

Resiliency Resources – Keys to Avoiding Caregiver Burnout

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Conflict of Interest Disclosure

Bryan Sexton, PhD reported no relevant financial relationships or relationships he has with ineligible companies of any amount during the past 24 months.

The Science of Bite-Sized Well-Being: Evidence, Practice and Resources to Share

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WELLB 

Overview:

- crash course in well-being
- bite-sized strategies
- resources to share



Biological age is increased by stress and restored upon recovery

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SUMMARY

Aging is classically conceptualized as an ever-increasing trajectory of damage accumulation and loss of function, leading to increases in morbidity and mortality. However, recent *in vitro* studies have raised the possibility of age reversal. Here, we report that biological age is fluid and exhibits rapid changes in both directions. At epigenetic, transcriptomic, and metabolomic levels, we find that the biological age of young mice is increased by heterochronic parabiosis and restored following surgical detachment. We also identify transient changes in biological age during major surgery, pregnancy, and severe COVID-19 in humans and/or mice. Together, these data show that biological age undergoes a rapid increase in response to diverse forms of stress, which is reversed following recovery from stress. Our study uncovers a new layer of aging dynamics that should be considered in future studies. The elevation of biological age by stress may be a quantifiable and actionable target for future interventions.

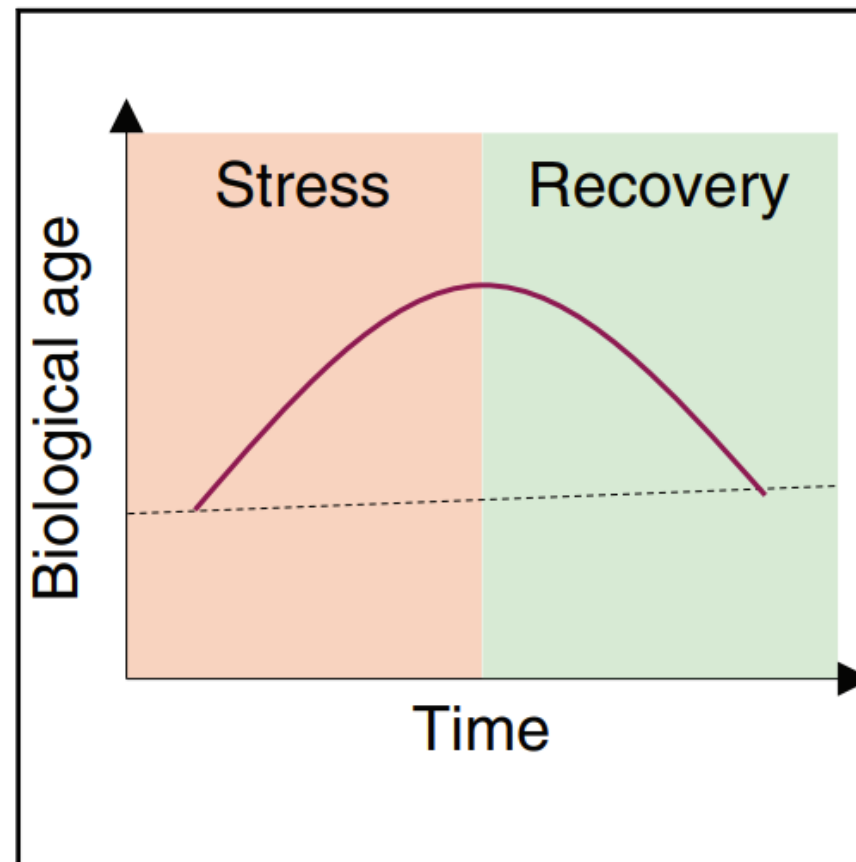
INTRODUCTION

The biological age of organisms is thought to steadily increase over the life course. However, it is now clear that biological age is not indelibly linked to chronological age: individuals can be biologically older or younger than their chronological age implies.¹ Moreover, increasing evidence in animal models and humans indicates that biological age can be influenced by disease,² drug treatment,³ lifestyle changes,⁴ and environmental exposures,⁵ among other factors. Despite the widespread acknowledgment that biological age is at least somewhat malleable, the extent to which biological age undergoes reversible changes throughout life, and the events that trigger such changes remain unknown.

DNA methylation (DNAm) clocks have emerged as the premier tool to assess biological age and begin to answer these questions.

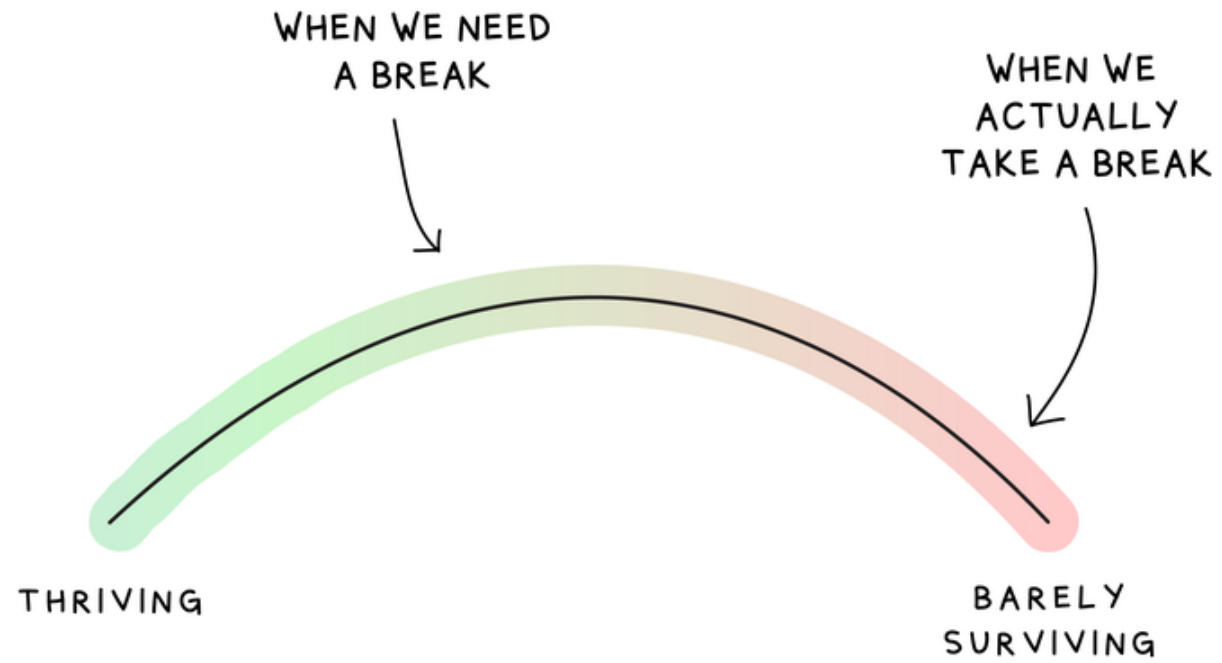
Such epigenetic aging clocks were innovated based on the observation that methylation levels of various subsets of CpG sites throughout the genome predictably change over the course of chronological age. First-generation human DNAm clocks^{6–8} are constructed using machine learning approaches to build models trained on and designed to predict chronological age. Since the advent of DNAm clocks, both a suite of mouse DNAm clocks^{3,9–13} and second-generation human DNAm clocks^{14,15} have emerged. Second-generation human DNAm clocks integrate numerous phenotypic measures of aging (and, in some instances, chronological age) to produce a measure of morbidity/mortality risk and biological age. Another recently reported second-generation approach, called DunedinPACE, uses longitudinal phenotypic training data to produce a measure of the rate of biological aging.^{16,17} DNAm clocks have excellent predictive ability and are responsive to known anti-aging/lifespan extending interventions

Graphical abstract



Highlights

- Biological age undergoes rapid fluctuations in mice and humans
- Severe stress induces increases in biological age that are reversed upon recovery
- Parabiosis, surgery, pregnancy, and COVID-19 transiently elevate biological age
- Biological age recovery rate may predict gerotherapeutics



LIZ FOSSLIE

Well-Being Redefined

The ability to “do stuff”



COVID-19 impact is equivalent of 2.5 EMRs in 1
year



Haidari et. al, 2021 *Journal of Perinatology*. Maternal and neonatal health care worker well-being and patient safety climate amid the COVID-19 pandemic.

Burnout is associated with:

Infections

Cimiotti, Aiken, Sloane and Wu. Am J Infect Control. 2012 Aug;40(6):486-90.

Higher Standardized Mortality Ratios

Welp, Meier & Manser. Front Psychol. 2015 Jan 22;5:1573.



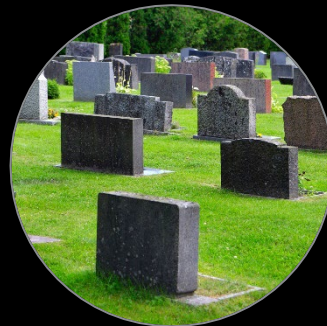
Lower Patient Satisfaction

Aiken et al. BMJ 2012;344: e1717
Vahey, Aiken et al. Med Care. 2004 February; 42(2 Suppl): II57-II66.



Medication Errors

Fahrenkopf et al. BMJ. 2008 Mar 1;336(7642):488-91.



We have data from 30,000
healthcare workers in:
Sept 2019
Sept 2020
Sept 2021/Jan 2022

<https://ja.ma/3EoH6Om>

Emotional Exhaustion Among US Health Care Workers Before and During the COVID-19 Pandemic, 2019-2021

J. Bryan Sexton, PhD; Kathryn C. Adair, PhD; Joshua Proulx, BSEE; Jochen Proffitt, MD; Xin Cul, PhD; Jon Bae, MD; Allan Frankel, MD

Abstract

IMPORTANCE Extraordinary strain from COVID-19 has negatively impacted health care worker (HCW) well-being.

OBJECTIVE To determine whether HCW emotional exhaustion has increased during the pandemic, for which roles, and at what point.

DESIGN, SETTING, AND PARTICIPANTS This survey study was conducted in 3 waves, with an electronic survey administered in September 2019, September 2020, and September 2021 through January 2022. Participants included hospital-based HCWs in clinical and nonclinical (eg, administrative support) roles at 76 community hospitals within 2 large health care systems in the US.

EXPOSURES Safety, Communication, Organizational Reliability, Physician, and Employee Burnout and Engagement (SCORE) survey domains of emotional exhaustion and emotional exhaustion climate.

MAIN OUTCOMES AND MEASURES The percentage of respondents reporting emotional exhaustion (%EE) in themselves and a climate of emotional exhaustion (%EEclim) in their colleagues. Survey items were answered on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree); neutral or higher scores were counted as "percent concerning" for exhaustion.

RESULTS Electronic surveys were returned by 37 187 (of 49 936) HCWs in 2019, 38 460 (of 45 268) in 2020, and 31 475 (of 41 224) in 2021 to 2022 for overall response rates of 74.5%, 85.0%, and 76.4%, respectively. The overall sample comprised 107 122 completed surveys. Nursing was the most frequently reported role ($n = 43\,918$ [40.9%]). A total of 17 786 respondents (16.9%) reported less than 1 year at their facility, 59 226 (56.2%) reported 1 to 10 years, and 28 337 (26.9%) reported 11 years or more. From September 2019 to September 2021 through January 2022, overall %EE increased from 31.8% (95% CI, 30.0%-33.7%) to 40.4% (95% CI, 38.1%-42.8%), with a proportional increase in %EE of 26.9% (95% CI, 22.2%-31.8%). Physicians had a decrease in %EE from 31.8% (95% CI, 29.3%-34.5%) in 2019 to 28.3% (95% CI, 25.9%-31.0%) in 2020 but an increase during the second year of the pandemic to 37.8% (95% CI, 34.7%-41.3%). Nurses had an increase in %EE during the pandemic's first year, from 40.6% (95% CI, 38.4%-42.9%) in 2019 to 46.5% (95% CI, 44.0%-49.1%) in 2020 and increasing again during the second year of the pandemic to 49.2% (95% CI, 46.5%-51.9%). All other roles showed a similar pattern to nurses but at lower levels. Intraclass correlation coefficients revealed clustering of exhaustion within work settings across the 3 years, with coefficients of 0.15 to 0.17 for emotional exhaustion and 0.22 to 0.24 for emotional exhaustion climate, higher than the .10 coefficient typical of organizational climate (a medium effect for shared variance), suggestive of a social contagion effect of HCW exhaustion.

(continued)

Key Points

Question Is the COVID-19 pandemic associated with an increase in health care worker emotional exhaustion?

Findings In this 3-year survey study with an overall sample of 107 122 responses from US health care workers before (2019) and twice during (2020 and 2021-2022) the COVID-19 pandemic, increases were reported in assessments of emotional exhaustion in oneself and in one's colleagues overall and for every role; nurses reported increases each year, but physicians reported decreases in 2020 followed by sharp increases in 2021. Exhaustion score clustering in work settings was suggestive of a social contagion effect of exhaustion.

Meaning These findings indicate that emotional exhaustion among health care workers, which was problematic before the pandemic, has become worse; increases in emotional exhaustion may jeopardize care quality and necessitate additional support for the workforce.

