Trainees in Distress: Becoming a doctor is an occupational hazard

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Disclosure

Relevant Financial Relationship(s)
None

Off Label Usage
None
Learning Objectives

- Discuss prevalence of personal and professional distress amongst US medical students
- List personal and professional factors associated with distress
- Explain consequences of distress
- Discuss ways to identify students in distress
Distress in Physicians

Practicing physicians and residents have been identified as being at risk for:

- depression
- problematic alcohol usage, and
- professional burnout

Distress may effect professionalism and delivery of medical care and have serious personal ramifications.
Burnout in Physicians

Burnout is common

- 30-60%
- Generalist (~42%) > subspecialist (~21%)
- Private practice (~60%) > academics (40%)
- Younger age 50 ~ 2 fold risk than > 50

What is burnout?
Burnout

- Professional distress
- Attributed to work-related stress
- Measured by the Maslach Burnout Inventory
Burnout

- Professional distress
  - Emotional exhaustion
    - feeling emotionally depleted by one’s work
  - Depersonalization
    - treating people as if they are impersonal objects
  - Low Personal Accomplishment
    - feeling that one’s work is inconsequential
Professional Consequences of Burnout

Job turnover: Plan to leave academic medicine
- 2007 DOM: OR 2.28, p=0.02

Quality of Care: Medical errors
- 2003-06 DOM Resident Study burnout was strongly associated with perceived medical error over ensuing 3 months
- 2008 ACS: OR 2.02, p<0.0001

Personal Consequences of Burnout

Suicidal Ideation

2008 ACS (n >7,000):

- 1 of 16 responding surgeons (6.4%) had experienced suicidal ideation in the past year
- Burnout was independently associated with recent suicidal ideation: OR 2.1, p<0.0001

Unanswered Questions:

- When does physician distress begin?
- How does distress effect medical students professional development?
- How can medical schools reduce distress and help prepare students to be resilient through the course of their career?
Systematic Review of studies reporting on depression, anxiety, and burnout in U.S. medical students

#1: MN Medical schools, focus on burnout & life events

#2: 5 medical schools, focused on demographic factors & learning environment; Started 1st multi-institutional longitudinal survey

#3: 7 medical schools, focused on attrition, suicidal ideation, resiliency, & curricular factors

#4: 7 medical schools, focused on professionalism consequences of distress; Started 2nd longitudinal study

#5: Post-intern year survey

Screening index development
When Does Physician Distress Begin?

Data as of 2005:

- At matriculation medical students have mental health profiles similar to peers
- Mental health problems during medical school:
  - Depression ~15-25%
  - Anxiety ~5-10%
  - Poor Global Mental Health

## Prevalence of Distress

<table>
<thead>
<tr>
<th>Year</th>
<th>Burnout</th>
<th>Mental Quality of Life*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>45%</td>
<td>43.7</td>
</tr>
<tr>
<td>n=545</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>47%</td>
<td>43.1</td>
</tr>
<tr>
<td>n=1701</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>50%</td>
<td>43.5</td>
</tr>
<tr>
<td>n=2248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>53%</td>
<td>43.8</td>
</tr>
<tr>
<td>n=2682</td>
<td></td>
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</tr>
</tbody>
</table>

* Mean Mental QOL in U.S. population 49.2 +/- 9.5
Distress is Complex

- Burnout
- Depression
- Stress
- Poor QOL
  - Mental
  - Physical
- Fatigue

82% had ≥1 form of distress

Dyrbye et al. Med Teach, In Press
Implications of Medical Student Distress
Dropping Out

7 center multi-institutional study, >2000 students:

- 11% students seriously consider dropping out of medical school

- Predictors for future serious thoughts of dropping out in prospective study:
  - Burnout
  - Poor mental & physical quality of life
  - Having children

Dyrbye et al, Acad Med Jan 2010
Physician Workforce

Help Wanted: More U.S. Doctors
Projections Indicate America Will Face Shortage of M.D.s by 2020

