Thriving vs. Surviving during Times of Change: The Science of Enhancing Resilience

J. Bryan Sexton, PhD
Director, Patient Safety Center
Duke University Health System
While you are waiting for us to start, perhaps you could send a quick text to someone important to you, to send a kind thought their way.
Ask the kids...
Ask the kids...

National Study of the Changing Workforce
Ask the kids...

65% of children (age 8–18) of working parents:

National Study of the Changing Workforce
Ask the kids...

65% of children (age 8–18) of working parents:

worried about parents

National Study of the Changing Workforce
Ask the kids...

65% of children (age 8–18) of working parents:

worried about parents

wish parents were less stressed and less tired
In the past week, how many of you…
In the past week, how many of you…

• Skipped a meal?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
- Changed personal/family plans because of work?
In the past week, how many of you…

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
- Changed personal/family plans because of work?
- Arrived home late from work?
In the past week, how many of you...

• Skipped a meal?
• Ate a poorly balanced meal?
• Worked an entire shift without any breaks?
• Changed personal/family plans because of work?
• Arrived home late from work?
• Felt frustrated by technology?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
- Changed personal/family plans because of work?
- Arrived home late from work?
- Felt frustrated by technology?
- Drank too much coffee?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
- Changed personal/family plans because of work?
- Arrived home late from work?
- Felt frustrated by technology?
- Drank too much coffee?
- Slept less than 5 hours in a night?
In the past week, how many of you...

- Skipped a meal?
- Ate a poorly balanced meal?
- Worked an entire shift without any breaks?
- Changed personal/family plans because of work?
- Arrived home late from work?
- Felt frustrated by technology?
- Drank too much coffee?
- Slept less than 5 hours in a night?
  - Over 40% of Americans regularly sleep less than 5 hours a night
    - 2X as likely to die of heart disease
    - 1.7x as likely to die of all causes (Cappuccio, 2007)
Sleepy at Work:

“Slept less than 5 hours in a night: 3 or more nights in the past week.”
Sleepy at Work:

“Slept less than 5 hours in a night: 3 or more nights in the past week.”

% Resilient = 51.6
% Resilient = 45.8
% Resilient = 36.3
% Resilient = 32.9

Each bar = 1 DUHS Clinical Area (n=258)
QUALITY

The Race for Quality has no Finish Line—so Technically, it's more like a Death March.
After controlling for pt severity and nurse and hospital characteristics, only nurse burnout was associated with the clinical outcomes.
Impact on critical care nurses

Half are emotionally exhausted (burned out)

Impact on critical care nurses

Half are emotionally exhausted (burned out)

2 out of 3 have difficulty sleeping

Impact on critical care nurses

**Half** are emotionally exhausted (burned out)

**2 out of 3** have difficulty sleeping

**1 out of 4** are clinically depressed

Am I burned out?

You try to be everything to everyone
You get to the end of a hard day at work, and feel like you have not made a meaningful difference
You feel like the work you are doing is not recognized
You identify so strongly with work that you lack a reasonable balance between work and your personal life
Your job varies between monotony and chaos
You feel you have little or no control over your work
You work in healthcare
Are they burned out?

A brief tour of prevalence...
Burnout is common among physicians in the United States, with an estimated 30% to 40% experiencing burnout.
Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States

Linda H Aiken professor and director¹, Walter Sermeus professor and director², Koen Van den Heede health services research expert¹⁷, Douglas M Sloane professor¹, Reinhard Busse professor and director³, Martin McKee professor⁴, Luk Bruyneel research fellow², Anne Marie Rafferty professor⁵, Peter Griffiths professor⁶, Maria Teresa Moreno-Casbas director⁷, Carol Tishelman professor⁶, Anne Scott professor⁹, Tomasz Brzostek professor¹⁰, Juha Kinnunen professor¹¹,
Table 4: Nurse outcomes in 12 European countries and the US. Data are number of nurses reporting outcome/total number of nurses surveyed, and percentage.

<table>
<thead>
<tr>
<th>Country</th>
<th>Reported ward to have poor or fair quality of care</th>
<th>Gave ward poor or failing safety grade</th>
<th>Regarded themselves to be burnt out</th>
<th>Dissatisfied with job</th>
<th>Intended to leave their job in the next year</th>
<th>Not confident that patients can manage own care after hospital discharge</th>
<th>Not confident that hospital management would resolve patients’ problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>886/3167</td>
<td>28</td>
<td>199/3150</td>
<td>6</td>
<td>730/2938</td>
<td>25</td>
<td>680/3159</td>
</tr>
<tr>
<td>England</td>
<td>540/2899</td>
<td>19</td>
<td>191/2895</td>
<td>7</td>
<td>1138/2699</td>
<td>42</td>
<td>1136/2904</td>
</tr>
<tr>
<td>Finland</td>
<td>141/1099</td>
<td>13</td>
<td>76/1095</td>
<td>7</td>
<td>232/1047</td>
<td>22</td>
<td>300/1114</td>
</tr>
<tr>
<td>Germany</td>
<td>526/1507</td>
<td>35</td>
<td>94/1506</td>
<td>6</td>
<td>431/1430</td>
<td>30</td>
<td>561/1505</td>
</tr>
<tr>
<td>Greece</td>
<td>170/361</td>
<td>47</td>
<td>61/358</td>
<td>17</td>
<td>246/315</td>
<td>78</td>
<td>199/358</td>
</tr>
<tr>
<td>Ireland</td>
<td>152/1389</td>
<td>11</td>
<td>117/1385</td>
<td>8</td>
<td>536/1293</td>
<td>41</td>
<td>581/1383</td>
</tr>
<tr>
<td>Netherlands</td>
<td>756/2185</td>
<td>35</td>
<td>123/2187</td>
<td>6</td>
<td>211/2061</td>
<td>10</td>
<td>240/2188</td>
</tr>
<tr>
<td>Norway</td>
<td>468/3732</td>
<td>13</td>
<td>199/3712</td>
<td>5</td>
<td>823/3501</td>
<td>24</td>
<td>773/3729</td>
</tr>
<tr>
<td>Poland</td>
<td>683/2581</td>
<td>26</td>
<td>463/2579</td>
<td>18</td>
<td>929/2321</td>
<td>40</td>
<td>663/2584</td>
</tr>
<tr>
<td>Spain</td>
<td>897/2794</td>
<td>32</td>
<td>173/2784</td>
<td>6</td>
<td>787/2670</td>
<td>29</td>
<td>1053/2786</td>
</tr>
<tr>
<td>Sweden</td>
<td>2750/1051</td>
<td>27</td>
<td>1117/100</td>
<td>11</td>
<td>2788/9477</td>
<td>29</td>
<td>2251/100</td>
</tr>
<tr>
<td>Switzerland</td>
<td>324/1604</td>
<td>20</td>
<td>71/1606</td>
<td>4</td>
<td>228/1563</td>
<td>15</td>
<td>338/1610</td>
</tr>
<tr>
<td>US</td>
<td>4196/256</td>
<td>16</td>
<td>1628/26</td>
<td>6</td>
<td>9122/27</td>
<td>34</td>
<td>692/26</td>
</tr>
</tbody>
</table>
**Conclusions**  In hospitals with high patient-to-nurse ratios, surgical patients experience higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses are more likely to experience burnout and job dissatisfaction.
Nurse Burnout and Patient Satisfaction

Doris C. Vahey, PhD, RN*, Linda H. Aiken, PhD, RN† †, Douglas M. Sloane, PhD†, Sean P. Clarke, PhD, RN†, and Delfino Vargas, PhD†
*Mount Sinai Medical Center, Department of Nursing, New York, NY
†Center for Health Outcomes and Policy Research, University of Pennsylvania School of Nursing, Philadelphia, Pennsylvania
‡Department of Sociology, University of Pennsylvania, Philadelphia, Pennsylvania

Abstract

Background—Amid a national nurse shortage, there is growing concern that high levels of nurse burnout could adversely affect patient outcomes.