+ Invited Commentary

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Emotional Exhaustion

by Healthcare Worker Role

%

55
50
45
40
35
30
25
20

2019

2020

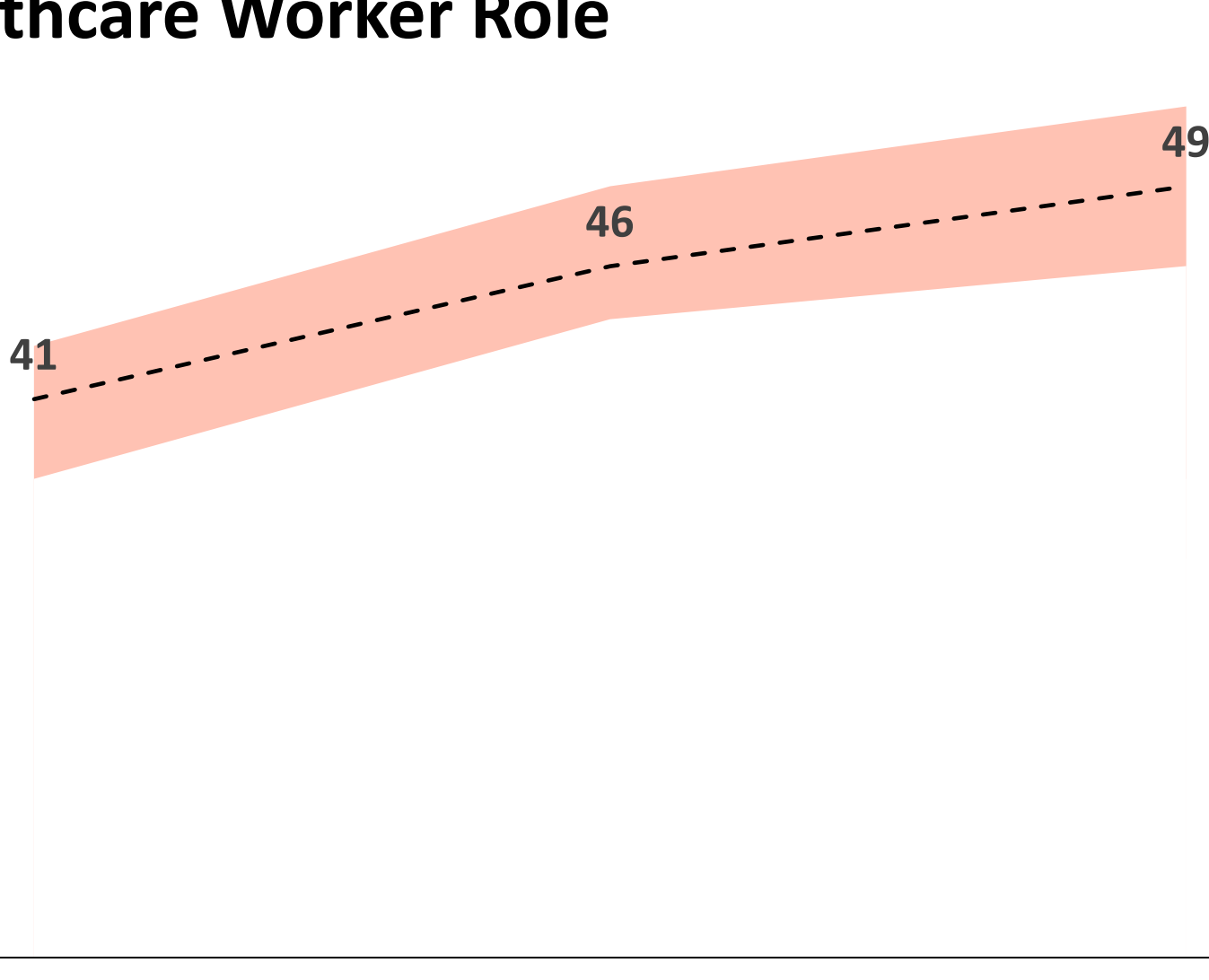
2021

41

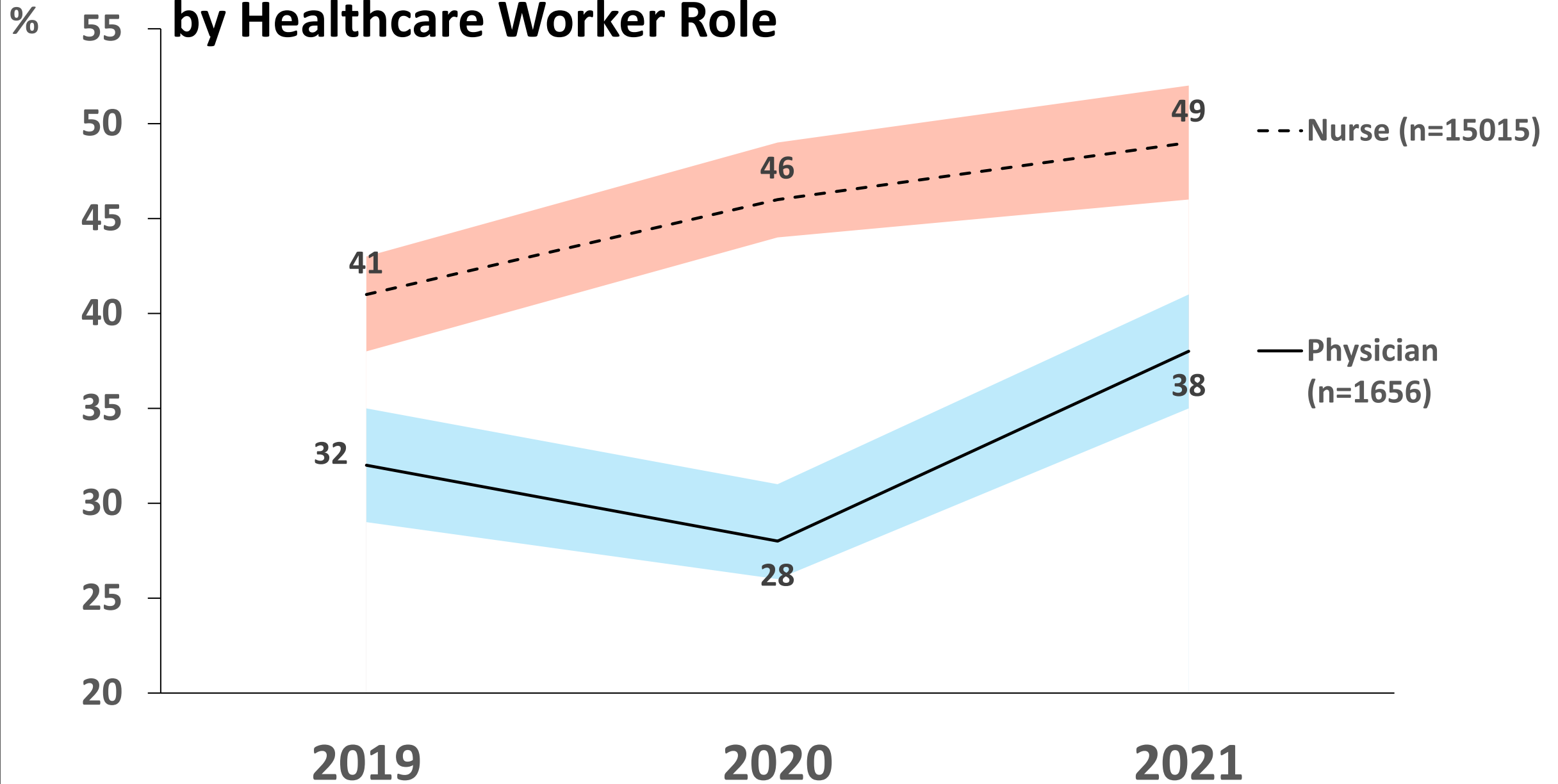
46

49

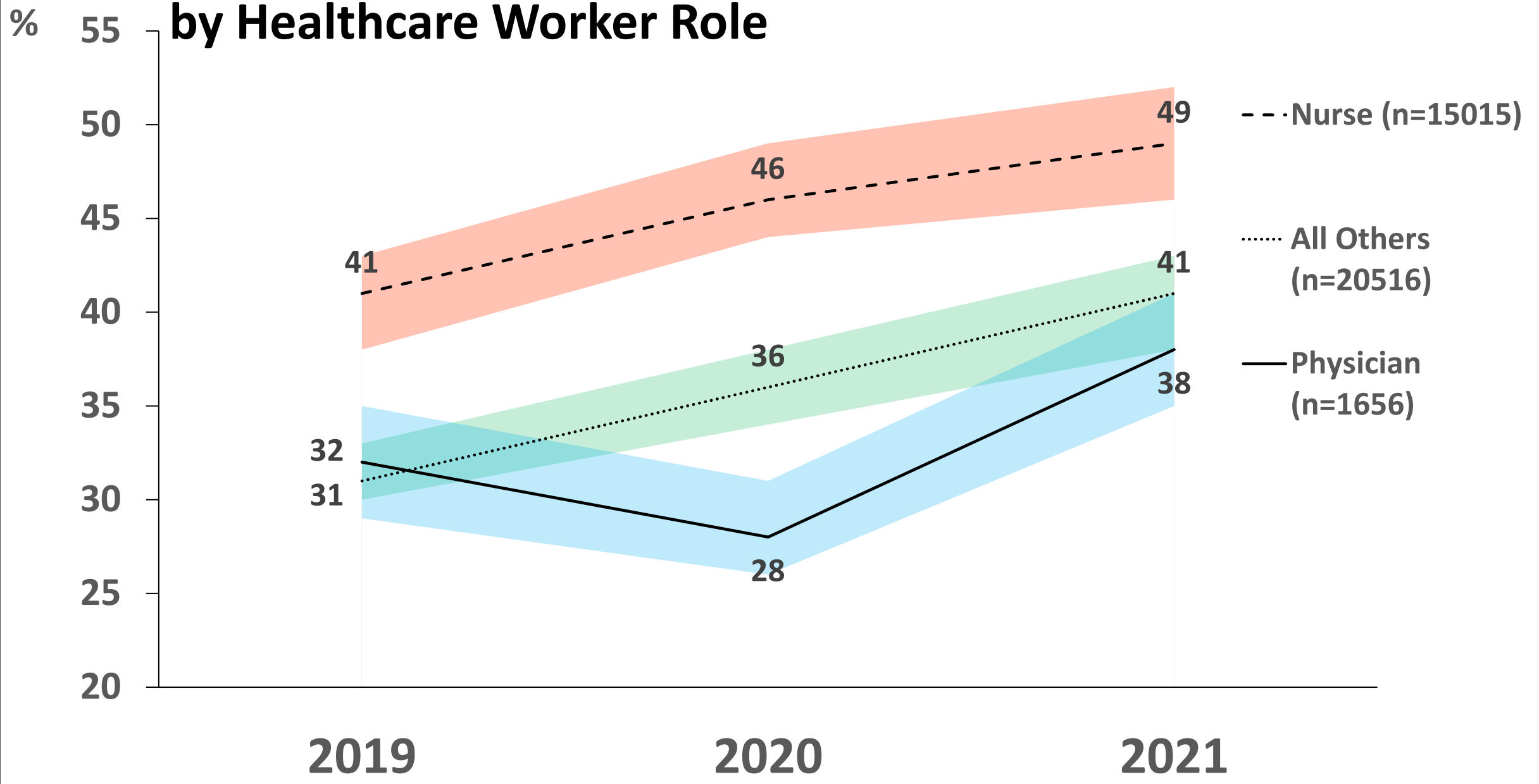
- - · Nurse (n=15015)



Emotional Exhaustion by Healthcare Worker Role



Emotional Exhaustion by Healthcare Worker Role





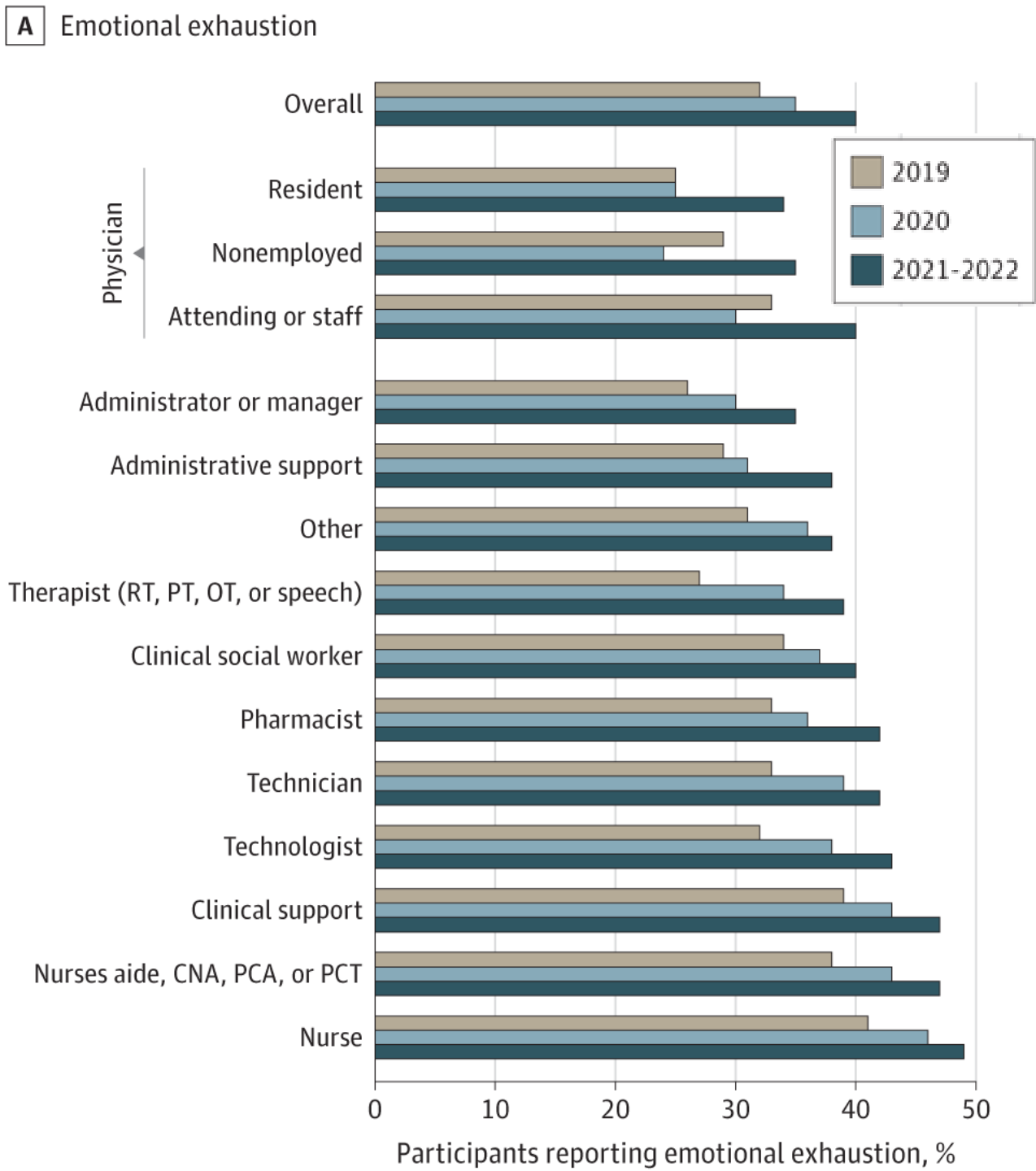
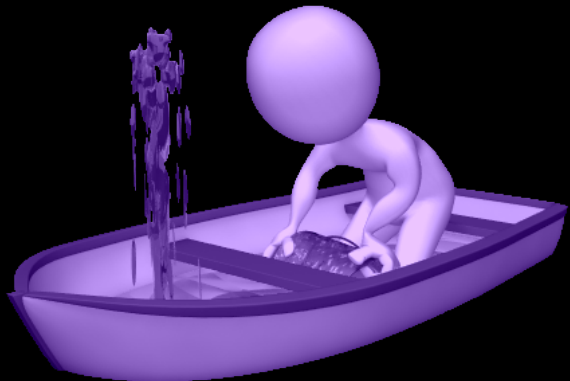
Original Investigation | Psychiatry

