4
   Vancouver = 1
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Pre N = 251
MBCR (134)
SET (117)

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SET: 13
Vancouver = 6
Calgary = 7

Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

Post-2 Assessment: 6
Vancouver = 2
Calgary = 4

6 month F/U: 67
Vancouver = 33
Calgary = 34

6 month F/U: 57
Vancouver = 29
Calgary = 28

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 59
Vancouver = 29
Calgary = 30

6 month F/U: 10
Vancouver = 1
Calgary = 9

6 month F/U: 9
Vancouver = 5
Calgary = 4

12 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 4
Vancouver = 1
Calgary = 3
Participant flow

Pre N = 251
MBCR (134)
SET (117)

Completed Pre: 273
Vancouver = 144
Calgary = 129

Consented: 277
Vancouver = 147
Calgary = 130

Randomization

MBCR: 113
Vancouver = 60
Calgary = 53

SET: 104
Vancouver = 55
Calgary = 49

SMS: 54
Vancouver = 28
Calgary = 26

MBCR

Post Assessment: 74
Vancouver = 38
Calgary = 36

Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

Post-2 Assessment: 6
Vancouver = 2
Calgary = 4

6 month F/U: 67
Vancouver = 33
Calgary = 34

6 month F/U: 57
Vancouver = 29
Calgary = 28

6 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 59
Vancouver = 29
Calgary = 30

12 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 4
Vancouver = 1
Calgary = 3

Post N = 166

MBCR: 113
Vancouver = 60
Calgary = 53

SET: 104
Vancouver = 55
Calgary = 49

SMS: 54
Vancouver = 28
Calgary = 26

Post Assessment: 74
Vancouver = 38
Calgary = 36

Post Assessment: 73
Vancouver = 36
Calgary = 37

Post Assessment: 37
Vancouver = 15
Calgary = 22

Post-2 Assessment: 6
Vancouver = 2
Calgary = 4

Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

Re-randomization

MBCR

SET

6 month F/U: 57
Vancouver = 29
Calgary = 28

6 month F/U: 10
Vancouver = 1
Calgary = 9

6 month F/U: 9
Vancouver = 5
Calgary = 4

6 month F/U: 5
Vancouver = 1
Calgary = 3

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 4
Vancouver = 1
Calgary = 3

12 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 4
Vancouver = 1
Calgary = 3

Attrition:
pre-post 33%
Participant flow

Pre N = 251
MBCR (134)
SET (117)

Post
N = 166

6 month
N = 143

Completed Pre: 273
Vancouver = 144
Calgary = 129

Consented: 277
Vancouver = 147
Calgary = 130

Randomization

MBCR: 113
Vancouver = 60
Calgary = 53

Post Assessment: 74
Vancouver = 38
Calgary = 36

6 month F/U: 67
Vancouver = 33
Calgary = 34

12 month F/U: 58
Vancouver = 28
Calgary = 30

MBCR

POST: 104
Vancouver = 55
Calgary = 49

Post Assessment: 73
Vancouver = 36
Calgary = 37

6 month F/U: 57
Vancouver = 29
Calgary = 28

12 month F/U: 59
Vancouver = 29
Calgary = 30

MBCR

SMS: 54
Vancouver = 28
Calgary = 26

Post Assessment: 37
Vancouver = 15
Calgary = 22

6 month F/U: 37
Vancouver = 15
Calgary = 22

Re-randomization

SET: 104
Vancouver = 55
Calgary = 49

Post Assessment: 73
Vancouver = 36
Calgary = 37

6 month F/U: 67
Vancouver = 33
Calgary = 34

12 month F/U: 58
Vancouver = 28
Calgary = 30

SET

Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

6 month F/U: 10
Vancouver = 1
Calgary = 9

12 month F/U: 10
Vancouver = 1
Calgary = 9

SMS

POST: 54
Vancouver = 28
Calgary = 26

6 month F/U: 37
Vancouver = 15
Calgary = 22

12 month F/U: 67
Vancouver = 33
Calgary = 34

6 month F/U: 9
Vancouver = 5
Calgary = 4

12 month F/U: 10
Vancouver = 1
Calgary = 9

6 month F/U: 10
Vancouver = 1
Calgary = 9
Participant flow

Pre N = 251
MBCR (134)
SET (117)

Completed Pre: 273
Vancouver = 144
Calgary = 129

Consented: 277
Vancouver = 147
Calgary = 130

Randomization

MBCR: 113
Vancouver = 60
Calgary = 53

SET: 104
Vancouver = 55
Calgary = 49

SMS: 54
Vancouver = 28
Calgary = 26

MBCR

Post Assessment: 74
Vancouver = 38
Calgary = 36

6 month
N = 166

Re-randomization

MBCR: 21
Vancouver = 7
Calgary = 14

SET: 13
Vancouver = 6
Calgary = 7

Post-2 Assessment: 13
Vancouver = 3
Calgary = 10

Post-2 Assessment: 6
Vancouver = 2
Calgary = 4

6 month F/U: 57
Vancouver = 29
Calgary = 28

6 month F/U: 67
Vancouver = 33
Calgary = 34

12 month
N = 143

MBCR (68)
SET (63)