Objectives—This study examines the effect of the nurse work environment on nurse burnout, and the effects of the nurse work environment and nurse burnout on patients’ satisfaction with their nursing care.

Research Design/Subjects—We conducted cross-sectional surveys of nurses (N = 820) and patients (N = 621) from 40 units in 20 urban hospitals across the United States.

Measures—Nurse surveys included measures of nurses’ practice environments derived from the revised Nursing Work Index (NWI-R) and nurse outcomes measured by the Maslach Burnout Inventory (MBI) and intentions to leave. Patients were interviewed about their satisfaction with nursing care using the La Monica-Oberst Patient Satisfaction Scale (LOPSS).

Results—Patients cared for on units that nurses characterized as having adequate staff, good administrative support for nursing care, and good relations between doctors and nurses were more than twice likely as other patients to report high satisfaction with their care, and their nurses reported significantly lower burnout. The overall level of nurse burnout on hospital units also affected patient satisfaction.

Conclusions—Improvements in nurses’ work environments in hospitals have the potential to simultaneously reduce nurses' high levels of job burnout and risk of turnover and increase patients’ satisfaction with their care.
Emotional exhaustion and workload predict clinician-rated and objective patient safety

Annalena Welp1 *, Laurenz L. Meier2 and Tanja Manser3

1 Industrial Psychology and Human Factors, Department of Psychology, University of Fribourg, Fribourg, Switzerland
2 Department of Psychology, University of Fribourg, Fribourg, Switzerland
3 Institute of Patient Safety, University Hospital Bonn, Bonn, Germany

Edited by:
Anat Drach-Zahavy, University of Haifa, Israel

Reviewed by:
Gabriele Roberto Cassullo, University of Turin, Italy
Pascale Sarah Benoliel, Bar-Ilan University, Israel

*Correspondence:
Annalena Welp, Industrial Psychology and Human Factors, Department of Psychology, University of Fribourg, Rue P.A. Faucigny 2, 1700 Fribourg, Switzerland
E-mail: annalena.welp@unifr.ch

Aims: To investigate the role of clinician burnout, demographic, and organizational characteristics in predicting subjective and objective indicators of patient safety.

Background: Maintaining clinician health and ensuring safe patient care are important goals for hospitals. While these goals are not independent from each other, the interplay between clinician psychological health, demographic and organizational variables, and objective patient safety indicators is poorly understood. The present study addresses this gap.

Method: Participants were 1425 physicians and nurses working in intensive care. Regression analysis (multilevel) was used to investigate the effect of burnout as an indicator of psychological health, demographic (e.g., professional role and experience) and organizational (e.g., workload, predictability) characteristics on standardized mortality ratios, length of stay and clinician-rated patient safety.

Results: Clinician-rated patient safety was associated with burnout, trainee status, and professional role. Mortality was predicted by emotional exhaustion. Length of stay was predicted by workload. Contrary to our expectations, burnout did not predict length of stay, and workload and predictability did not predict standardized mortality ratios.

Conclusion: At least in the short-term, clinicians seem to be able to maintain safety despite high workload and low predictability. Nevertheless, burnout poses a safety risk. Subjectively, burnt-out clinicians rated safety lower, and objectively, units with high emotional exhaustion had higher standardized mortality ratios. In summary, our results indicate that clinician psychological health and patient safety could be managed...
Rates of medication errors among depressed and burnt out residents: prospective cohort study

Amy M Fahrenkopf, instructor of paediatrics,1 Theodore C Sectish, associate professor of paediatrics,2 Laura K Barger, research fellow,3 Paul J Sharek, assistant professor of paediatrics,2 Daniel Lewin, assistant professor of psychiatry and paediatrics,4 Vincent W Chiang, assistant professor of paediatrics,1 Sarah Edwards, project coordinator,3 Bernhard L Wiedermann, associate professor of paediatrics,4 Christopher P Landrigan, assistant professor of paediatrics and medicine3,5

1Harvard Medical School, Department of Medicine, Children’s Hospital Boston, Boston, MA 02115, USA
2Stanford Medical School, Lucile Packard Children’s Hospital, Palo Alto, CA, USA
3Division of Sleep Medicine, Brigham and Women’s Hospital, Boston, MA, USA
4George Washington University Medical School, Children’s National Medical Center, Washington, DC, USA
Correspondence to: A M Fahrenkopf
amy.fahrenkopf@chb.harvard.edu
doi: 10.1136/bmj.39369.763216.BE

ABSTRACT
Objective To determine the prevalence of depression and burnout among residents in paediatrics and to establish if a relation exists between these disorders and medication errors.
Design Prospective cohort study.
Setting Three urban freestanding children’s hospitals in the United States.
Participants 123 residents in three paediatric residency programmes.
Main outcome measures Prevalence of depression using the Harvard national depression screening day scale, burnout using the Maslach burnout inventory, and rate of medication errors per resident month.
Results 24 (20%) of the participating residents met the criteria for depression and 92 (74%) met the criteria for burnout. Active surveillance yielded 45 errors made by participants. Depressed residents made 6.2 times as many errors as non-depressed residents. A correlation was observed between burnout and medication errors. These residents made 7.0 times as many errors as non-burned out residents.

Conclusions Depression and burnout are common among paediatric residents and are associated with medication errors.

patients die each year in the United States as a result of medical errors,12 and over 400 000 preventable adverse drug events may occur.13 Adverse events are also common in the United Kingdom, occurring in more than 10% of hospital admissions; as many as half of these adverse events might have been preventable.14 Recent studies have shown that the working conditions of healthcare providers—including sleep deprivation15-17 and overwork1819—contribute substantively to this problem.20 The mental health of healthcare providers has been less well studied. A few studies have examined the relation between burnout in residents and self-reported medical errors,1112 but the reported relation has not been validated; it is unclear whether burnout is associated with more medical errors or whether burnt out residents simply perceive themselves to be making more errors. Similarly, the relation between depression and medical errors has not
Results 24 (20%) of the participating residents met the criteria for depression and 92 (74%) met the criteria for burnout. Active surveillance yielded 45 errors made by participants. Depressed residents made 6.2 times as many medication errors per resident month as residents who were not depressed: 1.55 (95% confidence interval 0.57 to 4.22) compared with 0.25 (0.14 to 0.46, P<0.001)
Cognitive Vulnerability to Depression Can Be Contagious

Gerald J. Haeffel and Jennifer L. Hames
Department of Psychology, University of Notre Dame

Abstract
Cognitive vulnerability is a potent risk factor for depression. Individual differences in cognitive vulnerability solidify in early adolescence and remain stable throughout the life span. However, stability does not mean immutability. We hypothesized that cognitive vulnerability would be susceptible to change during major life transitions when social milieus undergo significant changes (e.g., moving to college). Specifically, we tested the hypothesis that cognitive vulnerability could change via a contagion effect. We tested this hypothesis using a prospective longitudinal design with a sample of randomly assigned college freshmen roommate pairs (103 pairs). Results supported the hypotheses. Participants who were randomly assigned to a roommate with high levels of cognitive vulnerability were likely to “catch” their roommate’s cognitive style and develop higher levels of cognitive vulnerability. Moreover, those who experienced an increase in cognitive vulnerability had significantly greater levels of depressive symptoms over the prospective interval than those who did not.