Emotional Exhaustion Among US Health Care Workers Before and During the COVID-19 Pandemic, 2019-2021

J. Bryan Sexton, PhD; Kathryn C. Adair, PhD; Joshua Proulx, BSEE; Jochen Profit, MD; Xin Cui, PhD; Jon Bae, MD; Allan Frankel, MD

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<https://ja.ma/3fORPqM>





Characterization of Nonphysician Health Care Workers' Burnout and Subsequent Changes in Work Effort

Liselotte N. Dyrbye, MD, MHPE; Brittny Major-Elechi, MS; Prabin Thapa, BS; J. Taylor Hays, MD; Cathryn H. Fraser, MBA; Steven J. Buskirk, MD; Collin P. West, MD, PhD

Abstract

IMPORTANCE Burnout is a pervasive, unrelenting problem among health care workers (HCWs), with detrimental impact to patients. Data on the impact of burnout on workforce staffing are limited and could help build a financial case for action to address system-level contributors to burnout.

OBJECTIVE To explore the association of burnout and professional satisfaction with changes in work effort over 24 months in a large cohort of nonphysician HCWs.

DESIGN, SETTING, AND PARTICIPANTS This longitudinal cohort study was conducted in Rochester, Minnesota; Scottsdale and Phoenix, Arizona; Jacksonville, Florida; and community-based hospitals and health care facilities in the Midwest among nonphysician HCWs who responded to 2 surveys from 2015 to 2017. Analysis was completed November 25, 2020.

EXPOSURES Burnout, as measured by 2 items from the Maslach Burnout Inventory, and professional satisfaction.

MAIN OUTCOMES AND MEASURES The main outcome was work effort, as measured in full-time equivalent (FTE) units, recorded in payroll records.

RESULTS Data from 26 280 responders (7293 individuals aged 45-54 years [27.8%]; 20 263 [77.1%] women) were analyzed. A total of 8115 individuals (30.9%) had worked for the organization more than 15 years, and 6595 individuals (25.1%) were nurses. After controlling for sex, age, duration of employment, job category, baseline FTE, and baseline burnout, overall burnout (odds ratio [OR], 1.53; 95% CI, 1.38-1.70; $P < .001$), high emotional exhaustion at baseline (OR, 1.54; 95% CI, 1.39-1.71; $P < .001$), and high depersonalization at baseline (OR, 1.40; 95% CI, 1.21-1.62; $P < .001$) were associated with an HCW reducing their FTE over the following 24 months. Conversely, satisfaction with the organization at baseline was associated with lower likelihood of reduced FTE (OR, 0.73; 95% CI, 0.65-0.83; $P < .001$). Findings were similar when emotional exhaustion (OR per 1-point increase, 1.12; 95% CI, 1.10-1.16; $P < .001$), depersonalization (OR per 1-point increase, 1.10; 95% CI, 1.06-1.14; $P < .001$) and satisfaction with the organization (OR per 1-point increase, 0.83; 95% CI, 0.79-0.88; $P < .001$) were modeled as continuous measures. Nurses represented the largest group (1026 of 1997 nurses [51.4%]) reducing their FTE over the 24 months.

CONCLUSIONS AND RELEVANCE This cohort study found that burnout and professional satisfaction of HCWs were associated with subsequent changes in work effort over the following 24 months. These findings highlight the importance of addressing factors contributing to high stress among all HCWs as a workforce retention and cost reduction strategy.

JAMA Network Open. 2021;4(8):e2121435. doi:10.1001/jamanetworkopen.2021.21435

Key Points

Question Are burnout and professional satisfaction associated with changes in work effort among nonphysician health care workers (HCWs)?

Findings In this cohort study of 26 280 nonphysician HCWs using administrative and payroll records, levels of burnout and satisfaction were associated with changes in work effort over the ensuing 24 months.

Meaning These findings suggest that, given the critical importance of appropriate staffing and costs associated with hiring and training HCWs, efforts to mitigate burnout and increase professional satisfaction among HCWs should be part of workforce retention and cost reduction strategies.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

for every 1-point increase in exhaustion, there was a 20% increase in reducing work effort

Having high emotional exhaustion was associated with a reduction in work effort over the next 24 months (OR, 1.54; 95% CI 1.39-1.71; $P < .001$)

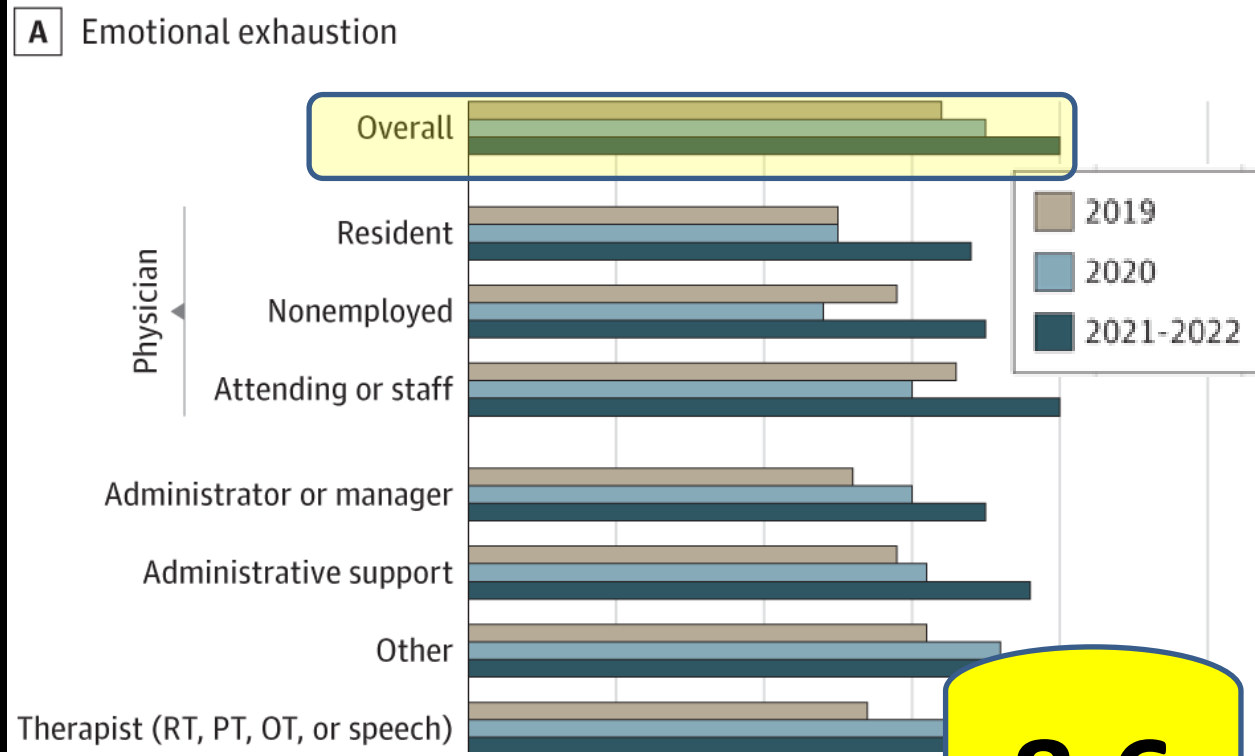


Emotional Exhaustion Among US Health Care Workers Before and During the COVID-19 Pandemic, 2019-2021

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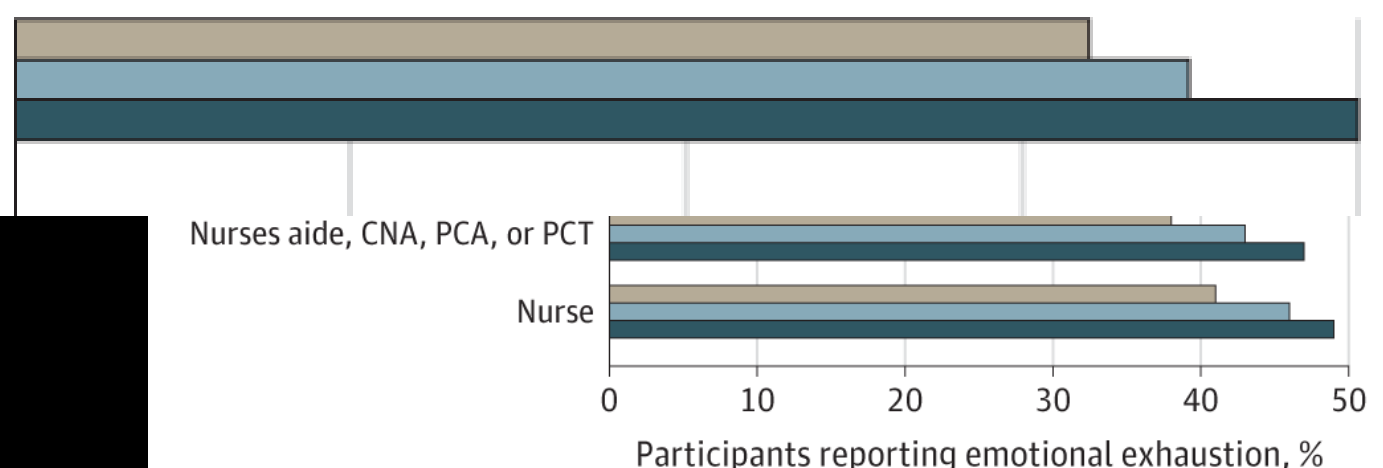
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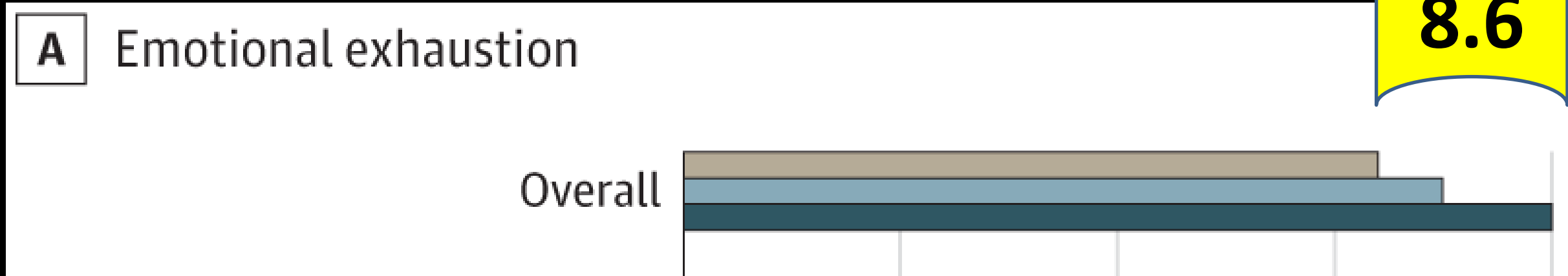
A Emotional exhaustion

Overall



Participants reporting emotional exhaustion, %

EE ↑ almost 9 pts during pandemic



... feedback following

Table 2 Work setting level correlation matrix of safety culture and engagement domains across 829 work settings (Cronbach's alphas and ICCs in the diagonal)

| Score domain | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 1. Improvement readiness | 0.92, 0.16 | | | | | | | | | | | |
| 2. Local leadership | 0.74 | 0.94, 0.17 | | | | | | | | | | |
| 3. Teamwork climate | 0.67 | 0.57 | 0.82, 0.19 | | | | | | | | | |
| 4. Safety climate | 0.80 | 0.75 | 0.73 | 0.87, 0.17 | | | | | | | | |
| 5. Personal burnout | -0.619 | -0.59 | -0.58 | -0.64 | 0.92, 0.15 | | | | | | | |
| 6. Burnout climate | -0.62 | -0.55 | -0.67 | -0.67 | 0.80 | 0.90, 0.26 | | | | | | |
| 7. Advancement | 0.39 | 0.35 | 0.34 | 0.40 | -0.28 | -0.27 | 0.89, 0.14 | | | | | |
| 8. Growth opportunities | 0.70 | 0.62 | 0.58 | 0.71 | -0.56 | -0.56 | 0.49 | 0.92, 0.10 | | | | |
| 9. Job uncertainty | -0.29 | -0.30 | -0.19 | -0.27 | 0.37 | 0.37 | 0.37 | 0.37 | 0.92, 0.10 | | | |
| 10. Participation in decision-making | 0.70 | 0.67 | 0.56 | 0.75 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | 0.92, 0.10 | | |
| 11. Work-life climate | 0.33 | 0.28 | 0.35 | 0.38 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | 0.92, 0.10 | |
| 12. Workload | -0.24 | -0.26 | -0.28 | -0.27 | 0.56 | 0.53 | -0.04 | -0.20 | 0.15 | -0.27 | -0.50 | 0.84, 0.12 |

Burnout ICC .26

“Burnout is a team sport”

All correlations are significant at the $p < 0.01$ level, except the correlations between Advancement and Workload ($r = -0.04$, $p = 0.27$) and Advancement and Work-life climate ($r = 0.09$, $p = 0.02$). ICC, intraclass correlations.