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 59
Vancouver = 29
Calgary = 30

12 month F/U: 10
Vancouver = 1
Calgary = 9

6 month F/U: 9
Vancouver = 5
Calgary = 4

12 month F/U: 4
Vancouver = 1
Calgary = 3

48% attrition
over 1 year

6 month F/U: 67
Vancouver = 33
Calgary = 34

12 month F/U: 58
Vancouver = 28
Calgary = 30

12 month F/U: 59
Vancouver = 29
Calgary = 30

12 month F/U: 10
Vancouver = 1
Calgary = 9

48% attrition
over 1 year
POMS mood

Predicted Means

Baseline  Post-intervention  6-month  12-month

$\text{MBSR}$  $\text{SET}$

$p = .001$
CSOSI stress symptoms

Predicted Means

Baseline | Post-intervention | 6-month | 12-month

\( p < .001 \)

MBSR

SET

Division of Psychosocial Oncology
Helping You Live Well with Cancer
**FACT-B Quality of Life**

![Graph showing predicted means for FACT-B Quality of Life over time. The graph illustrates the comparison between MBSR and SET groups. The red line, representing MBSR, shows an increase in predicted means from baseline to post-intervention, followed by a slight decrease at 6-month and 12-month follow-ups. The blue line, representing SET, also shows an increase from baseline to post-intervention, but remains relatively stable at 6-month and 12-month follow-ups. The p-value of .040 indicates a statistically significant difference between the two groups at the post-intervention stage.]

- **Baseline**
- **Post-intervention**
- **6-month**
- **12-month**

**Predicted Means**

- MBSR
- SET

*P = .040*
PTGI-R Benefit finding

- Predicted Means
  - MBSR
  - SET

*p = .020*

*p = .030*
MOS-SSS Social Support

Baseline Post-intervention 6-month 12-month

$\text{MBSR}$

$\text{SET}$

$p = .040$
FACIT-Sp Spiritual wellbeing

Predicted Means

Baseline  Post-intervention  6-month  12-month

MBSR

SET

$p = .020$
Diurnal Cortisol Slopes

Predicted Means

- Baseline
- Post-intervention
- 6-month
- 12-month

MBSR
SET
MINDSET Summary

- The **MBCR** group improved more on **mood** and **stress** pre-post relative to both **Control** and **SET** groups.
- The **MBCR** group improved more in **quality of life** pre-post relative to the **Control** group.
- Both **intervention groups** maintained **steeper cortisol slopes** and **longer TL** than the **Control** group.
- **MBCR** was the preferred treatment (55%).
- Only 31% of patients got their preferred treatment.
- Women who got their preferred treatment improved more on **stress symptoms** and **quality of life**.
- **MBCR** participants **maintained all benefits** over 12-months.
I-CAN SLEEP: A non-inferiority RCT of Mindfulness-Based Stress Reduction (MBSR) and Cognitive Behavioral Therapy (CBT) for the treatment of Insomnia in Cancer survivors

Garland, Campbell, Antel, Samuels, Carlson

- Randomly assigned to MBSR or CBT-I. Treatments matched for time
- Assessment by actigraphy, sleep diary and questionnaire pre- and post- intervention and at 3-month follow-up.
- Patients blind to study conditions **
Outcome Measures

• Primary
  – Sleep Diary
  – Actigraphy
  – Pittsburgh Sleep Quality Index
  – Dysfunctional Beliefs and Attitudes about Sleep Scale
  – Insomnia Severity Index

• Secondary
  – Calgary Symptoms of Stress Inventory
  – Profile of Mood States-Short Form
  – Five Facet Mindfulness Questionnaire
Target Number of Patients Required for Screening (n=420)

Number of Patients Potentially Eligible (50% of those patients screened, n=210)

Number of Patients that Consent to Participate (80% of those patients eligible, n=167)

Number of patients that complete baseline assessment (95% of patients who consent, n=158)

Randomization

CBT-I program participation (n=79)

Number of patients that complete post-program assessment (90% of patients who completed baseline, n=71)

Number of patients that complete 3 month follow up assessment (80% of those who complete post program assessment, n=63)

MBSR program participation (n=79)

Number of patients that complete post-program assessment (90% of patients who completed baseline, n=71)

Number of patients that complete 3 month follow up assessment (80% of those who complete post program assessment, n=63)
Contact via Mail (n=2000) → Contact in Person (n=531) → Interested (n=327) → Ineligible/Refused (n=195) → Pre-assessment (n=132) → Did not complete (n=5) Did not meet insomnia dx (n=16) → Randomized (n=111) → Cognitive Behavior Therapy for Insomnia (n=47) → Withdrawals (n=7) 1-No reason provided 2-Personal 3-Not attending 4-Not interested 5-Sleep not bad enough → Post-Program (n=40) 1-Lost to follow up 2-Patient had recurrence → 3 Month (n=37) → Mindfulness-Based Stress Reduction (n=64) → Withdrawals (n=32) 1-No reason provided 2-Program date/time 3-Too busy 4-Personal 5-Not interested 6-Sleep not bad enough 7-Non-attending 8-Recurrent 9-Illness → Post-Program (n=32) 1-Lost to follow up 2-Too busy 3-Other medical concerns → 3 Month (n=27)
## Insomnia Severity