Keywords
cognitive vulnerability, depression, contagion, rumination
Cognitive vulnerability is a potent risk factor for depression. Individual differences in cognitive vulnerability solidify in early adolescence and remain stable throughout the life span. However, stability does not mean immutability. We hypothesized that cognitive vulnerability would be susceptible to change during major life transitions when social milieus undergo significant changes (e.g., moving to college). Specifically, we tested the hypothesis that cognitive vulnerability could change via a contagion effect. We tested this hypothesis using a prospective longitudinal design with a sample of randomly assigned college freshmen roommate pairs (103 pairs). Results supported the hypotheses. Participants who were randomly assigned to a roommate with high levels of cognitive vulnerability were likely to "catch" the roommate's cognitive style and develop higher levels of cognitive vulnerability. Moreover, those who experienced an increase in cognitive vulnerability had significantly greater levels of depressive symptoms over the prospective interval than those who did not.
Changes in cognitive vulnerability predict future depressive symptoms

Fig. 3. Depressive symptoms at 6 months as a function of change in cognitive vulnerability (increase vs. no increase in HRS score from baseline to 3 months) and stress (low vs. high).
BURNOUT

Attitudes Are Contagious. Mine Might Kill You.
Burnout and Satisfaction With Work-Life Balance Among US Physicians Relative to the General US Population

Tait D. Shanafelt, MD; Sonja Boone, MD; Litjen Tan, PhD; Lotte N. Dyrbye, MD, MHPE; Wayne Sotile, MD; Daniel Satele, BS; Colin P. West, MD, PhD; Jeff Sloan, PhD; Michael R. Oreskovich, MD

Background: Despite extensive data about physician burnout, to our knowledge, no national study has evaluated rates of burnout among US physicians, explored differences by specialty, or compared physicians with US workers in other fields.

Methods: We conducted a national study of burnout in a large sample of US physicians from all specialty disciplines using the American Medical Association Physician Masterfile and surveyed a probability-based sample of the general US population for comparison. Burnout was measured using validated instruments. Satisfaction with work-life balance was explored.

Results: Of 27,276 physicians who received an invitation to participate, 7288 (26.7%) completed surveys. When assessed using the Maslach Burnout Inventory, 45.8% of physicians reported at least 1 symptom of burnout. Substantial differences in burnout were observed by specialty, with the highest rates among physicians at the front line of care access (family medicine, general internal medicine, and emergency medicine). Compared with a probability-based sample of 3442 working US adults, physicians were more likely to have symptoms of burnout (37.9% vs 27.8%) and to be dissatisfied with work-life balance (40.2% vs 23.2%) ($P < .001$ for both). Highest level of education completed also related to burnout in a pooled multivariate analysis adjusted for age, sex, relationship status, and hours worked per week. Compared with high school graduates, individuals with an MD or DO degree were at increased risk for burnout (odds ratio [OR], 1.36; $P < .001$), whereas individuals with a bachelor’s degree (OR, 0.80; $P = .048$), master’s degree (OR, 0.71; $P = .01$), or professional or doctoral degree other than an MD or DO degree (OR, 0.64; $P = .04$) were at lower risk for burnout.

Conclusions: Burnout is more common among physicians than among other US workers. Physicians in specialties at the front line of care access seem to be at greatest risk.

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<table>
<thead>
<tr>
<th>Specialty</th>
<th>% Reporting Burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency medicine</td>
<td>60</td>
</tr>
<tr>
<td>General internal medicine</td>
<td>50</td>
</tr>
<tr>
<td>Neurology</td>
<td>40</td>
</tr>
<tr>
<td>Family medicine</td>
<td>30</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>20</td>
</tr>
<tr>
<td>Orthopedic surgery</td>
<td>10</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>10</td>
</tr>
<tr>
<td>Obstetrics and gynecology</td>
<td>10</td>
</tr>
<tr>
<td>Radiology</td>
<td>10</td>
</tr>
<tr>
<td>Physical medicine and rehabilitation</td>
<td>10</td>
</tr>
<tr>
<td>Mean burnout among all physicians participating</td>
<td>10</td>
</tr>
<tr>
<td>General surgery</td>
<td>10</td>
</tr>
<tr>
<td>Internal medicine subspecialty</td>
<td>10</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>10</td>
</tr>
<tr>
<td>General surgery subspecialty</td>
<td>10</td>
</tr>
<tr>
<td>Urology</td>
<td>10</td>
</tr>
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<td>Psychiatry</td>
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<tr>
<td>Neurosurgery</td>
<td>10</td>
</tr>
<tr>
<td>Pediatric subspecialty</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
<tr>
<td>Radiation oncology</td>
<td>10</td>
</tr>
<tr>
<td>Pathology</td>
<td>10</td>
</tr>
<tr>
<td>General pediatrics</td>
<td>10</td>
</tr>
<tr>
<td>Dermatology</td>
<td>10</td>
</tr>
<tr>
<td>Preventive medicine, occupational medicine, or environmental medicine</td>
<td>10</td>
</tr>
</tbody>
</table>

Burnout by Specialty

Mean burnout among all physicians participating

% Reporting Burnout


Tait D. Shanafelt, MD; Omar Hasan, MBBS, MPH; Lotte N. Dyrbye, MD, MHPE; Christine Sinsky, MD; Daniel Satele, MS; Jeff Sloan, PhD; and Colin P. West, MD, PhD

Abstract

Objective: To evaluate the prevalence of burnout and satisfaction with work-life balance in physicians and US workers in 2014 relative to 2011.

Patients and Methods: From August 28, 2014, to October 6, 2014, we surveyed both US physicians and a probability-based sample of the general US population using the methods and measures used in our 2011 study. Burnout was measured using validated metrics, and satisfaction with work-life balance was assessed using standard tools.

Results: Of the 35,922 physicians who received an invitation to participate, 6880 (19.2%) completed surveys. When assessed using the Maslach Burnout Inventory, 54.4% (n=368) of the physicians reported at least 1 symptom of burnout in 2014 compared with 45.5% (n=3310) in 2011 (P<.001). Satisfaction with work-life balance also declined in physicians between 2011 and 2014 (48.9% vs 40.9%, P<.001). Substantial differences in rates of burnout and satisfaction with work-life balance were observed by specialty. In contrast to the trends in physicians, minimal changes in burnout or satisfaction with work-life balance were observed between 2011 and 2014 in probability-based samples of working US adults, resulting in an increasing disparity in burnout and satisfaction with work-life balance in physicians relative to the general US working population. After pooled multivariate analysis adjusting for age, sex, relationship status, and hours worked per week, physicians remained at an increased risk of burnout (odds ratio, 1.97; 95% CI, 1.80-2.16; P<.001) and were less likely to be satisfied with work-life balance (odds ratio, 0.68; 95% CI, 0.62-0.75; P<.001).

Conclusion: Burnout and satisfaction with work-life balance in US physicians worsened from 2011 to 2014. More than half of US physicians are now experiencing professional burnout.

Medicine is both a demanding and a rewarding profession. Physicians spend more than a decade in postsecondary education, work substantially more hours than most US workers in other fields, and often struggle to effectively integrate their personal and professional lives. They engage in highly technical and intellectually demanding work that often requires complex, high-stakes decision making despite substantial uncertainty. These challenges are offset by meaningful relationships with patients, the intellectual stimulation of the work, and the satisfaction of helping fellow human beings. Physicians are also well compensated relative to many professions, are part of a fraternity of supportive colleagues, and often enjoy the respect and appreciation of their community.

The cumulative effect of these forces on the personal and professional satisfaction of each physician is unique. Although future physicians begin medical school with mental health profiles better than those of college graduates pursuing other fields, this profile is reversed 1 to 2 years into medical school. Once in practice, physicians have generally high degrees of satisfaction with their career choice but experience high degrees of

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From the Division of Hematology (TDS); Division of Primary Care Internal Medicine (LND); Division of Hematology, Statistics, and Informatics

Affiliations continued at the end of this article.