Rene Schwendimann, ...

ABSTRACT

Background There is a poorly understood relationship between Leadership WalkRounds (WR) and domains such as safety culture, employee engagement, burnout and

WalkRounds (WR),¹ where front-line healthcare workers (HCW) are encouraged by leadership to identify and resolve issues related to the safe delivery of care. Fundamentally, WRs are a form of observation and engagement with quality

► Additional material is published online only. To view please visit the journal online

WELCOME TO WELL-B

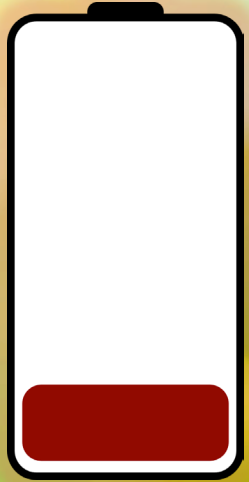


BURNOUT

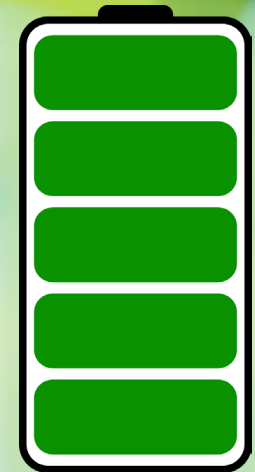
ATTITUDES ARE CONTAGIOUS. MINE MIGHT KILL YOU.

WELCOME TO
WELL-B

despair.com



Burnout is contagious, but so is well-being...



WELCOME TO
WELL-B



Short Report

Having With L



Olga Sta
Department of

Abstract

Studies ha
satisfactio
to the ult
($N = 4,37$
associate
(e.g., ho
analyses
satisfact
epidem

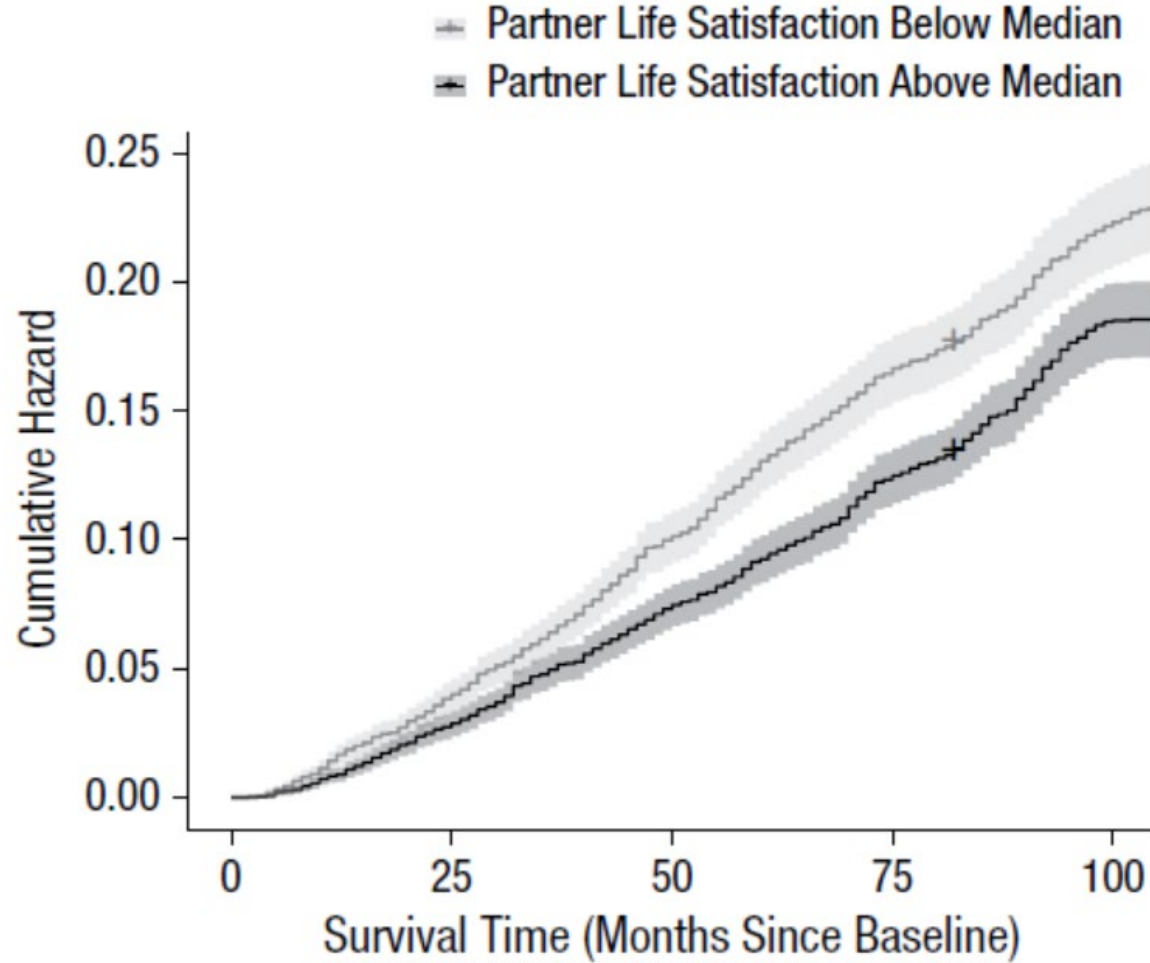


Fig. 1. Cumulative hazard of death (including 95% confidence bands) during the observation period. Results are shown separately for individuals whose spouses reported life satisfaction below the median at baseline and those whose spouses reported life satisfaction above the median at baseline.

Psychological Science
19, Vol. 30(5) 798–803
The Author(s) 2019



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DOI: 10.1177/0956797619835147
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nes, from their relationship
spouse extends even further,
e sample of elderly couples
f spousal life satisfaction was
ples' socioeconomic situation
health. Exploratory mediation
these findings suggest that life
and contribute to the fields of

Cognitive Vulnerability to Depression Can Be Contagious

Clinical Psychological Science
XX(X) 1–11

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DOI: 10.1177/2167702613485075

cpx.sagepub.com



Gerald J. Haeffel and Jennifer L. Hames

Department of Psychology, University of Notre Dame

Abstract

Cognitive vulnerability is a potent risk factor for depression that often begins in early adolescence and remains stable over time. We hypothesized that cognitive vulnerability could change via a contagion effect. We tested this hypothesis using a prospective design with a sample of randomly assigned college freshmen roommate pairs (103 pairs). Results supported our 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

a person’s future level of cognitive vulnerability was significantly affected by his or her roommate’s baseline level of cognitive vulnerability (and vice versa)

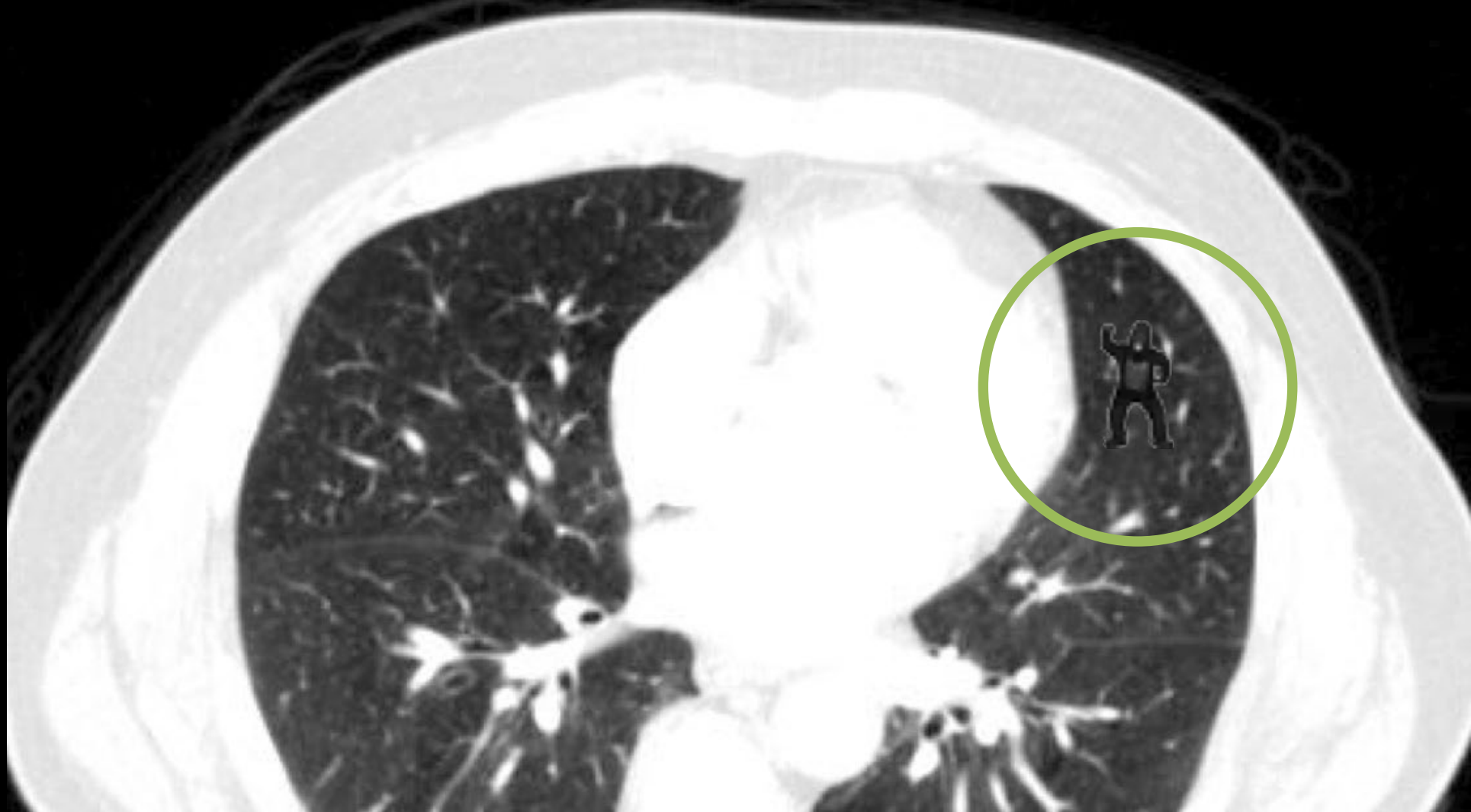


Psychology of Burnout
Your focus and reflections
determine your reality

Psychology of Burnout

Your **focus**
determines
your reality





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
© Springer-Verlag Berlin Heidelberg 2014

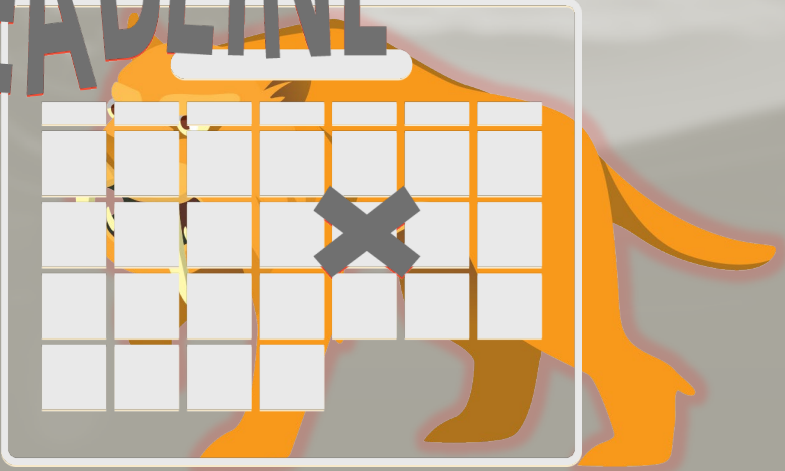
Abstract Whether emotional information processing is affected in burnout is unclear. The aim of this study was to investigate the advance of the burnout syndrome on attentional processing in depression and depression. Eye-tracking was used to assess overt attentional deployment. The gaze of 54 human 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.

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

accomplishment. Emotional exhaustion, the hallmark of burnout, denotes a state of fatigue and helplessness; it reflects the worker's response to unresolved 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



DEADLINE



What is well-being?

The ability to see the good *and* the bad across situations.