**Non-Inferiority Margin = 4**

<table>
<thead>
<tr>
<th></th>
<th>Diff</th>
<th>Upper CI</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>-1.91</td>
<td>3.579</td>
<td>0.061</td>
</tr>
<tr>
<td>Post-program</td>
<td>2.61</td>
<td>4.286</td>
<td>0.011</td>
</tr>
<tr>
<td>Follow-Up</td>
<td>1.10</td>
<td>2.870</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Error Bars: 95% CI

$F = 8.11, p < .001$
Stress and Mood Disturbance

Time Effect for Stress Symptoms

Time Effect for Mood Disturbance

Error Bars: 95% CI

F = 35.45, p < .001

F = 18.36, p < .001
I-CAN Sleep Summary

- CBT-I more effective for insomnia than MBSR in short term
- In long term both treatments effective
- Both improve stress and mood

Methodological issues:
- What happens when you blind people to a behavioral treatment? Is it ethical? Possible?
- What kind of conclusions can you make regarding efficacy? Generalizability?
- Didn’t measure program preferences – hints that this is important
eCALM: e-Therapy for Cancer Applying Mindfulness
Online MBCR Program for Underserved Cancer Patients in Alberta: A Randomized Waitlist Controlled Trial
Zernicke, Campbell, Speca, McCabe, Flowers, Carlson, in progress

• Randomized waitlist controlled trial (N = 64) to evaluate an online synchronous MBCR program – ethics approval Oct 2010 – provided through eMindful.com
• Primary outcome: Feasibility - whether individuals with cancer are willing to participate and complete the online MBCR program
• Secondary outcomes: Questionnaires - mood disturbance, symptoms of stress, mindfulness, spirituality and posttraumatic growth
• Powered to determine total mood disturbance and effect sizes for larger RCT
Your emotions arise from your **interpretations** of situations –
(the stories you tell yourself about what’s happening)

Whether you are filled with awe or fear, kindness
or resentment depends a lot on
how you look at things.
Recruitment – Total invited from Registry (n=1800)

- Target 5%
- Target 30%
- Target 85%

* Screened for eligibility (n=180)
  10% response rate

* 93% Consented (n=62)

Assessment T1 (n=62)

Allocated to 8-week Online MBCR (n=30)

- Non-Completers (n=5)

* Assessment T2 (n=25)
  (83% of those who consented)

Analyzed: ITT LMM (n=30)

Allocated to 8-week Wait-List (n=32)

Wait-List TAU Control (8 weeks)

Randomization (n=62)

* 37% eligible (n=67)

* 93% Consented (n=62)

* Assessment T2 (n=32)
  (100% of those who consented)

8-week Online MBCR

- Non-Completers (n=6)

* Assessment T3 (n=26)
  (81% of those who completed T2 Assessment)

Analyzed: ITT LMM (n=32)

Ineligible (n=52)

- Scheduling issues (n=18)
- Deceased (n=10)
- Low distress (n=9)
- No computer/high speed internet (n=6)
- Diagnosis > 3 years ago (n=3)
- No cancer diagnosis (n=2)
- Living outside Alberta (n=2)
- Suicidal (n=1)
- In hospital (n=1)

Declined (n=61)

- Not interested (20)
- Did not return follow-up phone calls (18)
- Effectively managing stress through other methods (12)
- Not interested in yoga/meditation (4)
- Not interested in research (3)
- Not interested in computers (2)
- Feeling ill/waiting for surgery (2)

* Proposed feasibility estimates met within 5% of target
Figure 1 - eCALM CONSORT Flow Diagram

Recruitment – Total invited from Registry (n=1800)

* Screened for eligibility (n=180)
  10% response rate

* 37% eligible (n=67)

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  Deceased (n=10)
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  No computer/high speed internet (n=6)
  Diagnosis > 3 years ago (n=3)
  No cancer diagnosis (n=2)
  Living outside Alberta (n=2)
  Suicidal (n=1)
  In hospital (n=1)

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  Not interested (20)
  Did not return follow-up phone calls (18)
  Effectively managing stress through other methods (12)
  Not interested in yoga/meditation (4)
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  Not interested in computers (2)
  Feeling ill/waiting for surgery (2)

* Proposed feasibility estimates met within 5% of target
Screened for eligibility (n=180) 10% response rate

* 93% Consented (n=62)

Recruitment – Total invited from Registry (n=1800)

8-week Online MBCR

* 37% eligible (n=67)

Allocated to 8-week Online MBCR (n=30)

Allocated to 8-week Wait-List (n=32)