FIGURE 1. Burnout (A) and satisfaction with WLB (B) by specialty 2014 vs 2011. For IA and IB, specialty discipline is shown on the y-axis and burnout (A) and satisfaction with WLB (B) are shown on the x-axis. For IC, satisfaction with WLB is shown on the y-axis and burnout on the x-axis. CIH = general internal medicine; OBGYN = obstetrics and gynecology; PM&R = physical medicine and rehabilitation; Prev = Preventive medicine, occupational medicine, or environmental medicine; WLB = work-life balance; P<.05 from comparison 2014 vs 2011.

with WLB, minimal or no changes were observed in the prevalence of depression or suicidal ideation. It is notable that the increase in burnout and decrease in satisfaction with WLB in physicians over the last 3 years runs counter to trends in the general US working population over the same interval. These disparate trends have resulted in a further widening in the rates of burnout and satisfaction with WLB among
The Prevalence and Impact of Post Traumatic Stress Disorder and Burnout Syndrome in Nurses

Meredith Mealer, R.N. M.S.,* Ellen L. Burnham, M.D.,¹ Colleen J. Goode, R.N. Ph.D.,² Barbara Rothbaum, Ph.D.,³ and Marc Moss, M.D.¹

Division of Pulmonary Sciences and Critical Care Medicine, Department of Medicine, University of Colorado School of Medicine, Denver, Colorado 80045, USA. Meredith.Mealer@UCDenver.edu

Objective: To determine whether post traumatic stress disorder (PTSD) and burnout syndrome (BOS) are common in nurses, and whether the co-existence of PTSD and BOS is associated with altered perceptions of work and nonwork-related activities. Methods: University hospital nurses were administered four validated psychological questionnaires. Results: The response rate was 41% (332/810). Twenty two percent (73/332) had symptoms of PTSD, 18% (61/332) met diagnostic criteria for PTSD, and 86% (277/323) met criteria for BOS. Ninety eight percent (59/60) of those fulfilling diagnostic criteria for PTSD were positive for BOS. When grouped into three categories: positive for PTSD and BOS (n = 59), positive for BOS and negative for PTSD (n = 217), and negative for both BOS and PTSD (n = 46), there were significant differences in the years of employment as a nurse (P < .0001), perceptions of collaborative nursing care (P = .006), confidence in physicians (P = .01), and perception that their work impacted patient outcomes (P = .01). Nurses with BOS and PTSD were significantly more likely to have difficulty in their life outside of the work
Research Article

THE PREVALENCE AND IMPACT OF POST TRAUMATIC STRESS DISORDER AND BURNOUT SYNDROME IN NURSES

Meredith Mealer, R.N., M.S., Ellen L. Burnham, M.D., Colleen J. Goode, R.N. Ph.D., Sara Rothbaum, Ph.D., and Marc Moss, M.D.

School of Medicine, Denver, Colorado 80045, USA. Meredith.Mealer@UCDenver.edu

18% (61/332) met diagnostic criteria for PTSD

Determine whether post traumatic stress disorder (PTSD) and burnout syndrome (BOS) are common in nurses, and whether the co-existence of PTSD predicts burnout in nurses.
Patterns of distress in US medical students

LISELOTTE N. DYRBYE¹, WILLIAM HARPER², STEVEN J. DURNING³, CHRISTINE MOUTIER⁴, MATTHEW R. THOMAS¹, F. STANFORD MASSIE JR⁵, ANNE EACKER⁶, DAVID V. POWER⁷, DANIEL W. SZYDLO⁸,⁹, JEFF A. SLOAN⁹ & TAIT D. SHANAFELT¹

¹Department of Medicine, Mayo Clinic, USA, ²University of Chicago, USA, ³Uniformed Services University of the Health Sciences, USA, ⁴University of California, USA, ⁵University of Alabama School of Medicine, USA, ⁶University of Washington School of Medicine, USA, ⁷University of Minnesota Medical School, USA, ⁸Department of Health Sciences Research, Mayo Clinic, USA, ⁹University of Washington, USA

Abstract

Background: How multiple forms of psychological distress coexist in individual medical students has not been formally studied.

Aim: To explore the prevalence of various forms of distress in medical students and their relationship to recent suicidal ideation or serious thoughts of dropping out of school.

Methods: All medical students at seven US schools were surveyed with standardized instruments to evaluate burnout, depression, stress, mental quality of life (QOL), physical QOL, and fatigue. Additional items explored recent suicidal ideation and serious thoughts of dropping out of medical school.

Results: Nearly all (1846/2246, 82%) of medical students had at least one form of distress with 1066 (58%) having ≥3 forms of distress. A dose-response relationship was found between the number of manifestations of distress and recent suicidal ideation or serious thoughts of dropping out. For example, students with 2, 4, or 6 forms of distress were 5, 15, and 24 fold, respectively, more likely to have suicidal ideation than students with no forms of distress assessed. All forms of distress were independently associated with suicidal ideation or serious thoughts of dropping out on multivariable analysis.

Conclusions: Most medical students experience ≥1 manifestation of distress with many experiencing multiple forms of distress simultaneously. The more forms of distress experienced the greater the risk for suicidal ideation and thoughts of dropping out of medical school.
Patterns of distress in US medical students

LISELOTTE N. DYRBYE¹, WILLIAM HARPER², STEVEN J. DURNING³, CHRISTINE MOUTIER⁴, MATTHEW R. THOMAS¹, F. STANFORD MASSIE JR⁵, ANNE EACKER⁶, DAVID V. POWER⁷, DANIEL W. SZYDLO⁸,⁹, JEFF A. SLOAN⁸ & TAIT D. SHANAFELT¹

Table 1. Types of distress among responding medical students at seven medical schools, 2007.

<table>
<thead>
<tr>
<th>Stress domain</th>
<th>Prevalence (%) or mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burnout</strong></td>
<td></td>
</tr>
<tr>
<td>Burned out, no. (%)</td>
<td>1069/2154 (49.6%)</td>
</tr>
<tr>
<td>Emotional exhaustion, mean ± SD</td>
<td>24.0 ± 10.8</td>
</tr>
<tr>
<td>Depersonalization, mean ± SD</td>
<td>7.3 ± 5.9</td>
</tr>
<tr>
<td>Personal accomplishment, mean ± SD</td>
<td>36.2 ± 7.7</td>
</tr>
<tr>
<td><strong>QOL</strong></td>
<td></td>
</tr>
<tr>
<td>Mental, mean ± SD</td>
<td>43.5 ± 11.0</td>
</tr>
<tr>
<td>Mental QOL score 1/2 SD below age and gender-matched population norm, no. (%)</td>
<td>899/2178 (41.3%)</td>
</tr>
<tr>
<td>Physical, mean ± SD</td>
<td>52.2 ± 6.9</td>
</tr>
<tr>
<td>Mental QOL score 1/2 SD below age and gender-matched population norm, no. (%)</td>
<td>486/2178 (22.3%)</td>
</tr>
<tr>
<td>Symptoms of depression, no. (%)</td>
<td>1037/2228 (46.5)</td>
</tr>
<tr>
<td>Epworth Sleepiness Scale, mean ± SD</td>
<td>10.2 ± 4.36</td>
</tr>
<tr>
<td><strong>Excessive fatigue, no. (%)</strong></td>
<td>1034/2233 (46.3)</td>
</tr>
<tr>
<td>Perceived Stress Scale, mean ± SD</td>
<td>16.6 ± 7.49</td>
</tr>
<tr>
<td>High stress, no. (%)</td>
<td>1073/2206 (48.6%)</td>
</tr>
</tbody>
</table>

Notes: ¹Maslach Burnout Inventory (Maslach et al. 1996). A score of ≥27 on the emotional exhaustion subscale score and/or ≥10 on the depersonalization subscale, ²Score of ≥11, and ³Score of ≥1/2 SD than the norm for age-matched US general population.
Patterns of distress in US medical students

Table 3. Factors independently associated with serious thoughts of dropping out of medical school or suicidal ideation.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Odds ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropout</td>
<td>Burned out</td>
<td>2.402</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td>Positive depression screen</td>
<td>2.185</td>
<td>0.0002</td>
</tr>
<tr>
<td></td>
<td>Low physical QOL</td>
<td>2.156</td>
<td>0.0021</td>
</tr>
<tr>
<td></td>
<td>Low mental QOL</td>
<td>2.104</td>
<td>0.0002</td>
</tr>
<tr>
<td></td>
<td>Has children</td>
<td>2.048</td>
<td>0.0011</td>
</tr>
<tr>
<td></td>
<td>High stress (PSS ≥ 17)</td>
<td>1.954</td>
<td>0.0045</td>
</tr>
<tr>
<td></td>
<td>Third-year student&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.502</td>
<td>0.0204</td>
</tr>
<tr>
<td></td>
<td>High fatigue (Epworth ≥ 11)</td>
<td>1.460</td>
<td>0.0221</td>
</tr>
<tr>
<td></td>
<td>$50,000–$99,999 student loan debt&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.589</td>
<td>0.0089</td>
</tr>
<tr>
<td>Suicidal ideation</td>
<td>Positive depression screen</td>
<td>4.052</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td>Low mental QOL</td>
<td>1.982</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>Fourth-year student&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.695</td>
<td>0.0064</td>
</tr>
<tr>
<td></td>
<td>Burned out</td>
<td>1.686</td>
<td>0.0037</td>
</tr>
<tr>
<td></td>
<td>Has children</td>
<td>1.579</td>
<td>0.0399</td>
</tr>
<tr>
<td></td>
<td>≥1 Negative life events last 12 months</td>
<td>1.545</td>
<td>0.0044</td>
</tr>
<tr>
<td></td>
<td>Third-year student</td>
<td>1.458</td>
<td>0.0392</td>
</tr>
</tbody>
</table>