**Burnout is intense, can we
cause it to go down?**

Bite-Sized Well-being

- Burnout
 - Prevalent
 - Bad for patients & workforce
 - Treatable using evidence based tools

we packaged the best available evidence for busy healthcare workers BSWB:

- **Simple**
- **Brief**
- **Recovery comes quickly**
- **Benefits endure**

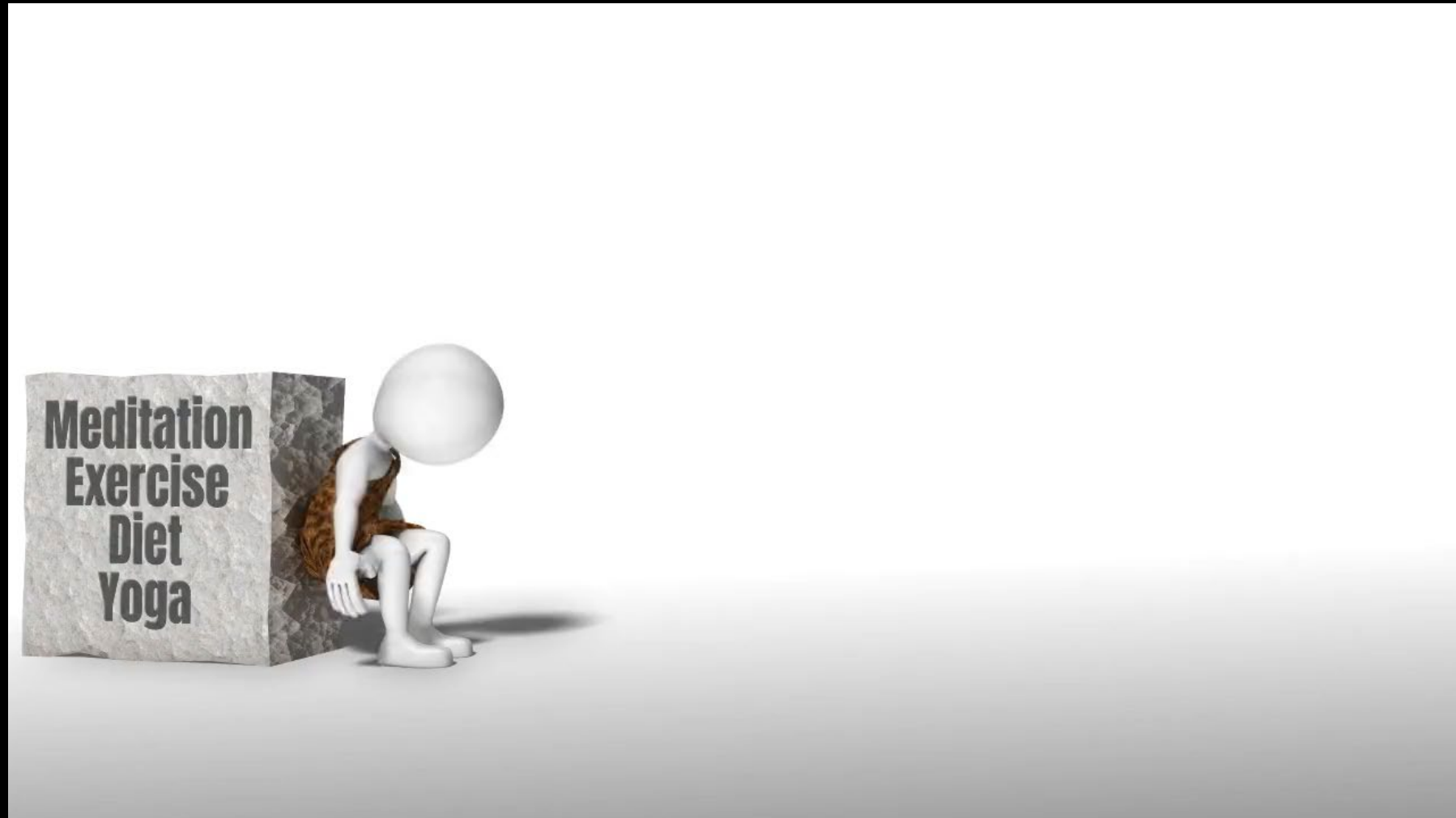


CAWS Packaged Well-being Interventions

text messages: **WISER**

Zoom: **WELL-B**

We need bite-sized strategies



Randomized controlled trial of the “WISER” intervention to reduce healthcare worker burnout

Jochen Profit^{1,2} · Kathryn C. Adair^{3,4} · Xin Cui^{1,2} · Briana Mitchell¹ · Debra Brandon^{5,6} · Daniel S. 1 Joseph Rigdon⁸ · Jeffrey B. Gould^{1,2} · Henry C. Lee^{1,2} · Wendy L. Timpson⁹ · Martin J. McCaffre Alexis S. Davis¹ · Mohan Pammi¹¹ · Melissa Matthews¹² · Ann R. Stark¹³ · Lu-Ann Papile¹⁴ · Eric Tho Michael Cotten¹⁶ · Amir Khan¹⁴ · J. Bryan Sexton^{3,4}

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Abstract

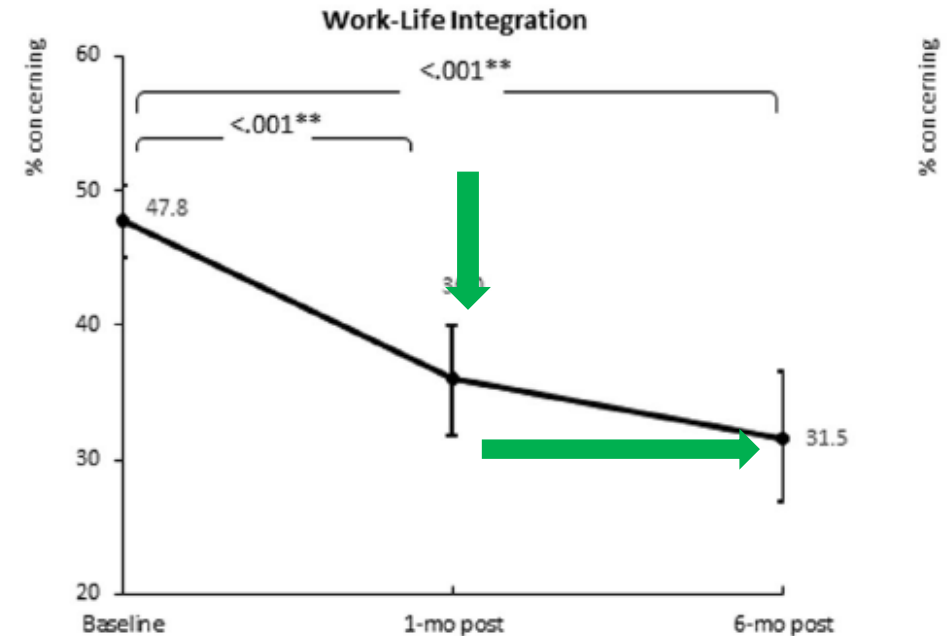
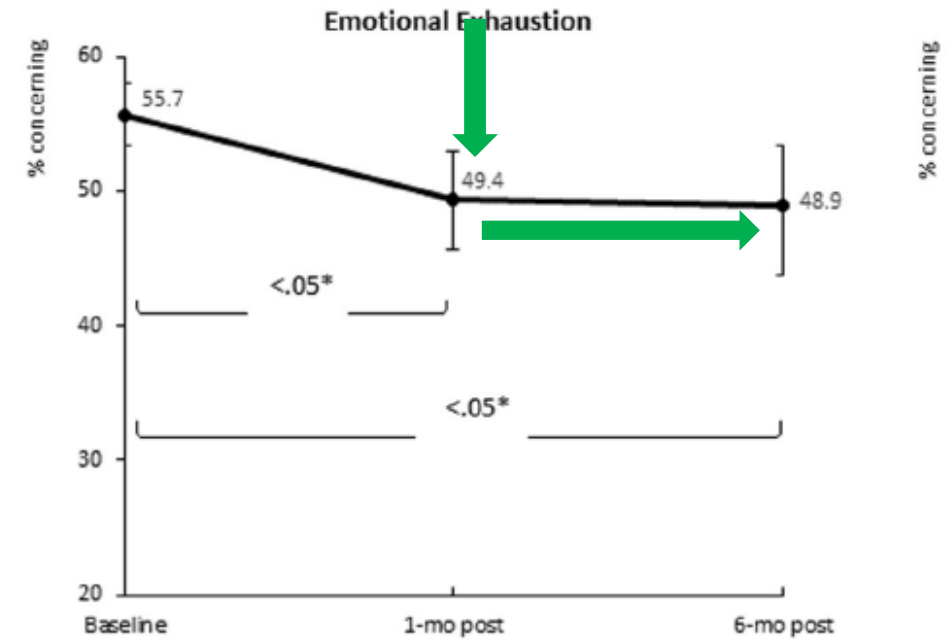
Objective Test web-based implementation for the science of enhancing resilience (WISER) intervention efficacy for healthcare worker (HCW) burnout.

Design RCT using two cohorts of HCWs of four NICUs each, to improve HCW well-being (primary outcome). Cohort 1 received WISER while Cohort 2 acted as a waitlist control.

Results Cohorts were similar, mostly female (83%) and nurses (62%). In Cohorts 1 and 2 respectively, 182 and 176 completed 1-month follow-up, and 78 and 146 completed 6-month follow-up. Relative to waitlist control, WISER decreased burnout (-5.27 (95% CI: $-10.44, -0.10$), $p = 0.046$). Combined adjusted cohort results showed that the percentage of HCWs reporting concerning outcomes was significantly decreased for burnout (CI: -11.6% , -1.0%); $p = 0.008$), and secondary outcomes depression (-5.2% (95%CI: $-10.8, -0.4$); $p = 0.008$) and work-life integration (-11.8% (95%CI: $-17.9, -6.1$); $p < 0.001$). Improvements endured at 6 months.

Conclusion WISER appears to durably improve HCW well-being.

Clinical Trials Number NCT02603133; <https://clinicaltrials.gov/ct2/show/NCT02603133>



Check for updates

OPEN ACCESS

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Effectiveness of a bite-sized web-based intervention to improve healthcare worker wellbeing: A randomized clinical trial of WISER

J. Bryan Sexton^{1,2*}, Kathryn C. Adair^{1,2}, Xin Cui^{3,4},
 Daniel S. Tawfik⁵ and Jochen Profit^{3,4}

¹Department of Psychiatry, Duke University School of Medicine, Duke University Health System, Durham, NC, United States, ²Duke Center for Healthcare Safety and Quality, Duke University Health System, Durham, NC, United States, ³Division of Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine and Lucile Packard Children's Hospital, Palo Alto, CA, United States, ⁴California Perinatal Quality Care Collaborative, Palo Alto, CA, United States, ⁵Division of Pediatric Critical Care Medicine, Department of Pediatrics, Stanford University School of Medicine and Lucile Packard Children's Hospital, Palo Alto, CA, United States

Importance: Problems with the wellbeing of healthcare workers (HCWs) are widespread and associated with detrimental consequences for the workforce, organizations, and patients.

Objective: This study tested the effectiveness of the Web-based Implementation for the Science of Enhancing Resilience (WISER) intervention, a positive psychology program, to improve six dimensions of the wellbeing of HCWs.

Design: We conducted a randomized controlled trial of HCWs between 1 April 2018 and 22 July 2019. Cohort 1 received WISER daily for 10 days. Cohort 2 acted as a waitlist control before receiving WISER.

Setting: Web-based intervention for actively employed HCWs across the United States.

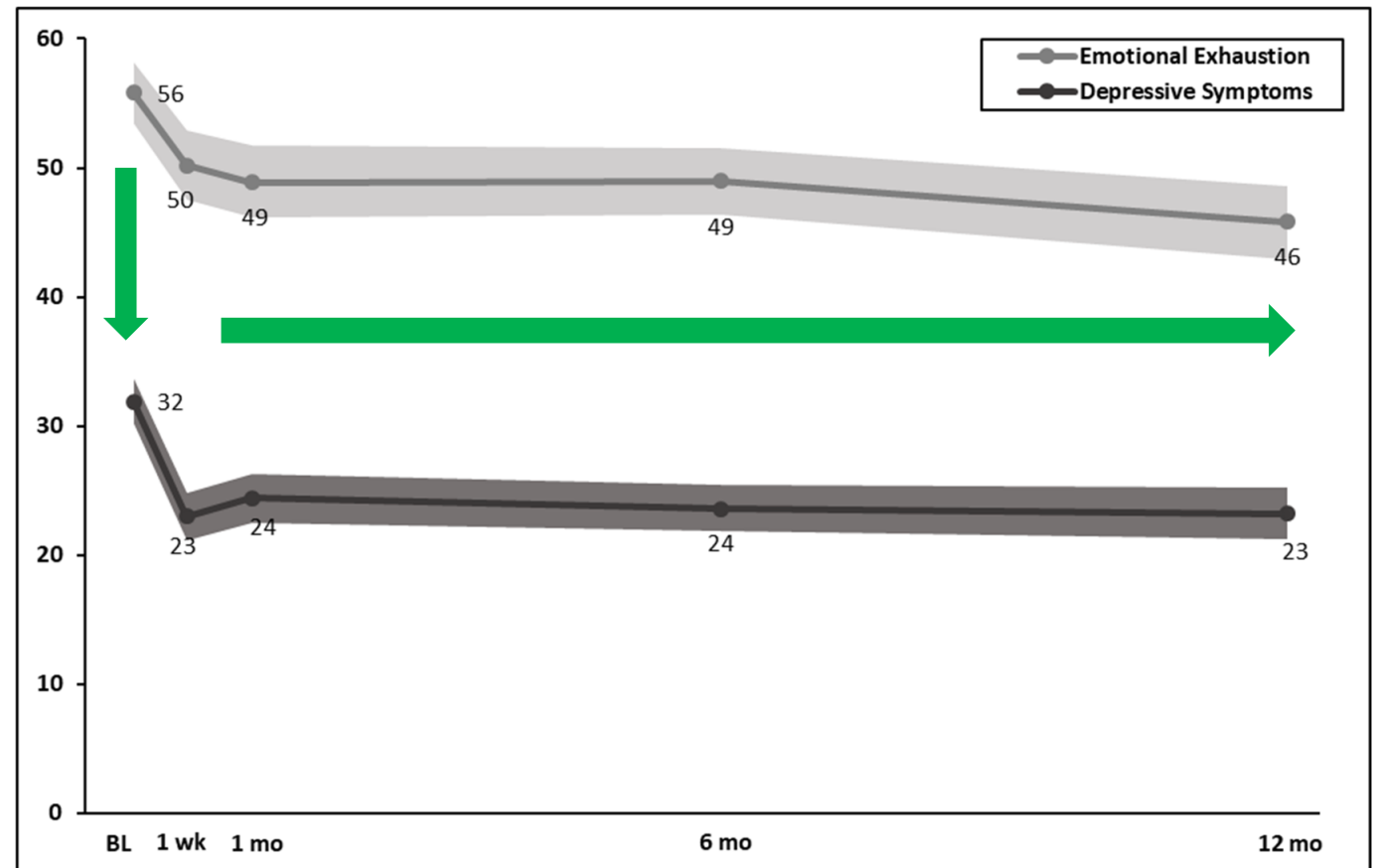
Participants: Eligibility criteria included being ≥18 years old and working as a HCW. Each participant was randomized to start the intervention or serve as a waitlist control for 14 days before starting the intervention.