Ineligible (n=52)

Deceased (n=10)

Low distress (n=9)

No computer/high speed internet (n=6)

Diagnosis > 3 years ago (n=3)

No cancer diagnosis (n=2)

Living outside Alberta (n=2)

Suicidal (n=1)

In hospital (n=1)

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Feeling ill/waiting for surgery (2)

Non-Completers (n=5)

Wait-List TAU Control (8 weeks)

* Assessment T2 (n=25)

8-week Online MBCR

* Assessment T2 (n=32)

(100% of those who consented)

* Assessment T3 (n=26)

(81% of those who completed T2 Assessment)

Randomization (n=62)

Target 85%

Target 5%

Target 30%

Target 85%

Allocated: ITT LMM (n=32)

Analyzed: ITT LMM (n=30)

* Proposed feasibility estimates met within 5% of target
Figure 1 - eCALM CONSORT Flow Diagram

Recruitment – Total invited from Registry (n=1800)

Target 5%

* Screened for eligibility (n=180)
  10% response rate

Target 30%

* 37% eligible
  (n=67)

Target 85%

* 93% Consented (n=62)

Allocation

Allocated to 8-week Online MBCR (n=30)

Non-Completers (n= 5)

* Assessment T2 (n=25)
  (83% of those who consented)

Analyzed: ITT LMM (n=30)

Allocated to 8-week Wait-List (n=32)

Wait-List TAU Control (8 weeks)

Randomization (n=62)

Target 85%

* Assessment T2 (n=32)
  (100% of those who consented)

8-week Online MBCR

Non-Completers (n= 6)

* Assessment T3 (n= 26)
  (81% of those who completed T2 Assessment)

Analyzed: ITT LMM (n=32)

Ineligible (n=52)
  Scheduling issues (n=18)
  Deceased (n=10)
  Low distress (n=9)
  No computer/high speed internet (n=6)
  Diagnosis > 3 years ago (n=3)
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Declined (n=61)
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Recruitment – Total invited from Registry (n=1800)

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10% response rate

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Assessment T1 (n=62)

Non-Completers (n=5)

Allocated to 8-week Online MBCR (n=30)

* Assessment T2 (n=25)

(83% of those who consented)

Allocated to 8-week Wait-List (n=32)

Randomization (n=62)

Wait-List TAU Control (8 weeks)

* Assessment T2 (n=32)

(100% of those who consented)

Non-Completers (n=6)

8-week Online MBCR

* Assessment T3 (n=26)

(81% of those who completed T2 Assessment)

Ineligible (n=52)

Scheduling issues (n=18)

Deceased (n=10)

Low distress (n=9)

No computer/high speed internet (n=6)

Diagnosis > 3 years ago (n=3)

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Living outside Alberta (n=2)

Suicidal (n=1)

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Feeling ill/waiting for surgery (2)

Allocated to 8-week Online MBCR (n=30)

37% eligible (n=67)

Target 5%

Target 30%

Target 85%

Allocated to 8-week Wait-List (n=32)

Wait-List TAU Control (8 weeks)

Target 85%

* Proposed feasibility estimates met within 5% of target

Analyzed: ITT LMM (n=30)

Target 85%

Ineligible (n=52)

Scheduling issues (n=18)

Deceased (n=10)

Low distress (n=9)

No computer/high speed internet (n=6)

Diagnosis > 3 years ago (n=3)

No cancer diagnosis (n=2)

Living outside Alberta (n=2)

Suicidal (n=1)

In hospital (n=1)

Declined (n=61)

Not interested (20)

Did not return follow-up phone calls (18)

Effectively managing stress through other methods (12)

Not interested in yoga/meditation (4)

Not interested in research (3)

Not interested in computers (2)

Feeling ill/waiting for surgery (2)

Analyzed: ITT LMM (n=32)
**Recruitment – Total invited from Registry (n=1800)**

Target 5%

* Screened for eligibility (n=180)
  10% response rate

Target 30%

* 37% eligible (n=67)

Target 85%

* 93% Consented (n=62)

Assessment T1 (n=62)

Allocated to 8-week Online MBCR (n=30)

Non-Completers (n= 5)

Allocated to 8-week Wait-List (n=32)

Wait-List TAU Control (8 weeks)

Ineligible (n=52)
- Scheduling issues (n=18)
- Deceased (n=10)
- Low distress (n=9)
- No computer/high speed internet (n=6)
- Diagnosis > 3 years ago (n=3)
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Declined (n=61)
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- Effectively managing stress through other methods (12)
- Not interested in yoga/meditation (4)
- Not interested in research (3)
- Not interested in computers (2)
- Feeling ill/waiting for surgery (2)

* Proposed feasibility estimates met within 5% of target

Analysis of 8-week Online MBCR

* Assessment T2 (n=25)
  (83% of those who consented)

Analyzed: ITT LMM (n=30)

* Assessment T2 (n=32)
  (100% of those who consented)

Randomization (n=62)

Target 85%

* Assessment T3 (n= 26)
  (81% of those who completed T2 Assessment)