Notes: <sup>a</sup>For school year students who indicated they were taking a break from medical school to pursue enrichment activities, such as research projects or graduate work, were used as reference value. <sup>b</sup>For debt, <$50,000 was used as reference value.
Burnout and Suicidal Ideation among U.S. Medical Students

Dyrbye et al., 2010

50% of medical students burned out
10% have suicidal ideation
Suicidal Thoughts and Behaviors Among Adults Aged ≥18 Years — United States, 2008–2009
Suicidal Thoughts and Behaviors Among Adults Aged ≥18 Years — United States, 2008–2009

Alex E. Crosby, MD
Beth Han, MD, PhD
LaVonne A. G. Ortega, MD
Sharyn E. Parks, PhD
Joseph Gfroerer, BA

1Division of Violence Prevention, National Center for Injury Prevention and Control, CDC
2Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Rockville, Maryland

Abstract

Results: Prevalence estimates of suicidal thoughts and behaviors varied by sociodemographic factors, region, and state. During 2008–2009, an estimated 8.3 million (annual average) adults aged ≥18 years in the United States (3.7% of the adult U.S. population) reported having suicidal thoughts in the past year. The prevalence of having suicidal thoughts ranged from 2.1% in Georgia to 6.8% in Utah. An estimated 2.2 million (annual average) adults in the United States (1.0% of the adult U.S. population) reported having made suicide plans in the past year. The prevalence of reports of suicide planning ranged from 0.1% in Georgia to 2.8% in Rhode Island. An estimated 1 million (annual average) adults in the United States (0.5% of the U.S. adult population) reported making a suicide attempt in the past year. The prevalence of reports of suicide attempts ranged from 0.1% in Delaware and Georgia to 1.5% in Rhode Island. The prevalence of suicidal thoughts, suicide planning, and suicide attempts was significantly higher among young adults aged 18–29 years than it was among adults aged ≥30 years. The prevalence of suicidal thoughts was significantly higher among females than it was among males, but there was no statistically significant difference for suicide planning or suicide attempts.
Lies. ALL LIES.
Burnout is associated with:

- **Infections**

- **Medication Errors**

- **Lower Patient Satisfaction**

- **Higher Standardized Mortality Ratios**
  Welp, Meier & Manser. Front Psychol. 2015 Jan 22;5:1573.
Burnout is associated with:
Burnout is associated with:

Shorter lifespan
Burnout is associated with:

Lower quality of relationships/marital satisfaction

Shorter lifespan
Burnout is associated with:

Lower quality of relationships/marital satisfaction

Shorter lifespan

Decreased immune system function
Burnout is associated with:

- Shorter lifespan
- Lower quality of relationships/marital satisfaction
- Decreased immune system function
- Personal injury
Burnout is associated with:

- Lower quality of relationships/marital satisfaction
- Traffic violations and accidents
- Shorter lifespan
- Decreased immune system function
- Personal injury
Burnout is associated with:

- Shorter lifespan
- Lower quality of relationships/marital satisfaction
- Traffic violations and accidents
- Shorter lifespan
- Decreased immune system function
- WLB / depression / PTSD / suicide
- Personal injury
From First to Worst

Those with tenacity, dedication and a strong sense of responsibility are vulnerable to burnout

Burnout Lead Weights: work hours, night shift, conflicts with colleagues, fiscal debt, poor boundaries between work/home life

Burnout Band-aides: spending time with spouse, social support, positive learning environment, having a clinician as a parent, being a parent, and getting satisfaction from conversations with others, control over days off, quality of working relationships
Psychology of Burnout

Your focus determines your reality

&

Perceptions are influenced by how you feel
Psychology of Burnout

Your focus determines your reality
Psychology of Burnout

Your focus determines your reality
Notice anything unusual about this lung scan?
Notice anything unusual about this lung scan?

Harvard researchers found that 83% of radiologists didn't notice the gorilla in the top right portion of this image.
Emotional information processing in depression and burnout: an eye-tracking study

Renzo Bianchi · Eric Laurent

Received: 12 July 2014/Accepted: 30 September 2014/Published online: 9 October 2014
© Springer-Verlag Berlin Heidelberg 2014

Abstract Whether burnout is a form of depression is unclear. The aim of this study was to examine the relevance of the burnout-depression distinction by comparing attentional processing of emotional information in burnout and depression. Eye-tracking technology was employed for assessing overt attentional deployment. The gaze of 54 human services employees was monitored as they freely viewed a series of emotional images, labeled as dysphoric, positive, anxiogenic, and neutral. Similar to depression, burnout was associated with increased attention for dysphoric stimuli and decreased attention for positive stimuli.

Introduction

Burnout is usually regarded as a syndrome resulting from chronic occupational stress that combines emotional exhaustion, depersonalization, and reduced personal accomplishment [37, 38, 54]. Emotional exhaustion, the hallmark of burnout, defines a state of fatigue and helplessness; it reflects the worker’s response to unresolvable stress and is considered the entry point into the syndrome; depersonalization characterizes a way of coping with emotional exhaustion by detaching oneself from one’s patients and colleagues.
What the burned out eyes are able to see is limited:
Eye-tracking of attention of burned out and depressed participants was the same: more focus on dysphoric stimuli / less focus on positive stimuli
SHORT AND SWEET

Alligator or squirrel: Musically induced fear reveals threat in ambiguous figures

Jesse Prinz¹, Angelika Seidel¹.²§
¹ Department of Philosophy, City University of New York, Graduate Center, 356 Fifth Ave, New York, NY 10016, USA; e-mail: jesse@subcortex.com; ² Brooklyn College, City University of New York
Received 14 May 2012, in revised form 3 September 2012

Abstract. Extant evidence has shown that fear can influence what we see. Fear can exaggerate threatening visual features or make them more salient. Here we show that fear can alter the meaning of what is seen. Three newly devised ambiguous figures that can be seen as benign or dangerous objects were presented for brief intervals. The majority of participants reported perceiving benign objects in a neutral control condition and in a condition in which happiness was induced; but, when fear was induced, the majority reported seeing dangerous objects. This suggests that fear can alter the meaning attributed to a visually perceived stimulus. In this study happiness and fear were induced using instrumental music, so the findings also suggest that sound can influence vision by influencing emotions.

Keywords: ambiguous figures, fear, perception, emotion
SHORT AND SWEET

Alligator or squirrel: Musically induced fear reveals threat in ambiguous figures

Jesse Prinz¹, Angelina Mangan, Catherine Thompson
¹Department of Philosophy, City College of the City University of New York, NY 10016, USA
Received 14 May 2012

Abstract. Extant evidence suggests that musical context can alter visual features or make perceived aspects of a scene less ambiguous. Here, we present data from a study that involved participants who were presented with three ambiguous figures, each presented for brief intervals. The images were presented in a neutral, happy, or fearful context for 3-s intervals. A control condition was also included, where the participants were exposed to the same ambiguous figures without any musical context. Of the participants, a majority reported seeing a visually perceived threat in the ambiguous figures. The findings suggest that musical context can alter the perceived threat in ambiguous figures, supporting previous evidence that musical context can alter visual perception.