Interventions: Cohorts received links via 10 texts exposing them to introductory videos and positive psychology exercises (3 good things, cultivating awe, random acts of kindness, cultivating relationships, and gratitude letters).

Main outcomes and measures: The primary outcome was emotional exhaustion; secondary outcomes included depressive symptoms, work-life integration, happiness, emotional thriving, and emotional recovery. All outcomes were assessed at baseline, 1-week post-intervention (primary endpoint), and 1, 6, and 12-month post-intervention. Outcomes were measured using six validated wellbeing instruments, rescaled to 100-point

Bite-Sized Well-Being: Randomized Clinical Trial of WISER

Figure 2. Effect of WISER for emotional exhaustion and depressive symptoms at 1-week, 1-, 6-, 12-month post intervention (100-point scale)



Dots in the middle line: Point estimates from mixed-effects models for each time point; Shaded areas: 95% Confidence intervals from mixed-effects models. BL: Baseline; 1 wk: 1-week post intervention; 1 mo: 1-month post intervention; 6 mo: 6-month post intervention; 12 mo: 12-

EE ↑ almost 9 pts during pandemic

CAWS Packaged Well-being Interventions

text messages: WISER ↓ EE 10 pts

Zoom: WELL-B ↓ EE ?? pts

Well-Being Hacks for Recovery



Well-Being Hacks for Recovery





Bite-sized Evidence-based Well-being Webinar Series

Cultivate Gratitude

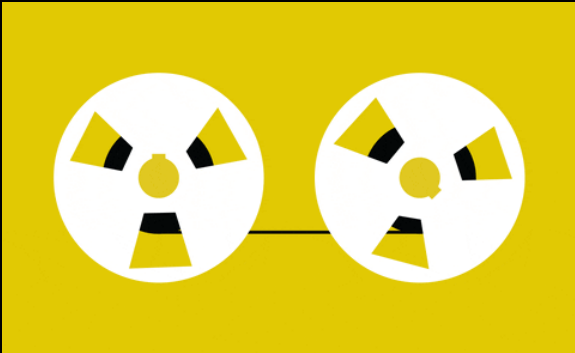
Cultivate Work-Life Balance

Self Compassion Tool

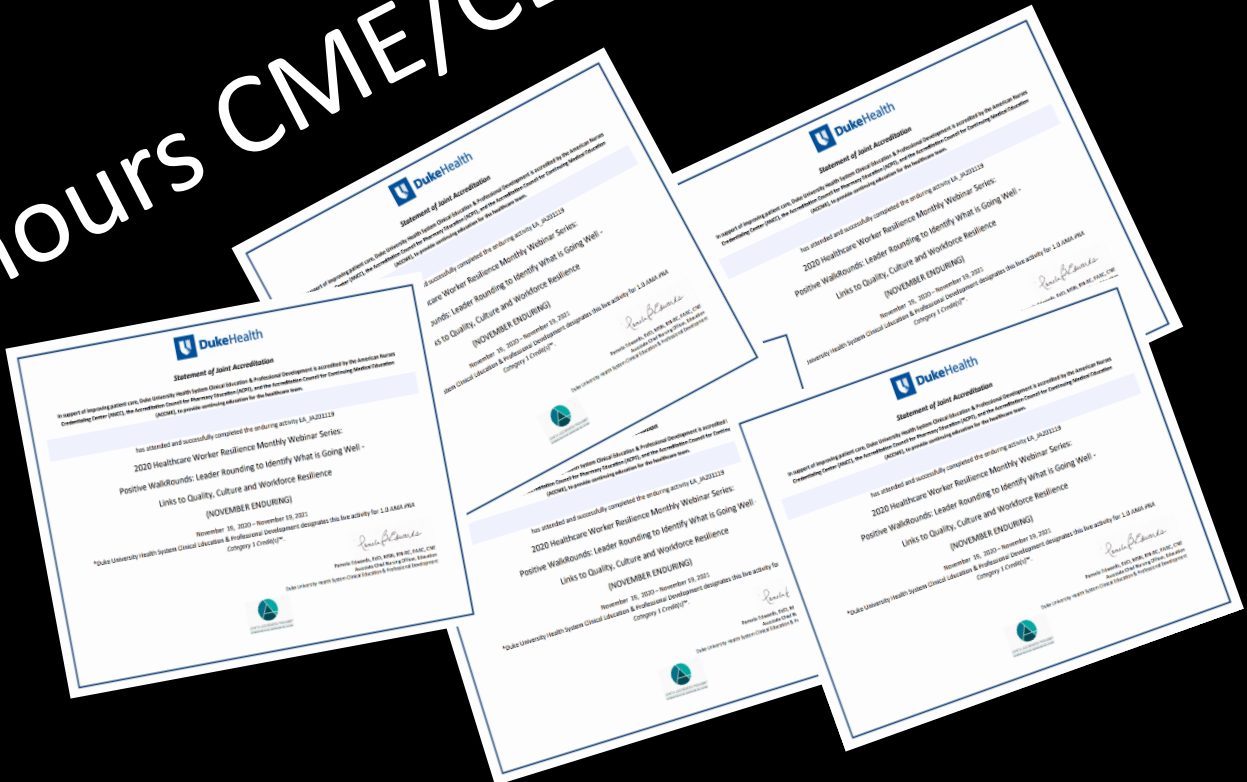
Cultivate Awe



Recorded



5 hours CME/CEU





Well-being Essentials for Learning Life-Balance (WELL-B)

Series Layout (10 of 60 minutes)

- **Session 1:** Gratitude as Easy Well-Being: New Science on an Old Practice
- **Session 2:** Work-Life Integration: Measuring & Understanding Health Care Worker Well-Being
- **Session 3:** The Voice in Your Head isn't Always Kind: Evidence-Based Self-Compassion
- **Session 4:** Science of Wow: Cultivating Awe and Wonder as a Well-Being Strategy
- **Session 5:** Group-level well-being, sharable resources and extended Q&A

Next start date: Jan 22, 2024



Session Layout (RAFT):



- **Research:** Share the evidence
- **Assessment:** your WELL-B check-in
- **Feedback:** your WELL-B report
- **Tool:** your WELL-B activity





Well-being Essentials for Learning Life-Balance (WELL-B)

Series Layout

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- **Session 4:** Science of Wow: Cultivating Awe and Wonder as a Well-Being Strategy
- **Session 5:** Group-level well-being, sharable resources and extended Q&A

Mon/Tues/Wed/Thurs and the next Mon

Cultivate Work-Life Balance bit.ly/wlbttool

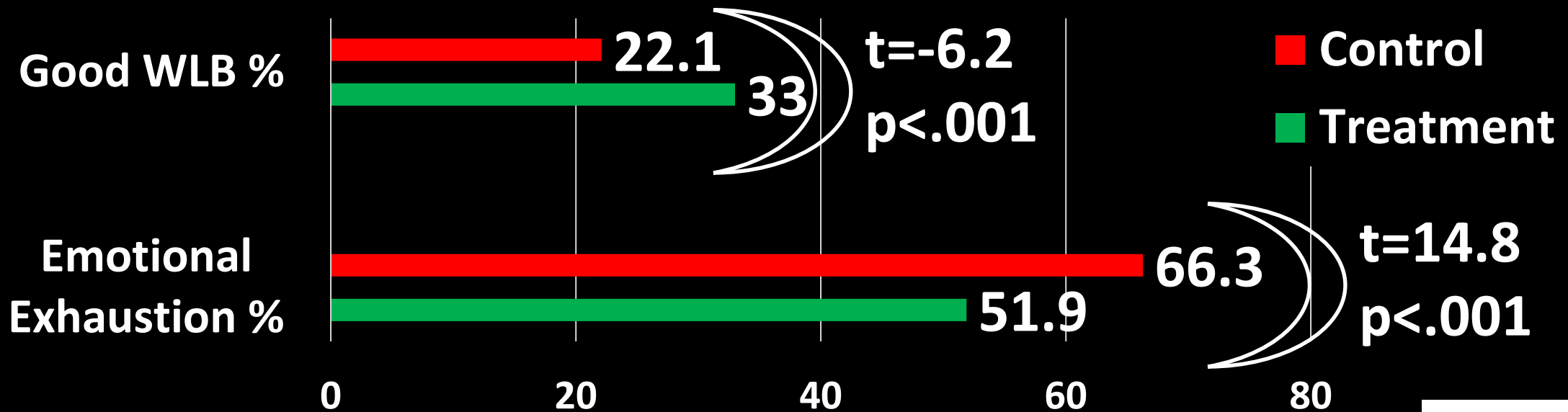
Cultivate Gratitude bit.ly/grattool

Self Compassion Tool bit.ly/selfcomptool

Cultivate Awe bit.ly/awetool



2023 RCT: WELL-B Essentials 5 Hr Participant Well-Being Assessments



EE ↓ 14.4 points



EE ↑ almost 9 pts during pandemic

CAWS Packaged Well-being Interventions

text messages: WISER ↓ EE **10** pts

Zoom: WELL-B ↓ EE **14** pts



03:00

To enroll:
bit.ly/wellbduke
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How? To enroll: bit.ly/wellbduke
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Duke Center for
Healthcare Safety and Quality



caws.dukehealth.org

What is burnout?

Christina Maslach, PhD
author of the
Maslach Burnout Inventory (MBI)
Professor Emeritus, Berkeley



MBI 3 Pillars of Burnout:

- **Emotional Exhaustion** (overwhelmed, drained, unable to meet demands)
- **Depersonalization** (callousness, seeing others as objects)
- **Inefficacy** (diminishes sense of accomplishment)

What is burnout?

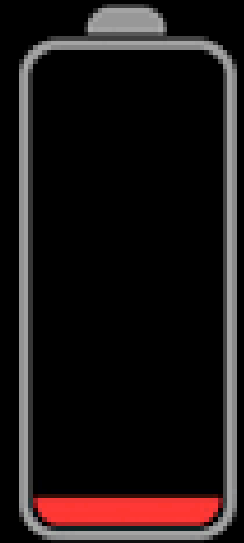
Burnout is what happens when it gets really hard to notice something funny, interesting, or amazing...



caws.dukehealth.org



Burnout, at its core,
is the impaired ability to
experience positive emotion.





Joy

Gratitude



Serenity



Interest



Hope



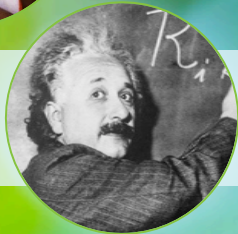
Pride



Amusement



Inspiration



Awe



Love



MEANING
AND
PURPOSE

Through
Positive
Emotions...

Positive Emotions
Recharge your
Batteries...



Social Connection: Positivity in Stereo



Having High-quality Social Connections Is Associated with:

Lower Rates of Anxiety and Depression

Cohen S, Wills TA. *Psychological Bulletin* 1985; 98 (2):310-357.

Better Immune Function

Kiecolt-Glaser et al. *Annual Review of Psychology* 2002; 53:83-107.

Cole S. *Current Directions in Psychological Science* 2009; 18(3):132-13.



Positive Emotions and Well-being

Kok BE, Fredrickson BL. *Biological Psychology* 2016; 117:240.

Lower rates of Cardiovascular Disease

Knox SS, Uvnas-Moberg K. *Psychoneuroendocrinology* 1998; 23:877-890.

Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad^{1*}, Timothy B. Smith^{2*}, 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 social relationships are linked to both morbidity and mortality.

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

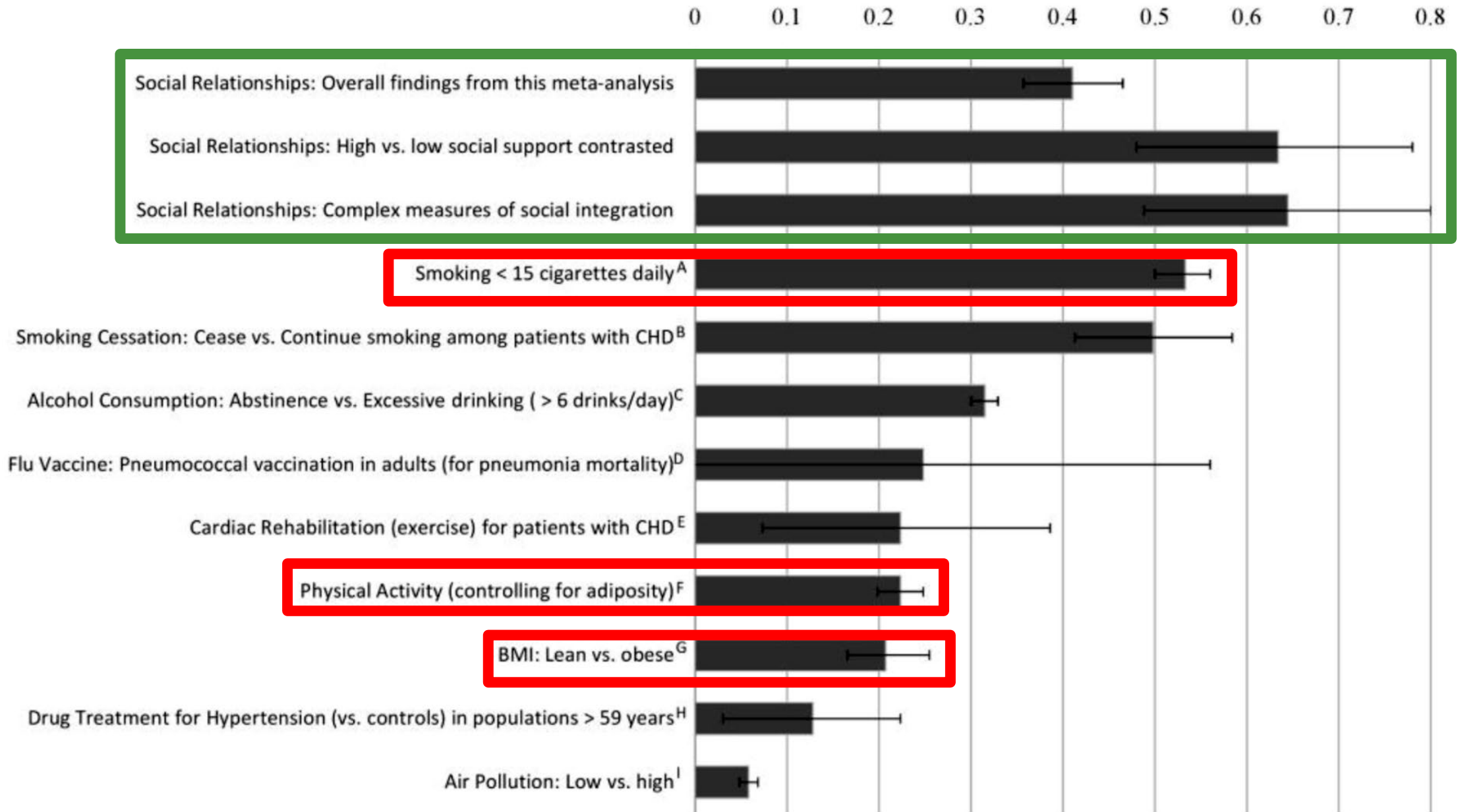
Data Extraction: Data were extracted on several participant characteristics, including cause of mortality, initial health status, and pre-existing health conditions, as well as on study characteristics, including length of follow-up and type of assessment of social relationships.