Non-Completers (n= 6)

Analyzed: ITT LMM (n=32)
Recruitment – Total invited from Registry (n=1800)

- *Screened for eligibility (n=180)
  - 10% response rate

  - *37% eligible (n=67)

  - *93% Consented (n=62)

Assessment T1 (n=62)

Allocated to 8-week Online MBCR (n=30)

- Non-Completers (n=5)

  - *Assessment T2 (n=25)
    (83% of those who consented)

  - Analyzed: ITT LMM (n=30)

Allocated to 8-week Wait-List (n=32)

  - Wait-List TAU Control (8 weeks)

    - Randomization (n=62)

      - Target 85%

      - *Assessment T2 (n=32)
        (100% of those who consented)

      - Non-Completers (n=6)

        - 8-week Online MBCR

          - *Assessment T3 (n=26)
            (81% of those who completed T2 Assessment)

          - Analyzed: ITT LMM (n=32)

Ineligible (n=52)
- Scheduling issues (n=18)
- Deceased (n=10)
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- Not interested in yoga/meditation (4)
- Not interested in research (3)
- Not interested in computers (2)
- Feeling ill/waiting for surgery (2)

*Proposed feasibility estimates met within 5% of target
eCALM Satisfaction Results

Online MBCR Program Satisfaction

- Positively Surprised: Exceeded Expectations (n=13)
- Satisfied: Met Expectations (n=9)

41%
59%

Recommend Online MBCR to Other Cancer Patients

- Recommend Program (n=22)
- Recommend with Reservations (n=2)*

92%

8%
Division of Psychosocial Oncology
Helping You Live Well with Cancer
eCALM Patient Quotes

• Being able to access this course online was a huge benefit in terms of my energy level. Because I am still in treatment, driving to another location can be taxing on my energy, I was able to **conserve my energy strictly for the course and content**. Also setting up this time and location at home made it **easier on non-course days to keep up with the program and practices** since I was already comfortable in my home environment.”

• “Meditation and Body Scan was extremely helpful during my first Radiation Therapy as I calm my fears and emotions. **I do it every day during my treatment** as I lay on the treatment table and just become aware of my surroundings when they tell me that my treatment is done. GOOD TIMING and thank you.”
eCALM patient quotes

• “I truly appreciate having had the opportunity to participate and will definitely incorporate mindfulness (and yoga and meditation) in my daily life - to enhance my quality of life and contribute to my ongoing experience of living with cancer versus dying of cancer.”

• “I believe this program has changed my life and given me tools to live successfully no matter what happens. Practicing is a work in progress, but I am getting much better at not reacting, not letting my feelings and thoughts overwhelm me, etc. and I have great faith that practicing mindfulness will not only see me through, but build my resilience too.”
eCALM Patient Quotes

• “I was somewhat hesitant at the beginning of the course because I am not a touchy/feely type person, and had reservations about yoga and meditation, although I had very little actual experience with either. I found that I really enjoyed the sessions, and in many aspects, the weekly sessions were a highlight of my week.”

• “I felt a sense of wellbeing when involved with the program, and I think that the fact the group was from all over Alberta, and that we would unlikely run into each other was a positive thing--didn't have to worry about someone in the group talking to other people that I know or work with.”

• “Thank you! MBSR is a great practice to share any way we can. In a post cancer phase, accessing the course online is great, one less outing. The online format works. It held, for me at least, just the right amount of contact and closeness for me to be comfortable. I truly appreciate the graceful and loving way the course was conducted as well as the gentle reminders and patience extended me.”
eCALM summary

- Online MBCR is feasible and acceptable to patients
- Patients are highly satisfied with the program
- Online MBCR compared to waitlist resulted in significant improvements in mood and stress symptoms
- Online MBCR also resulted in greater improvements in spirituality and acting with awareness

- How to transition from a research study to ongoing programming?
MATCH study design: Mindfulness And Taichi for Cancer Health

- Pragmatic preference-based comparative efficacy trial
- MBCR (superior in MINDSET) vs. Tai chi/Qigong
- Design elements:
  - Included waitlist control component in each of the preference-based and randomized portions
  - Screening for distress to include only distressed participants
  - 6-month follow-up
Objectives

1) To compare MBCR and TCQ to each other and a waitlist control condition using an innovative, randomized, preference-based comparative effectiveness trial design that takes into account potential moderating factors that might predict differential response, on a range of psychological and physical outcomes.