Keywords: ambiguous figures, musical context, threat perception

Figure 2. Mean interpretations as benign (= 0) and dangerous (= 1) for ambiguous figures in no music, happy music, and fearful music conditions.
Burnout, at its core, is the impaired ability to experience positive emotion.
Joy  Gratitude  Serenity  Love  Pride  Inspiration  Awe  Inspiration

Hope  Interest  Amusement  Love
Social Connection: Positivity in Stereo
Social Connection: Positivity in Stereo
Social Connection: Positivity in Stereo
Social Connection: Positivity in Stereo
Having High-quality Social Connections Is Associated with:
Having High-quality Social Connections Is Associated with:

Positive Emotions and Well-being
Having High-quality Social Connections Is Associated with:

**Lower Rates of Anxiety and Depression**

**Positive Emotions and Well-being**
Having High-quality Social Connections Is Associated with:

**Lower Rates of Anxiety and Depression**

**Positive Emotions and Well-being**

**Lower rates of Cardiovascular Disease**
Having High-quality Social Connections Is Associated with:

**Lower Rates of Anxiety and Depression**

**Better Immune Function**

**Positive Emotions and Well-being**

**Lower rates of Cardiovascular Disease**
Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad¹, Timothy B. Smith², J. Bradley Layton³

¹ Department of Psychology, Brigham Young University, Provo, Utah, United States of America, ² Department of Counseling Psychology, Brigham Young University, Provo, Utah, United States of America, ³ Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America

Abstract

Background: The quality and quantity of individuals’ social relationships has been linked not only to mental health but also to both morbidity and mortality.

Objectives: This meta-analytic review was conducted to determine the extent to which social relationships influence risk for mortality, which aspects of social relationships are most highly predictive, and which factors may moderate the risk.

Data Extraction: Data were extracted on several participant characteristics, including cause of mortality, initial health status, and pre-existing health conditions, as well as on study characteristics, including length of follow-up and type of assessment of social relationships.

Results: Across 148 studies (308,849 participants), the random effects weighted average effect size was OR = 1.50 (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. Significant differences were found across the type of social measurement evaluated (p<0.001); the association was strongest for complex measures of social integration (OR = 1.91; 95% CI 1.63 to 2.23) and lowest for binary indicators of residential status (living alone versus with others) (OR = 1.19; 95% CI 0.99 to 1.44).

Conclusions: The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality.
Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad¹, Timothy B. Smith², J. Bradley Layton³

1 Department of Psychology, Brigham Young University, Provo, Utah, United States of America, 2 Department of Counseling Psychology, Brigham Young University, Provo, Utah, United States of America, 3 Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America

Abstract

Background: The relationship between social relationships and mortality is well documented, with social relationships contributing not only to mental health but also to both morbidity and mortality.

Objectives: This review synthesized findings from 148 studies (608,849 participants) to determine whether social relationships influence risk for mortality, which are traditionally attributed to well-established risk factors (i.e., smoking, obesity, high blood pressure, diabetes).

Data Extraction: Data were extracted on study characteristics, including length of follow-up and type of assessment of social relationships.

Results: Across 148 studies (608,849 participants), the random effects weighted average effect size was OR = 1.50 (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. Significant differences were found across the type of social measurement evaluated (p<0.001); the association was strongest for complex measures of social integration (OR = 1.91; 95% CI 1.63 to 2.23) and lowest for binary indicators of residential status (living alone versus with others) (OR = 1.19; 95% CI 0.99 to 1.44).

Conclusions: The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality.

50% increased chance of longevity for those with stronger relationships.
Social Relationships and Mortality Risk: A Meta-analytic Review

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Abstract

Background: The well-established associations between social relationships and health outcomes extend not only to mental health but also to both morbidity and mortality outcomes.

Objectives: This review aimed to summarize the evidence regarding whether social relationships influence risk for mortality, which are modulated by age, sex, initial health status, cause of death, and follow-up period.

Data Extraction: Data from 148 studies with 58,849 participants were included. The review focused on study characteristics, including length of follow-up and type of assessment of social relationships.

Results: Across 148 studies (58,849 participants), the random effects weighted average effect size was OR = 1.50 (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. Significant differences were found across the type of social measurement evaluated (p<0.001); the association was strongest for complex measures of social integration (OR = 1.91; 95% CI 1.63 to 2.23) and lowest for binary indicators of residential status (living alone versus with others) (OR = 1.19; 95% CI 0.99 to 1.44).

Conclusions: The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality.

50% increased chance of longevity for those with stronger relationships
Meaningful Connections Are a Health Behavior
I WANT YOU TO DELETE ME AS YOUR FACEBOOK FRIEND
Best Friend
4 a.m. Friend:

Is there someone in your life whom you would feel comfortable phoning at four in the morning to tell your troubles to?

- If so, you are likely to live longer than those who say “no.” Discovered by George Vaillant (Harvard psychiatrist) and called the capacity to be loved.
- Conversely, loneliness is such a disabling condition that it suggests the pursuit of relationships is a fundamental to well-being.
Buddy Up

optimizing oxytocin and serotonin - which boost mood and promote bonding - hold a handshake for at least six seconds.
<p>| Active Destructive Responding | Finding the bad in the good: where you find the cloud in the silver lining |</p>
<table>
<thead>
<tr>
<th>Active Destructive Responding</th>
<th>Finding the bad in the good: where you find the cloud in the silver lining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Destructive Responding</td>
<td>Not caring at all about their news</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Active Destructive</strong></td>
<td>Finding the bad in the good: where you find the cloud in the silver lining</td>
</tr>
<tr>
<td><strong>Passive Destructive</strong></td>
<td>Not caring at all about their news</td>
</tr>
<tr>
<td><strong>Passive Constructive</strong></td>
<td>Not making a big deal out of it</td>
</tr>
<tr>
<td>Active Destructive Responding</td>
<td>Finding the bad in the good: where you find the cloud in the silver lining</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Passive Destructive Responding</td>
<td>Not caring at all about their news</td>
</tr>
<tr>
<td>Passive Constructive Responding</td>
<td>Not making a big deal out of it</td>
</tr>
<tr>
<td>Active Constructive Responding</td>
<td>Reacting positively, being interested and caring about their news.</td>
</tr>
</tbody>
</table>
Active Constructive Responding

Maintain eye contact / smile / touch / laugh

• Don’t overdo the praise and positive feedback (it can make people feel uncomfortable/patronized)
• Concentrate on asking questions which encourage the person to talk about their good news/ savor their positive emotions.
• If this type of active and constructive response does not come easily to you try to ask at least three questions.
Three Good Things
Three Good Things

Seligman, Steen, Park & Peterson, 2005
Three Good Things

Seligman, Steen, Park & Peterson, 2005
“The negative screams at you, but the positive only whispers...”

-- Barbara Fredrickson

#1) We are hard-wired to remember the negative.
#1) We are hard-wired to remember the negative.

#2) Enhanced recall of material reviewed during last 2 wakeful hours.
#1) We are hard-wired to remember the negative.

#2) Enhanced recall of material reviewed during last 2 wakeful hours.

#3) With practice (by day 4 or 5) reflecting on the positive leads to noticing more positive.
#1) We are hard-wired to remember the negative.

#2) Enhanced recall of material reviewed during last 2 weeks.

#3) With practice (by day 4 or 5) reflecting on the positive leads to noticing more positive.
Three Good Things Exercise, Day 7:

<table>
<thead>
<tr>
<th>Good Thing #1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Thing #2</td>
<td></td>
</tr>
<tr>
<td>Good Thing #3</td>
<td></td>
</tr>
</tbody>
</table>

What went well today, and what was your role in making it happen.

Which one of the following positive emotions best fits how this good thing makes you feel.