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.

50% increased chance of longevity for those with stronger relationships

Meaningful Connections Are a Health Behavior



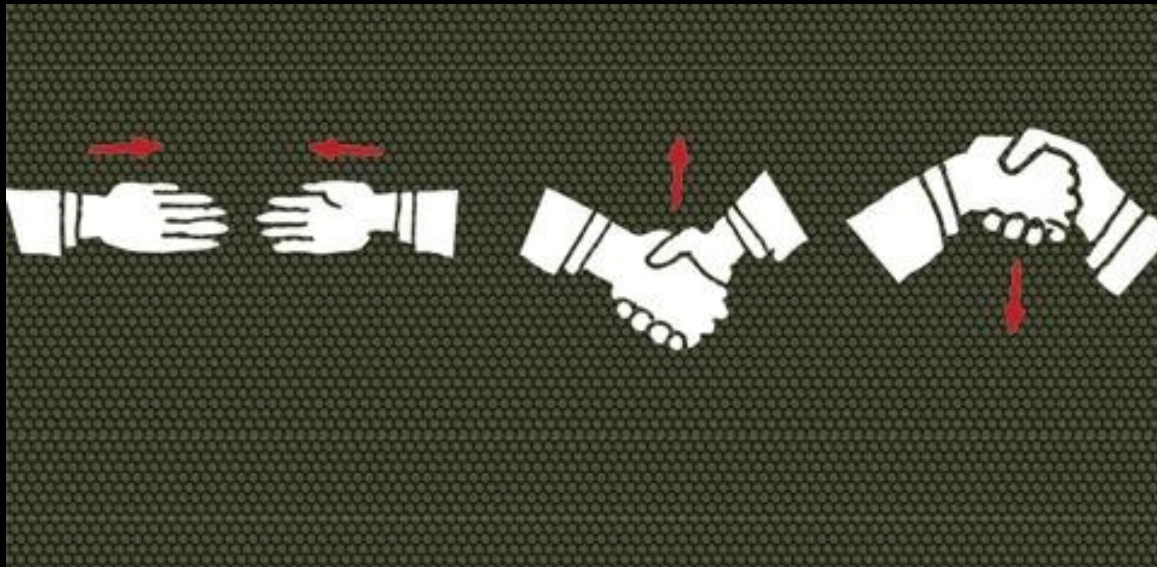




Buddy Up



optimizing oxytocin and serotonin - which boost mood and promote bonding - hold a handshake for at least six seconds.



The background of the slide features two dark blue silhouettes of people in conversation. One person on the left is gesturing with their hand while speaking, and the other on the right is listening with their hand on their hip. The entire scene is set against a light blue gradient background.

Active Destructive Responding

Finding the bad in the good:
where you find the cloud in the
silver lining

Passive Destructive Responding

Not caring at all about their news

Passive Constructive Responding

Not making a big deal out of it

**Active Constructive
Responding**

**Reacting positively, being
interested and caring about
their news.**

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.**

Switch to Bs!



- Coaching
- Certification
- Monthlies

bit.ly/dukewebinars





Joy

Gratitude



Serenity



Interest



Hope



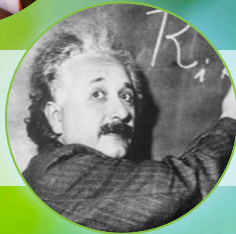
Pride



Amusement



Inspiration



Awe



Love



Duke Monthly Well-Being Webinar Series: bit.ly/wellmonthly —1 bite-sized tool each month, 1 hr cont ed, recorded, with Q&A

| | |
|-----------------|------------------------------------------------------------------------------------|
| JANUARY | Emotional Exhaustion before and During Covid: The need for Bite-Sized Well-Being |
| FEBRUARY | Neuroscience of Hope |
| MARCH | Best Reset Button Available: The Science of Sleep with Tips and Tricks |
| APRIL | Bite-Sized Well-Being: Three Good Things |
| MAY | Signature Strengths at Work |
| JUNE | Bite-Sized Mindfulness: Being Present in the Age of Distraction |
| JULY | Dealing with Difficult Colleagues: Assessing, Understanding and Improving Teamwork |
| AUGUST | Grief, Growth or Both?: A Primer on Recovery after Emotional Upheaval |
| SEPT | The Funny Thing about Well-being: Evidence for Humor |
| OCTOBER | Evidence-based Sleep Hygiene: Advanced Insights on Rest for the Weary |
| NOVEMBER | Relationship Resilience: The Science and Practice of How Other People Matter |
| DECEMBER | Enhancing Resilience: Survival of the Kindest |

Well-Being Ambassador Training

17 hours of CME/CEU

5 hrs WELLB Essentials
bit.ly/wellbduke

12 hrs of monthlies:
bit.ly/wellbmonthly



+



= 17

Enduring Resources

(for Pausing & Reflecting)



Institutional resources

Positive Rounding
 2nd Victim Support
 Leader Well-being Coaching
 Leader WalkRounds
 Well-being Ambassadors
 Monthly Well-being Cont Ed

vecteezy.com



Individual resources

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Simple joys Cultivate joy and playfulness. 2 minutes 8 days</p> | <p>Awe Cultivate awe. 10 minutes 2 days</p> |
| <p>Gratitude Cultivate gratitude. 10 minutes 2 days</p> | <p>3 Funny Things Cultivate humor. 2 minutes 8 days</p> |
| <p>Work-life balance Cultivate work-life balance. 2 minutes 4 days</p> | <p>Looking Forward Cultivate hope. 2 minutes 8 days</p> |
| <p>Interest Tool Cultivate engagement. 5 minutes 3 days</p> | <p>3 Good Minutes Cultivate mindfulness. 3 minutes 8 days</p> |
| <p>1 Door Closes, Another Opens Cultivate perspective. 10 minutes 2 days</p> | <p>Positive Feedback Cultivate the ability to uplift others. 3 minutes 8 days</p> |
| <p>Kindness Cultivate kindness. 3 minutes 8 days</p> | <p>Self-Compassion Cultivate a kinder internal voice. 10 minutes 2 days</p> |
| <p>1 Good Chat Cultivate relationships. 2 minutes 4 days</p> | <p>Grief Tool Cultivate support. 15 minutes 2 days</p> |
| <p>Serenity Cultivate routines and rituals. 2 minutes 4 days</p> | <p>Signature Strengths Cultivate your strengths. 3 minutes 8 days</p> |
| <p>Sleep Tool Cultivate rest. 2 minutes 8 days</p> | <p>3 Good Things Cultivate your uplifts. 2 minutes 15 days</p> |
| <p>WISER A sampler of multiple well-being tools. 5-in-1 tool 10 days</p> | <p>Your Burnout Story Cultivate healing through reflective writing. 20 minutes 3 days</p> |

WELCOME TO
WELL-B

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Enduring Resources

(for Pausing & Reflecting)



Institutional
resources

Positive Rounding

2nd Victim Support

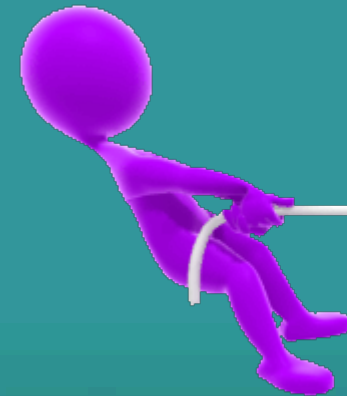
Leader Well-being Coaching

Leader WalkRounds

Well-being Ambassadors

Monthly Well-being Cont Ed

**Individual
resources**



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Enduring Resources

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Individual resources

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WELCOME TO
WELL-B

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Joy

Gratitude



Serenity



Interest

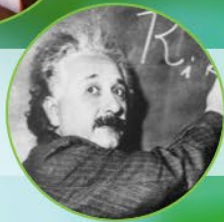


Hope



Pride

Amusement



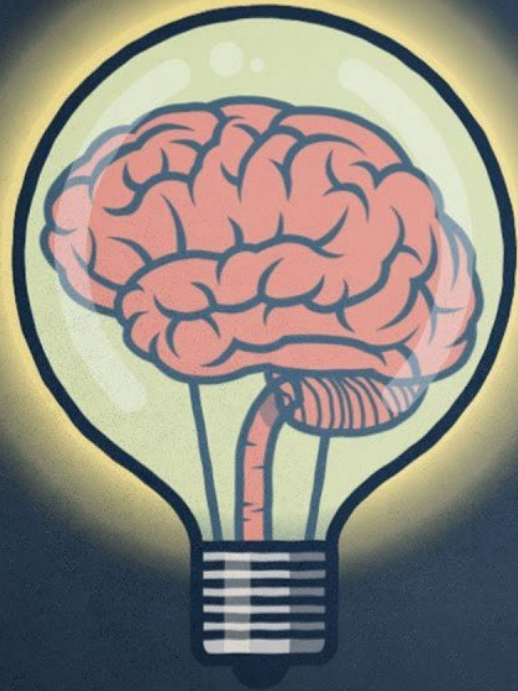
Inspiration



Awe

Love





HOPE THEORY

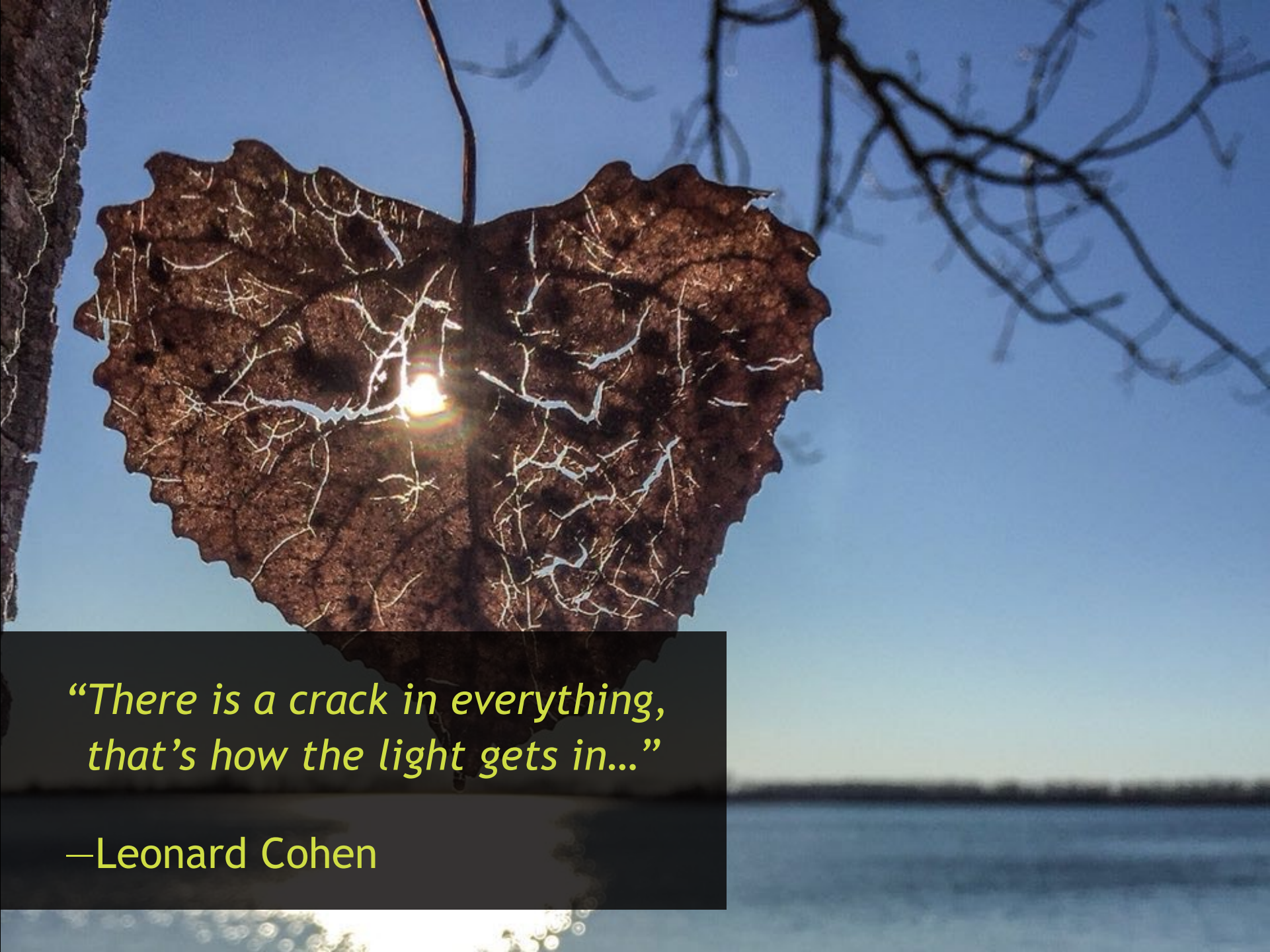


*“that which does not kill us,
makes us stronger”*

—Friedrich Nietzsche

*“There is a crack in everything,
that’s how the light gets in...”*

—Leonard Cohen




*“There is a crack in everything,
that’s how the light gets in...”*

—Leonard Cohen

*“There is a crack in everything,
that’s how the light gets in...”*

—Leonard Cohen





*“There is a crack in everything,
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*“There is a crack in everything,
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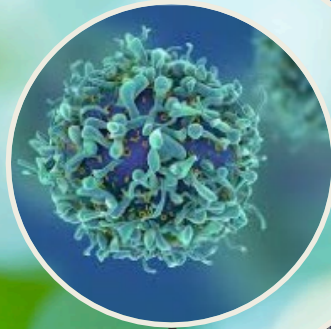
The opposite of depression
isn't happiness...