30% increase in medical school graduates by 2015
- Medical school expansion
- Maintain high graduation rate
Suicidal Ideation

7 center multi-institutional study, >2000 students:

- 25% students had considered suicide
- 2% had made a previous suicide attempt
- 11% had considered suicide last yr
  - Rate among 25-34 yo general population = 6.9%

Dyrbye Ann Intern Med 149
Suicidal Ideation, Burnout, & Depression

% Students with Suicidal Ideation

- **Depersonalization**
  - Low
  - Medium
  - High

- **Emotional Exhaustion**
  - Low
  - Medium
  - High

- **Negative Depression Screen**
- **Positive Depression Screen**
<table>
<thead>
<tr>
<th></th>
<th>OR</th>
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<tbody>
<tr>
<td>+ Depression Screen</td>
<td>3.08</td>
</tr>
<tr>
<td>Mental QOL</td>
<td>1.07</td>
</tr>
<tr>
<td>Burnout</td>
<td>2.33</td>
</tr>
<tr>
<td>EE</td>
<td>1.05</td>
</tr>
<tr>
<td>DP</td>
<td>1.10</td>
</tr>
<tr>
<td>PA</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Suicidal Ideation

National Comorbidity Survey:

- SI: 34%
- Plan: 70%
- Attempt: 25%

Kessler RC et al. *Arch Gen Psychiatry*. 1999;56(7)
Medical Student Suicide

Used with permission
“…I am writing because this past July one of my classmates committed suicide about 10 minutes after receiving her report of an unsuccessful USMLE step 1 test result. She was a hunter and had a gun in her home which she used, she was dead when the ambulance arrived and her computer was open next to her with her report score still showing.”
“Many families were shocked & saddened this week over the tragic SUICIDE by 12gauge shotgun of a 3rd yr med student…This is not a kid, 38yo bright WM

He bought school books for next year. his room was immaculate, laundry done, nothing for anybody to bother over, mail, bills paid, room apparently ready for guests...

He'd bought a gun 5 days prior.

On Wednesday 6/29, he withdrew from med school.

On Thursday 6/30, he went to a nearby town/beach community with his car & the gun….”
Medical Student Suicide

Increased risk of suicide among MD may begin during medical school

52 medical student suicides nationally between 1974-1981

Effect Student Distress on Professional Development

- Cheating / dishonest behavior
- Attitudes toward conflict of interest with industry
- Professional values and altruism
Professionalism

Students with burnout were ~2 fold more likely to have engaged in ≥ 1 unprofessional behavior

<table>
<thead>
<tr>
<th>Behavior</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Said test had been ordered when it had not</td>
<td>11.6</td>
</tr>
<tr>
<td>Plagiarism</td>
<td>3.3</td>
</tr>
<tr>
<td>Cheat on an exam</td>
<td>2.5</td>
</tr>
<tr>
<td>Reported lab test/x-ray as pending unsure if it had been ordered or knew it not been</td>
<td>2.2</td>
</tr>
<tr>
<td>Reported PE finding as normal when it had been omitted from the physical exam</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Dyrbye et al. JAMA 304(11):1173-80, 2010
Professionalism

Students with burnout less likely to hold altruistic views regarding physicians’ responsibility to society:

- Medical care should be provided without charge
  or very limited charge for those who cannot pay  0.76

- I want to be involved in providing care for the med.
  underserved during my medical career  0.68

- I can make an impact on the problem of meeting
  the needs of the medically underserved  0.59

- Medical students should be concerned about
  the problems facing the medically underserved  0.56

Dyrbye et al. JAMA 304(11):1173-80, 2010
Professionalism

Students with high depersonalization (domain of burnout) were *less likely* to correctly identify conflicts of interest in relations with industry consistent with AMA policy