[ ] [ ] [ ]

www.dukepatientsafetycenter.com

Survey Powered By Qualtrics
<table>
<thead>
<tr>
<th>Good Thing #1</th>
<th>My 5 year old swam across the pool at the YMCA without any floaties for the first time today!</th>
<th>Pride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Thing #2</td>
<td>Watched as glorious pink/orange sunset behind the rolling hills where our leaves are changing colors - beautiful.</td>
<td>Awe</td>
</tr>
<tr>
<td>Good Thing #3</td>
<td>Made my wife laugh so hard her eyes watered, and so did mine.</td>
<td>Amusement</td>
</tr>
</tbody>
</table>

Survey Powered By [Qualtrics](http://www.dukepatientsafetycenter.com)
1. [S] Three Good Things Exercise, Day 9: What went well today, and what was your role in making it happen.

<table>
<thead>
<tr>
<th>Good Thing #1</th>
<th>Good Thing #2</th>
<th>Good Thing #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to give positive reference for Big Brothers/Big Sisters</td>
<td>Healthy niece per ultrasound</td>
<td>Spoke with my cousin</td>
</tr>
<tr>
<td>A coworker helped me by giving a TB test to another employee, when I was not able to do it.</td>
<td>My dad’s Dr. appt went well today.</td>
<td>I watched a new TV show which really made me laugh!</td>
</tr>
<tr>
<td>A delicious dinner out</td>
<td>Meeting new people</td>
<td>Exploring a new city</td>
</tr>
<tr>
<td>another gorgeous fall day and I thought ahead to take vacation!</td>
<td>Got the car cleaned after I made it a point to get it done.</td>
<td>Base ball playoffs start....Watched the Wild Card games on TV.Go Tigers!</td>
</tr>
<tr>
<td>Beautiful drive, loving the beginnings of fall color</td>
<td>Haircut,</td>
<td>Daughters working together on project,</td>
</tr>
<tr>
<td>Bought hubby great jeans for half price. As a surprise.</td>
<td>Meditated 20 minutes this A.M.</td>
<td>Had quiet peaceful dinner and evening alone.</td>
</tr>
<tr>
<td>Complimented on use of bulletin board. My role: Posting quotes and funny sayings to make people think.</td>
<td>Enjoyed company of friends. My role: not being too tired to meet them.</td>
<td>Asked to assist someone and help them out of their shell. My role: Setting a good example, I was told.</td>
</tr>
<tr>
<td>Did not feel well today, really stressed with school. Got dressed up and took my daughter to scouts. This worked out well, we were able to get outside the house and start over.</td>
<td>Spent afternoon while at scouts with a dear friend visiting from California. So glad to see her and be able to get a few hours in catching up. She is going through tough times with her husband. I listened patiently and praised her for all the good things that she does for her family, I empowered her by listening and not judging. She is am amazing talented and strong woman. We all need to bend an ear.</td>
<td>Came home, husband fixed a wonderful omelet. Then took a nap. Had some snuggle time with husband, actually sat down and watched an entire movie with son and husband.....Sitting through a whole movie or show is not always easy for me to do, so I took the time for them and put everything else aside...</td>
</tr>
<tr>
<td>Excited to work with a client in a new way</td>
<td>Had fun teaching my class. Role: approached</td>
<td>Helped someone out by providing</td>
</tr>
</tbody>
</table>
• Thanks to the efforts of Drs. Jon Bae and Amy Zaas, as well as our Medical Student researcher Whitney Chadwick.

• Main Findings:
  – Lower burnout, lower depression in the post
  – Fewer delays
  – Less conflict
  – Better work-life balance

• Residents enjoyed participating in the research
Resilience across DUHS
(for pace and intensity of innovation)
Resilience across DUHS
(for pace and intensity of innovation)

% of respondents reporting no burnout

- IM Residents Pre 35%
- IM Residents Post 50%
Resilience across DUHS
(for pace and intensity of innovation)

% of respondents reporting no burnout

- PS Conference Pre: 43%
- PS Conference Post: 62%
Resilience across DUHS
(for pace and intensity of innovation)

% of respondents reporting no burnout

95% would recommend 3 Good Things to a Friend / Supervisor
Resilience across DUHS
(for pace and intensity of innovation)

% of respondents reporting no burnout

- Stanford NICU Pre: 36%
- Stanford NICU Post: 47.3%
Resilience across DUHS
(for pace and intensity of innovation)

93% would recommend 3 Good Things to a Friend / 91% Supervisor

Stanford NICU Pre: 36%
Stanford NICU Post: 47.3%
Three Good Things

I can see my computer w/o glasses! :)
I love my new office decorations!
My new picture is still on the wall at home! :)
My reliable vehicle! Hopefully a long term estimate!
I love my retirement!
I am going to NZ to see my parents this coming weekend!!! @!

My Son is home from Afghanistan!!
Friends daughters surgery went well!
I came to work today!!! Makes me happy
It’s potato chip day! In Cafe!
Blueberry drive is now dry!!
I love my hair!
I love D’s hair!
Mike’s haircut looks great!
I am thankful for volunteers Adrianne & Yechesiel

My Boss!
25% retail
3-day weekends!!
I made it out of bed
*Family & weddings! + Video of a Gator Fan
doing the Fight song in a Florida shirt

Flower boxes built by wonderful husbands who also buy flowers
DUHS Safety Culture & Resilience

Mean of the clinical area scores

- Teamwork Climate, 68
- Teamwork Climate, 77
- Safety Climate, 64
- Safety Climate, 71
- Safety Climate, 80
- Safety Climate, 67
- Resilience, 40
- Resilience, 45
- Resilience, 40
- Resilience, 45
- Resilience, 37
- Work Life Balance, 49
- Work Life Balance, 51
- Work Life Balance, 47

DUHS
3GT Yes
3GT No
Meeting Agenda Item

-One good thing so far this week
Positive Leader Rounds

• Did leaders ask for information about what is going well in this work setting (e.g., people who deserve special recognition for going above and beyond, celebration of successes, etc.)?: Yes / No / Not Sure
Safety Culture Domains by “Positive Rounds”

Mean of the clinical area scores

- Learning Env, 76
- Local Leadership, 66
- Teamwork Climate, 71
- Safety Climate, 75
- Burnout (My Burnout), 61
- Burnout Climate, 53
- Work Life Balance, 67
- Work Life Balance, 50

$t=40.33$, $p<.001$
$t=37.24$, $p<.001$
$t=34.10$, $p<.001$
$t=41.17$, $p<.001$
$t=-25.09$, $p<.001$
$t=-24.15$, $p<.001$
$t=18.76$, $p<.001$
Get out your mobile phone....
Click the link to sign up for our Resilience Intervention: WISER.

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enroll:

bit.ly/3wiser

enrollment video:

bit.ly/3wiservideo
SHORT AND SWEET

Alligator or squirrel: Musically induced fear reveals threat in ambiguous figures

Jesse Prinz¹, Angela DeCuir²
¹Department of Philosophy, New York University, New York, NY 10016, USA
²New York University, USA
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Abstract. Extant evidence indicates that fear generally has a negative impact on visual features or makes them less visible. Three newly developed ambiguous figures were presented for brief intervals, ensuring that they could be interpreted in either a neutral or fearful manner. The presentation of fear-inducing music together with these images resulted in a majority reported seeing the images as threatening. Resonant with findings concerning a visually perceived threat of the ambiguous image, these results confirm the validity of the ambiguous image threats of music. Additionally, the threat interpretation was confirmed when the original image was presented again, so the findings also suggest that musical fear is an active process of perception, which is supported by the findings of human and animal studies.

Keywords: ambiguous figures, music, fear, perception, emotion

Figure 2. Mean interpretations as benign (= 0) and dangerous (= 1) for ambiguous figures in no music, happy music, and fearful music conditions.
Gratitude Letter
3 Good Things
Signature Strengths
Moment of Awe
Random Acts of Kindness
Relationship Resilience

WISER

bit.ly/3wiservideo
Click the link to sign up for WISER.

bit.ly/3wiservideo
Humans are capable of being physically, emotionally, cognitively, socially, financially and spiritually overwhelmed from time to time.