2) To investigate the impacts of MBCR and TCQ on a range of biological outcomes including inflammation/immune processes, blood pressure, heart rate variability, stress hormones, cellular aging and gene expression.
MATCH Outcomes

- Psychological
  - Mood, stress, QL
  - Positive Outcomes
- Physical
  - Fatigue, Sleep, Pain
  - Balance, fitness
- Biological
  - Salivary Cortisol
  - Cytokines
  - Telomere Length
  - Gene Expression
  - Psychophysiology (Ambulatory BP; HRV)
- Health Economic Measures
Progress to Date

- Recruitment began in June 2016
- First cohort run in Calgary, October 2016; currently on Cohort 6
- First Cohort TO, May 2017; currently on cohort 4
ONE-MIND (ONlinE MINDfulness during chemotherapy)

- Objective: to see if online mindfulness can prevent, diminish or delay the onset of CT-related side-effects
- Waitlist RCT to online mindfulness or usual care
- 12 55-min live sessions beginning at start of CT
- Daily home practice and practice during CT sessions
- Primary outcome: fatigue
- Secondary: nausea/vomiting, sleep problems, stress, mood,
- Recruitment underway
SEAMLESS (SmartphonE Application of MindfuLnEss for Cancer SurvivorS)

- Testing a commercial mindfulness App for helping cancer survivors transition after primary treatment
- Primary outcome: Stress Symptoms
- “Am” app includes instructional videos; tailored content; biometric feedback
- 4-week intervention
- Waitlist controlled trial
- Primary outcome stress/mood
## Other conditions

<table>
<thead>
<tr>
<th>Mental Health</th>
<th>Physical Health</th>
<th>Outcomes in Healthy Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>CVD/Hypertension</td>
<td>Inflammation/Immune function</td>
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<tr>
<td>Anxiety</td>
<td>HIV/AIDS</td>
<td>Attention</td>
</tr>
<tr>
<td>PTSD/Trauma</td>
<td>Cancer</td>
<td>Stress (Acute/Chronic)</td>
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<tr>
<td>Bipolar Disorder</td>
<td>Hot flashes/menopause</td>
<td>Cognition</td>
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<tr>
<td>Social Phobia</td>
<td>Irritable bowel syndrome</td>
<td>Health status</td>
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<td>Eating Disorders</td>
<td>Solid organ transplant</td>
<td>Seniors Health</td>
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<td>Obesity</td>
<td>Pain</td>
<td>Wound Healing</td>
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<td>Personality Disorders</td>
<td>Asthma</td>
<td>Influenza/Diseases/Colds</td>
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<td>Substance Abuse/Smoking cessation</td>
<td>Diabetes</td>
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<tr>
<td>Insomnia</td>
<td>Fibromyalgia</td>
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<td>Psychotic</td>
<td>Headache/Migraine</td>
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<tr>
<td>Disorders/Schizophrenia</td>
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<tr>
<td></td>
<td>Stroke</td>
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</tr>
<tr>
<td></td>
<td>Tinnitus</td>
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<tr>
<td></td>
<td>Emphysema/COPD</td>
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</table>

Chronic Pain Meta-Analysis (2017)

- 30 RCTs
- Total N=2292
- Overall ES=.032

### Meta-Analysis Results

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Overall Pain - Longest Follow Up</th>
<th>SMD [95% CI]</th>
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<tbody>
<tr>
<td>MBCT</td>
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<td>Ljotsson, 2010</td>
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<tr>
<td>RE Model for Subgroup</td>
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<td>MBSR</td>
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<td>Astin, 2003</td>
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<tr>
<td>Banth, 2015</td>
<td>2.50 [1.94, 3.07]</td>
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<td>Kanter, 2016</td>
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<td>La Cour, 2015</td>
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<td>Ormih, 2014</td>
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<td>Plews-Ogan, 2005</td>
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<td>Rahmani, 2015</td>
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<tr>
<td>RE Model for Subgroup</td>
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<td>Other Intervention</td>
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<td>Garland, 2014</td>
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<td>Gaylord, 2011</td>
<td>0.53 [0.06, 0.99]</td>
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<td>Morone, 2008</td>
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<td>Schmidt, 2011</td>
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<td>Teixeira, 2010</td>
<td>0.14 [-0.74, 1.01]</td>
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<tr>
<td>Zautra, 2008</td>
<td>0.22 [-0.20, 0.63]</td>
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<td>RE Model for Subgroup</td>
<td>0.24 [0.02, 0.46]</td>
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</table>

MBCR Curriculum
Weekly Themes

1. Introduction to Mindfulness
2. Mindfulness Attitudes
3. Mindbody Wisdom and Healing (stress responding vs. reacting)
4. Balance (breathing)
5. Mindful Coping
6. Cultivating Beneficial States of Heart and Mind (Imagery)
7. Deepening and Expanding
8. Moving into the World
Types of meditation practices in MBCR

- Body scan
- Sitting
- Walking
- Open awareness
- Mountain/lake
- Loving-kindness
born yogis

SUSIE ARNETT and DOUG KIM

FOREWORD BY GURMUKH KAUR KHALSA
Week 1 – Introduction to Mindfulness

• Introductions, group principles
• What is mindfulness?
• Breathing awareness exercise
• Diaphragmatic breathing
• Body Scan
• Introduction to yoga
• Homework
Week 2 – Mindfulness Attitudes

- Discussion of home practice
- Raisin exercise
- **Mindfulness attitudes**
- Pleasant events log
- Yoga practice
- **Introduction to sitting meditation**
- Homework
Week 3 – Mindbody Wisdom and Healing