- Attend an industry sponsored dinner at an expensive restaurant
- Accept a free day of skiing followed by a medical talk
- Accept coupons for free movies/meals from an industry representative
- Accept $500 from an industry representative after completing a 10 min. survey

Dyrbye et al. JAMA 304(11):1173-80, 2010
Causes of Distress

Personal Life Events
Personal Life Event

46% > 1 major personal life event last year

- 15% Death of close family member
- 10% Major illness-personal
- 20% Major illness-close family
- 1% Divorce

Negative life events may increase risk of depression & burnout

Learning Climate

Learning environment
- Overall satisfaction
- Support from Deans, Faculty, Peers
- Education is high priority for faulty
- Collaborative environment
- Cynical resident
- Supervision from faculty, residents
- Feedback
- Variety of problems seen

Work location
- Outpatient, hospital ward, ICU, research

Work load
- Patients seen / day
- Pts admitted / week
- Call schedule
<table>
<thead>
<tr>
<th>Year</th>
<th>Poor learning environment</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1 and 2</td>
<td>1.78</td>
<td></td>
</tr>
<tr>
<td>Little support from faculty</td>
<td>1.39</td>
<td></td>
</tr>
<tr>
<td>Year 3 and 4</td>
<td>1.49</td>
<td></td>
</tr>
<tr>
<td>Poor learning environment</td>
<td>1.49</td>
<td></td>
</tr>
<tr>
<td>Disorganized clinical rotations</td>
<td>1.38</td>
<td></td>
</tr>
<tr>
<td>Exposure to cynical residents</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>Little supervision from residents</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>Little variety of medical problems</td>
<td>1.33</td>
<td></td>
</tr>
</tbody>
</table>

Workload was **not** an independent predictor.

Dyrbye, Thomas, Shanafelt et al. Med Educ 43:274-282
11% of minority students believe that their race has adversely affected their medical school experience.

Minority students with such experiences are more likely to have burnout, depressive symptoms, and low mental QOL.
Curricular Factors and Distress

Curricular factors:
- Grading structure
- Lecture
- Small group
- Clinical experiences
- Examinations
- Vacation

Students not in a Pass/Fail curriculum:
- Increased odds of burnout
  - OR 1.97
- Higher stress scores
  - Mean 13.4 vs 15.8
- Increased odds of serious thoughts of dropping out
  - OR 1.6

Reed et al, JGIM 24:S132; Acad Med, In Press
Strategies to promote student wellness
#1 Consider Pass/Fail Grading

- Years 1 and 2 should have a pass-fail curriculum
#2 Optimize Learning Environment

- Build relationships between faculty and students
  - Faculty support important

- Provide institutional support for educators
  - Time to teach – education is a priority for faculty
  - Faculty development

- Clinical years
  - Maximize organization of clerkships
  - Ensure variety of patients seen
  - Resident as teacher programs
#3 Provide Support Systems

- Identify and assist medical students facing challenging personal life events
- Provide mechanism for students to discuss sub-optimal learning experiences & shape curricular reform
- Provide services such as back-up daycare and flexible scheduling for students with children
#4 Discourage Employment

- students with burnout recover over the course of 1 year

- recovery is associated with decreased risk of suicidal ideation and serious thoughts of dropping out

- students who work for income have a 65% decreased odds of recovery from burnout

Dyrbye Med Educ 44:1016-1026, 2010
#5 Implement Student Wellness Programs

Given the high prevalence of distress a universal curriculum intended to help students develop lifelong skills to thrive in medicine is needed

- Liaison Committee on Medical Education (LCME) requirement
- Little is known about what these programs should contain
Potential components of a student wellness program:

- Debt counseling (to discourage student employment)
- Time management
- Stress management

Students with lower stress and fatigue are less likely to develop burnout
#6. Self-care as core competency

- Incl. personal appraisal of well-being, wellness promotion, recognition of when help is needed, etc.
- In place in Canada & U.K., some U.S. medical schools
Cognitive behavioral approach

- Identify behavior to improve
- Monitor baseline behavior
- Learn recommendations for targeted behavior
- Set personal goals
- Implement plan to improve
- Self-assess success

Kushner et al. Acad Med 2011;86:901-906
"These are the duties of a physician: First...to heal his mind and to give help to himself before giving it to anyone else."