When we are particularly challenged, we need a combination of resilience role models, tools, strategies, and protected time, so that we don’t just bounce back – we bounce higher...
Take Home

• Burnout/Resilience predicts quality
  – 1 out of 3 are burned out in healthcare
  – Over half of USA docs are burned out
  – Burnout linked to:
    • clinical quality; patient mortality; patient satisfaction; depression and suicide

• WISER: bit.ly/3wiser

• Positive Emotion & calibrating to situation are keys to resilience
  – Frequency...not magnitude of positive emotion

• www.dukepatientsafetycenter.com
The Story of the Two Monks
The Story of the Two Monks
Analogy:

• Noticing something about the world
• Commenting on it briefly through your mobile phone
• Seeing what other people commented on
Psychological Language on Twitter Predicts County-Level Heart Disease Mortality

Johannes C. Eichstaedt\textsuperscript{1}, Hansen Andrew Schwartz\textsuperscript{1,2}, Margaret L. Kern\textsuperscript{1,3}, Gregory Park\textsuperscript{1}, Darwin R. Labarthe\textsuperscript{4}, Raina M. Merchant\textsuperscript{5}, Sneha Jha\textsuperscript{2}, Megha Agrawal\textsuperscript{2}, Lukasz A. Dziurzynski\textsuperscript{1}, Maarten Sap\textsuperscript{1}, Christopher Weeg\textsuperscript{1}, Emily E. Larson\textsuperscript{1}, Lyle H. Ungar\textsuperscript{1,2}, and Martin E. P. Seligman\textsuperscript{1}

\textsuperscript{1}Department of Psychology, University of Pennsylvania; \textsuperscript{2}Department of Computer and Information Science, University of Pennsylvania; \textsuperscript{3}Graduate School of Education, University of Melbourne; \textsuperscript{4}School of Medicine, Northwestern University; and \textsuperscript{5}Department of Emergency Medicine, University of Pennsylvania
Twitter Topics Positively Correlated With County-Level AHD Mortality

**Hostility, Aggression**
- $r = .18$

**Hate, Interpersonal Tension**
- $r = .16$

**Boredom, Fatigue**
- $r = .18$
- $r = .18$
- $r = .20$
Figure 1. Twitter topics most correlated with age-adjusted mortality from atherosclerotic heart disease (AHD; significant at a Bonferroni-corrected significance level of $p < 2.5 \times 10^{-5}$). The topics with positive correlations (top) and the topics with negative correlations (bottom) have each been grouped into sets, which are labeled at the left. The size of the word represents its prevalence relative to all words within a given topic (larger = more frequent; for details, see the Supplemental Method).
Fig. 2. Performance of models predicting age-adjusted mortality from atherosclerotic heart disease (AHD). For each model, the graph shows the correlation between predicted mortality and actual mortality reported by the Centers for Disease Control and Prevention. Predictions were based on Twitter language, socioeconomic status, health, and demographic variables singly and in combination. Higher values mean better prediction. The correlation values are averages obtained in a cross-validation process used to avoid distortion of accuracy due to chance (overfitting; for details, see the text). Error bars show 95% confidence intervals. Asterisks indicate significant differences between models (*p < .05).
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Specific Tools

- 3 Good Things: bit.ly/3gtapril17
- Gratitude Letters: bit.ly/grattool
- Signature Strengths: bit.ly/SSTRENGTHS
- Cultivate Confidants
- 2 day Resilience Retreat in Jan, May & Nov
- 1 day Resilience Essentials Jan, April, Sept

bit.ly/WISERstudy

Courses in Durham

www.dukepatientsafetycenter.com
The associations between work-life balance behaviours, teamwork climate and safety climate: cross-sectional survey introducing the work-life climate scale, psychometric properties, benchmarking data and future directions

J Bryan Sexton,1,2 Stephanie P Schwartz,3 Whitney A Chadwick,4 Kyle J Rehder,1,3 Jonathan Bae,5 Joanna Bokoven,5 Keith Doram,6 Wayne Sotile,7 Kathryn C Adair,1,7 Jochen Profit1

ABSTRACT
Background Improving the resiliency of healthcare workers is a national imperative, driven in part by healthcare workers having minimal exposure to the skills and culture to achieve work-life balance (WLB). Regardless of current policies, healthcare workers feel compelled to work more and take less time to recover from work. Satisfaction with WLB has been measured, as has work-life conflict, but how frequently healthcare workers engage in specific WLB behaviors is rarely assessed. Measurement of behaviors may have advantages over measurement of perceptions; behaviors more accurately reflect WLB and can be targeted by leaders for improvement.

Objectives 1. To describe a novel survey scale for evaluating work-life climate based on specific behavioural frequencies in healthcare workers. 2. To evaluate the scale’s psychometric properties and provide benchmarking data from a large healthcare system.

Methods Cross-sectional survey study of US healthcare workers within a large healthcare system.

Results 7023 of 9195 eligible healthcare workers across 325 work settings within 16 hospitals completed the survey in 2009 (86% response rate). The overall work-life climate scale internal consistency was Cronbach’s α=0.790. t-Tests of top versus bottom quartile work settings revealed that positive work-life climate was associated with better teamwork climate, safety climate and increased participation in safety leadership WorkRounds with feedback (p<0.001). Univariate analysis of variance demonstrated differences that significantly in WLB between healthcare workers, hospitals and work setting.

Conclusions The work-life climate scale exhibits strong psychometric properties, yields results that vary widely by work setting, discriminates between positive and negative workplace norms, and aligns well with other culture constructs that have been found to correlate with clinical outcomes.

INTRODUCTION
Individuals who choose to work in healthcare often make personal sacrifices for their work. While the work can be rich with purpose and meaning, the demands on time and attention can be relentless to the point of being unhealthy for the healthcare worker. Regardless of the policies of a given healthcare organization to promote healthy work-life balance (WLB) for workers, those culture and promoting effective team functioning as a method to create safe systems of healthcare delivery.19-20 Infrequent teamwork behaviours have been linked to poor patient outcomes, including major surgical complications and deaths.21 The link between work-life climate and teamwork climate and safety climate offers a new focus for intervention for leaders looking to improve healthcare quality.

Within the teamwork and safety climate items, the largest difference between quartiles was seen with the items “Disagreements in this clinical area are appropriately resolved” and “I receive appropriate feedback about my performance”. A better overall work-life climate encourages appropriate responses even when encountering disagreements. Conversely, if staff is tired, hungry, late coming home or has not had a break in 12 hours, they are substantially less likely to be appropriate in disagreements, giving feedback or even feeling encouraged to promote proactive safety at work.

The link between WLB and feedback on WorkRounds with senior leaders, a quality improvement initiative, is preliminary evidence that work-life climate may be responsive to interventions.23 At the very least, it suggests that work-life climate can discriminate between work settings that do and do not support employees’ needs.
Counting Blessings Versus Burdens: An Experimental Investigation of Gratitude and Subjective Well-Being in Daily Life

Robert A. Emmons  
University of California, Davis

Michael E. McCullough  
University of Miami

The effect of a grateful outlook on psychological and physical well-being was examined. In Studies 1 and 2, participants were randomly assigned to 1 of 3 experimental conditions (hassles, gratitude listing, and either neutral life events or social comparison); they then kept weekly (Study 1) or daily (Study 2) records of their moods, coping behaviors, health behaviors, physical symptoms, and overall life appraisals. In a 3rd study, persons with neuromuscular disease were randomly assigned to either the gratitude condition or to a control condition. The gratitude-outlook groups exhibited heightened well-being across several, though not all, of the outcome measures across the 3 studies, relative to the comparison groups. The effect on positive affect appeared to be the most robust finding. Results suggest that a conscious focus on blessings may have emotional and interpersonal benefits.

Reflect on your present blessings, on which every man has many, not on your past misfortunes, of which all men have some.  
—Charles Dickens (M. Dickens, 1897, p. 45)
led to increases in positive affect, as well as reductions in negative affect, mediational analyses showed that gratitude was uniquely responsible for the effect of the intervention on positive affect. In addition, the gratitude intervention improved people’s amount of sleep and the quality of that sleep. Furthermore, the effects on well-being were apparent to the participants’ spouse or significant other.