- Discussion of home practice
- Mind-body visualization exercise
- Discussion of symptoms of stress, responding vs. reacting, PNI
- Unpleasant events log
- Yoga Postures
- Sitting Meditation
- Home practice
## Stress Symptom Checklist

### Physical Symptoms
- Headaches
- Stomach-aches
- Dizziness
- Sweaty palms
- “Butterflies” in stomach
- Back pain
- Tight neck, shoulders
- Racing heart
- Ringing ears

### Behavioral Symptoms
- Smoking
- Compulsive gum chewing
- Teeth grinding
- Overusing alcohol
- Compulsive eating
## Stress Symptom Checklist (2)

<table>
<thead>
<tr>
<th>Emotional Symptoms</th>
<th>Cognitive Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crying</td>
<td>Forgetfulness</td>
</tr>
<tr>
<td>Nervousness</td>
<td>Memory loss</td>
</tr>
<tr>
<td>Edginess</td>
<td>Indecisiveness</td>
</tr>
<tr>
<td>Anger</td>
<td>Trouble thinking clearly</td>
</tr>
<tr>
<td>Loneliness</td>
<td>Lack of creativity</td>
</tr>
<tr>
<td>Feeling overwhelmed</td>
<td>Loss of sense of humor</td>
</tr>
<tr>
<td>Feeling powerless</td>
<td></td>
</tr>
<tr>
<td>Easily upset</td>
<td></td>
</tr>
</tbody>
</table>
Stress Symptom Checklist (3)

- Spiritual Symptoms
  - Emptiness
  - Loss of meaning
  - Doubt
  - Loss of direction
  - Cynicism
  - Apathy
  - Martyrdom
  - Unforgiving

- Relational Symptoms
  - Isolation
  - Clamming up
  - Social withdrawal
  - Lack of intimacy
  - Resentment
  - Intolerance
  - Distrust
  - Lashing out
Reacting to Stress

External Stress Events

Perception Appraisal

Stress Reaction
- hypothalamus
- pituitary
- adrenals

cardiovascular system
musculoskeletal system
nervous system
immune system

Internal Stress Events

Breakdown
- physical/psychological exhaustion
- loss of drive/enthusiasm
- depression
- genetic predispositions
- heart attack
- cancer

Acute Hyperarousal
- increased blood pressure
- pulse rate elevated

fight or flight alarm reactivity

Internalization
- inhibition of the stress reaction

Disregulation
- chronic hyperarousal
- high blood pressure
- arrhythmias
- sleep disorders
- chronic head and/or backaches
- anxiety

Self-destructive Behaviours
- overworking
- hyperactivity
- overeating

Maladaptive Coping
Reacting to Stress

External Stress Events

Perception
Appraisal

Stress Reaction
hypothalamus
pituitary
adrenals

Acute Hyperarousal
increased blood pressure
pulse rate elevated

Internalization
inhibition of the
stress reaction

Disregulation
chronic hyperarousal
high blood pressure
arrhythmias
sleep disorders
chronic head and/or backaches
anxiety

fight or flight alarm reactivity

Internal Stress Events

Breakdown
physical/psychological exhaustion
loss of drive/enthusiasm
depression
genetic predispositions
heart attack
cancer

Substance Dependency
drugs
alcohol
cigarettes
caffeine
food

Self-destructive Behaviours
overworking
hyperactivity
overeating

Maladaptive Coping

cardiovascular system
musculoskeletal system
nervous system
immune system
Reacting to Stress

External Stress Events

Perception Appraisal

Cardiovascular system
Musculoskeletal system
Nervous system
Immune system

Stress Reaction
Hypothalamus
Pituitary
Adrenals

Internal Stress Events

Breakdown
Physical/psychological exhaustion
Loss of drive/enthusiasm
Depression
Genetic predispositions
Heart attack
Cancer

Substance Dependency
Drugs
Alcohol
Cigarettes
Caffeine
Food

Self-destructive Behaviours
Overworking
Hyperactivity
Overeating

Maladaptive Coping

Acute Hyperarousal
Increased blood pressure
Pulse rate elevated

Fight or flight alarm reactivity

Internalization
Inhibition of the stress reaction

Disregulation
Chronic hyperarousal
High blood pressure
Arrhythmias
Sleep disorders
Chronic head and/or backaches
Anxiety

Internal Stress Events

Reacting to Stress

External Stress Events
Reacting to Stress

External Stress Events

Perception
Appraisal

cardiovascular system
musculoskeletal system
nervous system
immune system

Stress Reaction

hypothalamus
pituitary
adrenals

Internal Stress Events

breakdown
physical/psychological exhaustion
loss of drive/enthusiasm
depression
genetic predispositions
heart attack
cancer

Acute Hyperarousal
increased blood pressure
pulse rate elevated

fight or flight alarm reactivity

Internalization
inhibition of the stress reaction

Disregulation
chronic hyperarousal
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chronic head and/or backaches
anxiety