Epitaph of an Athenian doctor, AD

ACS (n >7,000):

• 25% with suicidal ideation sought professional help

• 60% with suicidal ideation reluctant to seek help due to concern re. licensure

• 15% self-prescribed anti-depr
Medical Student Distress

- Few seek help
- Barriers to care
  - Confidentiality concerns
  - Academic vulnerability
  - Cost / access / time
  - Stigma

Givens Acad Med 77; Tjia J Am Coll Health 53; Roberts Compr Psychiatry 42; Chew-Graham Med Educ 37
#7 Identify Students in Distress
General Characteristics of Students at Risk

- Female students (depression)
- Students with children
- Working for income
- Adverse experience related to race/ethnicity
- Negative personal life events
#7 Identify Students in Distress

Screen for student distress

Existing instruments

  Long

  Cumbersome to analyze

  One domain of distress

All forms of distress are important
Instrument Development

#1 Decide on types of distress to include
- Literature review
- Input from internal and external experts
- Ad hoc group of 8 Deans

# 2 Generate items
- Correlation analysis from previously administered instruments
- Review of existing instruments (stress and fatigue)

# 3 Instrument formation & pilot testing
- 11 experts (psychological distress/UME)
- Pilot test

# 4 Validity testing
- Administer to >4000 medical students, 7 U.S. medical schools

Dyrbye BMC Med Educ 2010:10(8)
Mental QOL decreases as number of MSWBI endorsed increases

Dyrbye et al. Acad Med 2011;86:907-914
Threshold score $\geq 4$:

Sensitivity 90% and Specificity 91%
# Medical Student Well-Being Index

<table>
<thead>
<tr>
<th>Exact Score</th>
<th>Pre-test probability</th>
<th>Post-test probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low mental QOL</td>
<td>40%</td>
<td>Score 0: 6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Score 5: 81%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Score 7: 93%</td>
</tr>
</tbody>
</table>

Dyrbye et al. Acad Med 2011;86:907-914
Medical Student Well-Being Index

- Findings suggest MSWBI could facilitate rapid identification of students who need an individualized intervention

- Further study is needed to explore how best to engage students in the screening process and if screening with the MSWBI will improve outcomes

Dyrbye et al. Acad Med 2011;86:907-914
### Stressors
- Personal life events
- Children
- Racial/ethnic discrimination
- Grades
- Learning environment

### Distress
- Burnout
- Depression
- Quality of life
- Stress
- Fatigue

### Outcomes
- Suicidal Ideation
- Serious thoughts of dropping out of medical school
- Unprofessional conduct
- Sub-optimal professional values

### Primary prevention
- Support students through life events
- Discourage employment
- Pass/Fail grading
- Wellness programs

### Secondary prevention
Screening & early identification before adverse consequences
Hypothetical cohort

520 students (130/yr)

Pretest Prob.
Low QOL 40%
SI / DO 10%

QOL SI / DO
Exact score
0: 6% ~ 1%
1: 18% ~ 4%
2: 32% ~ 5%

~ 31% score ≥ 4

~ 86% Low Mental QOL, recent suicidal ideation, or recent serious thoughts of dropping out

False negative ~5-7%

QOL SI / DO
Exact score 4: 68% ~ 20%
5: 81% ~ 21%
6: 89% ~ 40%
7: 93% ~ 60%

Post-test Prob.
Recovery from Burnout Possible

![Bar chart showing percent of students with suicidal ideation in the last year.](image)

- **Never Burned out** (n=290)
- **Recovered from Burnout** (n=99)
- **New Burnout** (n=132)
- **Chronic Burnout** (n=271)