Mindful Medical Education: Recognizing & Managing Student Stress

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Reducing Stress in Medical Education:
******Workshop Premise *****

**STRESS** is an inevitable part of medical education. Some stress is necessary for learning.

Excessive STRESS differs in cause and degree from person to person and can lead to significant personal crises for medical students and for medical professionals.
Consequences of Stress

**Too Often:**
**Medical Student Stress Leads To:**
- Hostility, sleeplessness, alienation,
- social withdrawl, insecurity, relationship difficulties, poor academic performance,
- less than optimal learning, depression,
- Burnout, high anxiety,
- **EVEN Suicide**

Education stressors and stress.

Question: Have any of you noticed these any of these consequences of stress?
Students completed a modified mental health professional stress survey. Across six rotations, professional self-doubt was among the highest rated stress factor.

The UWSoM Dean for Academic Affairs, Dr. Roy Schwarz, asked the Committee to produce a report outlining sources of medical student stress and ways we would reduce it; ways to reduce stress.

Impacts of the Sherris Report

- **Expectations Clarified**: We now have written course learning objectives and written clinical skills benchmarks.
- **Saturday Classes and class rankings**: Eliminated.
- **Class Rankings**: Eliminated.
- **Course Hours**: Cut by 45-50% (Most mornings free)
- **Students have**: More time to Study - More time to Think
- **Curriculum Reforms**: incorporated some smaller group instruction & experiences (PBL & TBL).
- **Improved mentoring** (eg. College System)
- **Offered wellness maintenance electives**
**What are Mind-Body Skills?**

Mindfulness Based Stress Reduction in Medical and Premedical Students at the University of Arizona SOM

- 78 students randomized to intervention/course or a wait list: [S’s were matched for gender, race & med/premed status]
- 7 week course, two sections (18 & 19 per section each with a different facilitator)
- Measurements before and after (in exam period)
- Intervention emphasized ‘mindful breathing’
  - Sitting meditation
  - Body scan
  - Hatha yoga
  - Loving-kindness meditation
  - Forgiveness meditation

Shapiro et al., 1998
Those who took the course reported

- LESS self reported anxiety
- FEWER reports of depression
- DECREASED psychological distress
  - Scale included:
    - obsessive-compulsive behaviors
    - hostility
    - phobic anxiety
    - paranoid ideation
    - sleeplessness
- INCREASES in empathy and spirituality

**Results were replicated with the control group**

Shapiro et al., 1998
Mindfulness Based Stress Reduction in Medical and Premedical Students

- Adapted Empathy Construct Rating Scale
  - 42-item, self-report inventory measuring four dimensions of empathy on a 5-point scale, \( P < 0.05 \).

Shapiro et al., 1998

The UWSoM’s Mind-Body Course

The elective course consisted of 10 weekly 2-hour sessions taught by faculty who had received training from the Center for Mind-Body Medicine at Georgetown University. Weekly sessions began with brief didactic presentations followed by small group sessions. Small group activities included drawings of self, biofeedback, several types of meditation, and guided imagery.
We assessed student stressors at the beginning, end and 3 months after the M/B course, using four measures:

- **ANXIETY**: SCL-90 Subscale
- **DEPRESSION**: 2 Item Depression Index
- **MOOD**: Profile of Mood States
- **STRESS**: Perceived Stress of Medical School

**Results:**
At the beginning of course, the intervention group was significantly more anxious than the comparison group.

By course end (time 2), anxiety and perceived stress decreased significantly (p > .05); students were indistinguishable from those in the comparison group. Decreases were sustained at 3 months.

ANXIETY: Study versus Comparison Group

SCL-90 (Anxiety) Graph of Intervention Group’s Item Means

Chart 4
Intervention Group Rating on Each Anxiety Item
The authors acknowledge the contributions of two individuals for helping to launch and sustain this course through 2013:

Dr. Ron Schneeweiss
Family Medicine

and

Dr. Frank Vincenzi
Pharmacology

UCONJ 531 Mind-Body Skills:
An Experiential Elective

• Elective course for medical and other health sciences professional students
• Introduces a number of different examples of meditation and mindfulness
• Offers a variety of self- and other-awareness experiences
  – Group process with absolute confidentiality
  – ‘Checkins’ modeling sharing and empathic listening
  – Genograms – examining both nature and nurture in the development of ourselves and others

http://courses.washington.edu/mindbody/
Stress:

Acute Stress is Adaptive

(Chronic Stress is Bad)
(Overwhelming Stress is Worse)