Self-destructive Behaviours
overworking
hyperactivity
overeating

Maladaptive Coping

Substance Dependency
drugs
alcohol
cigarettes
caffeine
food

Reacting to Stress

External Stress Events

Perception
Appraisal

cardiovascular system
musculoskeletal system
nervous system
immune system

Stress Reaction

hypothalamus
pituitary
adrenals

Internal Stress Events

breakdown
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Acute Hyperarousal
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Internalization
inhibition of the stress reaction

Disregulation
chronic hyperarousal
high blood pressure
arrhythmias
sleep disorders
chronic head and/or backaches
anxiety

Self-destructive Behaviours
overworking
hyperactivity
overeating

Maladaptive Coping

Substance Dependency
drugs
alcohol
cigarettes
caffeine
food
Mindfully Responding to Stress

External Stress Events

mindfulness
appraisal of thoughts, feelings and perceived threats
awareness
relaxation

Stress Response
hypothalamus
pituitary
adrenals

Possible Arousal
but also awareness of:
muscle tension
breathing

Awareness of the Full Context
emotion-focused strategies
problem-focused strategies
seeing new options
quicker recovery of mental equilibrium and homeostasis

Calmness and Balance of Mind
Week 4 – Balance

- Discussion of home practice
- Balance in the autonomic nervous system – SNS, PNS and breathing
- Mini mindfulness breathing exercises
- Sleep exercise
- Yoga postures
- Sitting meditation
- Homework
Riding the Wave of Breath
Square Breathing
Relaxing Triangle Breath
Invigorating Triangle Breath
Week 5 – Mindful Coping

- Discussion of home practice
- Stories we tell ourselves (i.e. cognitive distortions)
- Challenging our assumptions
- Yoga Postures
- Walking meditation
- Homework
The Nature of Thought

“There is nothing either good or bad, but thinking makes it so.”
Events, Thoughts, Feelings

Life Event

Thoughts or Interpretations (Stories)

Feelings
Week 6 – Cultivating Beneficial States of Heart and Mind

- Discussion of home practice
- Uses of imagery
- Mountain/Lake Meditation
- Loving-kindness meditation
- Yoga postures
- Mountain meditation
- Preparation for retreat
- Homework
Introduction to Loving Kindness Practice

- traditionally called “Metta” practice
- one of several practices that aims to help uncover and nurture specific beneficial qualities that support well being
Loving Kindness

- Begin by cultivating wishes for the happiness of yourself, then of others who are your closest loved ones
- Very gradually expand the circle to include wishes for the well-being of more distant friends and acquaintances, strangers, eventually even your enemies and finally all living beings
Week 7 – Deepening and Expanding

- Discussion of home practice and retreat
- Discussion of bare (choiceless) awareness
- Yoga practice (sun salutations)
- Bare awareness Sitting meditation
- Homework
Week 8 – Moving into the World

• Discussion of home practice
• Sharing of experience over 8 weeks
• Discussion of options for future plans
• Sharing of future plans
• Yoga postures
• Loving kindness meditation and closing circle
Summary

- Mindfulness is present-moment nonjudgmental awareness
- MBSR is a general program for everyone
- MBCR is specific for people with cancer
- MBIs can help with depression, anxiety, stress and many other problems
- Hundreds of research papers support its efficacy
MBSR Instructor Training

• Requirements of Centre for Mindfulness Teacher Certification: [http://www.umassmed.edu/cfm/oasis/index.aspx](http://www.umassmed.edu/cfm/oasis/index.aspx)

• Phase 1
  – Completion of an eight-week MBSR course as a participant
  – Participation in one or more silent, teacher-led, 5-10 day mindfulness meditation retreats
MBSR Instructor training (cont)

• Phase 2
  – 8-week practicum in MBSR (participant-observer)
  – MBSR in Mind-Body Medicine (7 day retreat).
  – Preliminary teaching experience (short classes and workshops)
  – MBSR essential study (teaching methods; didactic material such as stress physiology)
  – Ongoing regular mindfulness meditation and retreat practice; yoga practice
  – Teacher Development Intensive (8-day training)
MBSR Instructor training (cont)

- **Phase 3**
  - Teaching at least *four* complete eight-week MBSR courses.
  - Teaching at least *one* eight-week MBSR course under qualified supervision.
  - Developing, deepening, and refining both your understanding and skills. At least three mindfulness meditation retreats are required to proceed to *MBSR Teacher Certification*.
  - Participation in a post-Supervision assessment.
MBSR Instructor training (cont)

- Phase 4
  - Continued teaching to complete at least *eight* complete MBSR courses
  - Completion of at least *four* mindfulness meditation retreats
  - Ongoing daily mindfulness meditation practice; and yoga and other body-centered awareness practices
  - Professional graduate degree or equivalent working experience
Contact Information

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- Twitter: @Linda_E_Carlson
- Facebook page: Mindfulness-Based Cancer Recovery
Cancer Care
Division of Psychosocial Oncology
Helping You Live Well with Cancer