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Stress

– Emotional
– Environmental
– Physiological

• Stress is a condition or feeling experienced when a person perceives that "demands exceed the personal and social resources the individual is able to mobilize." (attributed to Richard S. Lazarus)

• Stress is not what happens to you, but how you react to what happens

• Thus, change, good or bad, can induce a stress response. (Holmes and Rahe – Life Events Rating Scale)

Check your own Life Events Rating Scale at:
http://www.mindtools.com/pages/article/newTCS_82.htm
Stress-Induced Changes in the Nervous System

• Classical View of the Autonomic Nervous System

  – Parasympathetic
    • Rest and restoration

  – Sympathetic
    • Fight or flight

The Autonomic Nervous System: An Updated View!

  – Rest and relaxation

  – Fight or flight

  – Freeze (feigned death)
The Freeze or Feigned Death Response

"Tonic immobility is most useful when a slow-moving vulnerable organism … is confronted with a life-threatening situation involving mobile, large predators. Tonic immobility may enhance survival when a predator temporarily loosens its grip on captured prey under the assumption that it is indeed dead, providing the prey with an opportunity for escape. It is also a response that may be adaptive in humans when there is no possibility of escaping or winning a fight."


A New View of the Parasympathetic Nervous System: Polyvagal Theory

‘Mammalian’ (myelinated) vagus
Origin in the nucleus ambiguus (ventral)
Fine tuning of daily life – especially social intx
(Rest & relaxation)

‘Reptilian’ (unmyelinated) vagus
Origin in the dorsal motor nucleus of the vagus
Activated in perceived life-threatening danger
(Freeze or feigned death)

Activation of the Unmyelinated Vagus

**Acute** - extreme threat situations
- Profound bradycardia
- Freeze
- Hypotension, fainting
- Near death experience?

**Chronic** – in perceived extreme threat
- ‘The General Inhibition Syndrome’
- Helplessness and avoidance
- Persistent in post-traumatic stress disorder

Stress associated hormonal and neurohormonal changes

*Psychoneuroendocrinology*
23: 863-875
Allostatic Overload: Chronic Activation of the Hypothalamic-Pituitary-Adrenal Axis

- Decreased immune functions
- Hypertension
- Atherosclerosis
- Increase platelet reactivity
- Abdominal obesity
- Bone demineralization
- Atrophy of neurons in hippocampus and prefrontal cortex
- Increased activity of amygdala


Magnitude of Stress and Cognitive Efficiency

Goleman (2006) Social Intelligence, the new science of human relationships, Random House
Management of Stress

- Many techniques – most bring on the ‘Relaxation Response’ – typically, at least one technique ‘clicks’
  - Exercise
  - Hypnosis
  - Mindfulness-based stress reduction (MBSR)
  - Meditation
    - silent, focused, prayer, guided (imagery, progressive relaxation), active (yoga, shaking…)

Mirror Neurons: An Introduction

The mirror neuron system of the brain:
The basis for learning, language, culture, empathy, emotional understanding and more?
Nova Science Now, January 25, 2005

http://www.pbs.org/wgbh/nova/body/mirror-neurons.html

http://www.pbs.org/wgbh/nova/sciencenow/3204/01.html
Site of sensorimotor ‘mirror neurons’ in the macaque brain - similar to Broca’s area in humans

Rizzolatti et al., 1996
Mirror neurons in the CNS help us connect to each other:

- Connecting with each other
  - Reduces stress
  - Forms the basis of empathy
  - Is critical in the
    - Teacher/student relationship
    - Healer/patient relationship

Systems of neurons activated by mirroring

- Facilitate comprehension of what others are doing - and thinking - and feeling
- Form the basis for our model of the world, and the ‘theory of mind’ (what other beings are thinking)
- Form the basis for the model of our own (and others’) bodies
Patricia Kuhl, Annual Faculty Lecturer  
2/24/1999

• Demonstrating the so-called ‘McGurk effect’

• Based on mirroring
In other words, mirroring is:

• Automatic
• Unconscious
• Powerful
• Fundamental in social interactions

Social communication and mirror neuron systems

‘Broadcasters’
  Poker players….actors
‘Receivers’
  Autistics……..empaths

Turn on……make sure your transmitter is broadcasting

Tune in……make sure your receiver is working

Drop out……of narrow ways of thinking about human communication
Take-Home Points

• Some students really need YOUR help.
• ALL students could benefit by learning coping strategies.
• Reducing stress will improve healthcare.
References


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