...it is hope



Optimism is Associated with:

Higher T Cell
Count/Immune
Functioning



Less
Chronic
Pain



Lower
Blood
Pressure

Lower all-cause
Mortality



What is the evidence?

Dispositional Optimism and All-Cause and Cardiovascular Mortality in a Prospective Cohort of Elderly Dutch Men and Women

Erik J. Giltay, MD, PhD; Johanna M. Geleijnse, PhD; Frans G. Zitman, MD, PhD; Tiny Hoekstra, PhD; Evert G. Schouten, MD, PhD

Background: Major depression is known to be related to higher cardiovascular mortality. However, epidemiological data regarding dispositional optimism in relation to mortality are scanty.

Objective: To test whether subjects who are optimistic live longer than those who are pessimistic.

Design: Our analysis formed part of a prospective population-based cohort study in the Netherlands (Arnhem Elderly Study).

Setting: General community.

Participants: Elderly subjects aged 65 to 85 years (999 men and women) completed the 30-item validated Dutch Scale of Subjective Well-being for Older Persons, with 5 subscales: health, self-respect, morale, optimism, and contacts. A total of 941 subjects (466 men and 475 women) had complete dispositional optimism data, and these subjects were divided into quartiles.

Main Outcome Measure: Number of deaths during the follow-up period.

Results: During the follow-up period of 9.1 years (1991-2001), there were 397 deaths. Compared with subjects with a high level of pessimism, those reporting a high level of optimism had an age- and sex-adjusted hazard ratio of 0.55 (95% confidence interval, 0.42-0.74; upper vs lower quartile) for all-cause mortality. For cardiovascular mortality, the hazard ratio was 0.23 (95% confidence interval, 0.10-0.55) when adjusted for age, sex, chronic disease, education, smoking, alcohol consumption, history of cardiovascular disease or hypertension, body mass index, and total cholesterol level. Protective trend relationships were observed between the level of optimism and all-cause and cardiovascular mortality ($P < .001$ and $P = .001$ for trend, respectively). Interaction with sex ($P = .04$) supported a stronger protective effect of optimism in men than women for all-cause mortality but not for cardiovascular mortality.

Conclusions: Our results provide support for a graded and independent protective relationship between dispositional optimism and all-cause mortality in old age. Prevention of cardiovascular mortality accounted for much of the effect.

Arch Gen Psychiatry. 2004;61:1126-1135

MANY STUDIES HAVE consistently linked depression to an excess risk of cardiovascular and all-cause mortality,¹⁻⁷ whereas relationships with positive aspects of personality have received less attention. The personality trait of optimism for a given individual is relatively stable across time and has been related to better health outcomes. However, optimism has been conceptualized in 2 rather different ways; that is, as an explanatory-style measure by Peterson et al⁸⁻¹⁰ (ie, the general belief that the causes of bad events are not one's own fault, are temporary, and are confined to the present circumstances rather than attributable to internal, stable, and/or global factors) and as dispositional optimism by Scheier et al¹¹⁻¹⁴

(ie, generalized outcome expectancies that good things rather than bad things will happen). On the one hand, evidence suggests that explanatory-style optimism has been associated with better health and lower morbidity and mortality.^{9,10,15-18} Explanatory-style optimism was associated with a lower incidence of coronary heart disease in cohort studies.^{16,18} On the other hand, dispositional optimism has been linked to medical staff ratings of better physical health after surgery for heart transplantation,¹⁹ a more rapid recovery from coronary artery bypass surgery,¹³ and a lower rate of rehospitalization after coronary artery bypass grafting.¹⁴ The related score for positive life orientation was linked to physicians' and patients' ratings of good recovery after hospitalization for myocardial infarction.²⁰ Another study found that

Author Affiliations: Psychiatric Center GGZ Delfland, Delft (Dr Giltay); Division of Human Nutrition, Wageningen University, Wageningen (Drs Geleijnse, Hoekstra, and Schouten); and Leiden University Medical Center, Department of Psychiatry, Leiden (Dr Zitman), the Netherlands.

Optimism is associated with exceptional longevity in 2 epidemiologic cohorts of men and women

Lewina O. Lee^{a,b,1}, Peter James^c, Emily S. Zevon^d, Eric S. Kim^{d,e}, Claudia Trudel-Fitzgerald^{d,e}, Avron Spiro III^{b,f,g}, Francine Grodstein^{h,i,2}, and Laura D. Kubzansky^{d,e,2}

^aNational Center for Posttraumatic Stress Disorder, Veterans Affairs Boston Healthcare System, Boston, MA 02130; ^bDepartment of Psychiatry, Boston University School of Medicine, Boston, MA 02118; ^cDepartment of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA 02215; ^dDepartment of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health, Boston, MA 02115; ^eLee Kum Sheung Center for Health and Happiness, Harvard T.H. Chan School of Public Health, Boston, MA 02115; ^fMassachusetts Veterans Epidemiology Research and Information Center, Veterans Affairs Boston Healthcare System, Boston, MA 02130; ^gDepartment of Epidemiology, Boston University School of Public Health, Boston, MA 02118; ^hDepartment of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA 02115; and ⁱChanning Division of Network Medicine, Brigham and Women's Hospital, Boston, MA 02115

Edited by Bruce S. McEwen, The Rockefeller University, New York, NY, and approved July 30, 2019 (received for review January 18, 2019)

Most research on exceptional longevity has investigated biomedical factors associated with survival, but recent work suggests nonbiological factors are also important. Thus, we tested whether higher optimism was associated with longer life span and greater likelihood of exceptional longevity. Data are from 2 cohorts, women from the Nurses' Health Study (NHS) and men from the Veterans Affairs Normative Aging Study (NAS), with follow-up of 10 y (2004 to 2014) and 30 y (1986 to 2016), respectively. Optimism was assessed using the Life Orientation Test-Revised in NHS and the Revised Optimism-Pessimism Scale from the Minnesota Multiphasic Personality Inventory-2 in NAS. Exceptional longevity was defined as survival to age 85 or older. Primary analyses used accelerated failure time models to assess differences in life span associated with optimism; models adjusted for demographic confounders and health conditions, and subsequently considered the role of health behaviors. Further analyses used logistic regression to evaluate the likelihood of exceptional longevity. In both sexes, we found a dose-dependent association of higher optimism levels at baseline with increased longevity (P trend < 0.01). For example, adjusting for demographics and health conditions, women in the highest versus lowest optimism quartile had 14.9% (95% confidence interval, 11.9 to 18.0) longer life span. Findings were similar in men. Participants with highest versus lowest optimism levels had 1.5 (women) and 1.7 (men) greater odds of surviving to age 85; these relationships were maintained after adjusting for health behaviors. Given work indicating optimism is modifiable, these findings suggest optimism may provide a valuable target to test for strategies to promote longevity.

optimism | longevity | aging | psychological well-being | longitudinal study

As life span has increased in industrialized countries, exceptional longevity—commonly defined as survival to 85 y (1)—has become less rare. Research across diverse organisms consistently demonstrates that increases in life span are often accompanied by delayed morbidity (2). Therefore, factors that promote exceptional longevity are highly relevant to public health as they may extend the duration of good health (also known as “health span”; ref. 3). Research on exceptional longevity has largely focused on identifying biomedical factors (e.g., genetic variants) associated with increased survival, but emerging evidence suggests nongenetic factors also contribute. Recent epidemiologic studies have identified psychosocial assets such as optimism as potential predictors of longer life, based on findings linking higher optimism to reduced risk of developing chronic diseases of aging and premature mortality (4–10).

Importantly, psychosocial assets are associated with health outcomes above and beyond their role in signaling the absence of poor psychosocial functioning (11), such as depression (4), and independent of sociodemographic confounders, health conditions, and health behaviors (12, 13). Identifying diverse positive

assets that promote health across the life course, particularly in aging, could contribute to optimal functioning and improved health. Among psychosocial factors that appear to be potential health assets (e.g., social integration; ref. 14), optimism has some of the strongest and most consistent associations with a wide range of health outcomes, including reduced risk of cardiovascular events, lung function decline, and premature mortality (4–10), and associations that are independent of other psychosocial factors such as depression, anxiety, or anger (12). Investigators have speculated that optimism may facilitate healthier biobehavioral processes, and ultimately longevity, because optimism directly contributes to how goals are translated into behaviors (15). Optimism is ~25% heritable but is also shaped by social structural factors and can be learned, as demonstrated in experimental research (e.g., refs. 16 and 17).

Higher levels of optimism have been linked to reduced risk of premature mortality (4); however, researchers have not considered the association between optimism and achievement of exceptional longevity (18–20). Although no standard definition for exceptional longevity has been established, it has been defined as surviving to older age, and age 85 is a commonly used cutoff (1, 21) as it is well beyond the average life expectancy of individuals born

Significance

Optimism is a psychological attribute characterized as the general expectation that good things will happen, or the belief that the future will be favorable because one can control important outcomes. Previous studies reported that more optimistic individuals are less likely to suffer from chronic diseases and die prematurely. Our results further suggest that optimism is specifically related to 11 to 15% longer life span, on average, and to greater odds of achieving “exceptional longevity,” that is, living to the age of 85 or beyond. These relations were independent of socioeconomic status, health conditions, depression, social integration, and health behaviors (e.g., smoking, diet, and alcohol use). Overall, findings suggest optimism may be an important psychosocial resource for extending life span in older adults.

Author contributions: F.G. and L.D.K. designed research; L.O.L., P.J., E.S.Z., E.S.K., and C.T.-F. performed research; L.O.L., P.J., and E.S.Z. analyzed data; and L.O.L., P.J., E.S.Z., E.S.K., C.T.-F., A.S., F.G., and L.D.K. wrote the paper.

Conflict of interest statement: E.S.K. has worked as a consultant with AARP and United Health Group.

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²F.G. and L.D.K. contributed equally to this work.

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Optimism, Cynical Hostility, and Incident Coronary Heart Disease and Mortality in the Women's Health Initiative

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JoAnn E. Manson, MD, DrPH; Jennifer G. Robinson, MD, MPH; Milagros C. Rosal, PhD;
Greg J. Siegle, PhD; Karen A. Matthews, PhD

Background—Trait optimism (positive future expectations) and cynical, hostile attitudes toward others have not been studied together in relation to incident coronary heart disease (CHD) and mortality in postmenopausal women.

Methods and Results—Participants were 97 253 women (89 259 white, 7994 black) from the Women's Health Initiative who were free of cancer and cardiovascular disease at study entry. Optimism was assessed by the Life Orientation Test–Revised and cynical hostility by the cynicism subscale of the Cook Medley Questionnaire. Cox proportional hazard models produced adjusted hazard ratios (AHRs) for incident CHD (myocardial infarction, angina, percutaneous coronary angioplasty, or coronary artery bypass surgery) and total mortality (CHD, cardiovascular disease, or cancer related) over ≈8 years. Optimists (top versus bottom quartile ["pessimists"]) had lower age-adjusted rates (per 10 000) of CHD (43 versus 60) and total mortality (46 versus 63). The most cynical, hostile women (top versus bottom quartile) had higher rates of CHD (56 versus 44) and total mortality (63 versus 46). Optimists (versus pessimists) had a lower hazard of CHD (AHR 0.91, 95% CI 0.83 to 0.99), CHD-related mortality (AHR 0.70, 95% CI 0.55 to 0.90), cancer-related mortality (blacks only; AHR 0.56, 95% CI 0.35 to 0.88), and total mortality (AHR 0.86, 95% CI 0.79 to 0.93). Most (versus least) cynical, hostile women had a higher hazard of cancer-related mortality (AHR 1.23, 95% CI 1.09 to 1.40) and total mortality (AHR 1.16, 95% CI 1.07 to 1.27; this effect was pronounced in blacks). Effects of optimism and cynical hostility were independent.

Conclusions—Optimism and cynical hostility are independently associated with important health outcomes in black and white women. Future research should examine whether interventions designed to change attitudes would lead to altered risk. (*Circulation*. 2009;120:656-662.)

Key Words: cardiovascular diseases ■ mortality ■ women ■ hostility ■ optimism

Evidence suggests that psychological factors influence risk for cardiovascular disease (CVD) morbidity and mortality. Persistent negative affect, such as depression, anxiety, or anger, and cynical, hostile attitudes toward others predict CVD.¹⁻⁴ Recently, research has investigated the health effects of low levels of positive attributes.⁵ One attribute that has received particular attention is dispositional optimism, defined as the general expectation that good things, rather than bad things, will happen in the future.⁶ Evidence shows, for example, that optimistic individuals have a lower risk of rehospitalization after bypass surgery⁷ and are at reduced risk of mortality.^{8,9}

Clinical Perspective on p 662

Important gaps remain in understanding the role of psychosocial factors. These gaps include whether the associations between optimism and cynical hostility with CVD and

mortality vary by race or ethnicity, because most of the evidence is based on white participants. Second, optimism and cynical hostility are inversely related¹⁰ and have not been examined together extensively. Thus, it is not clear whether the effects are mirror images or whether they are independent of one another. Third, the link between incident coronary heart disease (CHD) and cynical hostility has been studied,¹¹ but not the link with optimism. The Women's Health Initiative¹² affords the largest sample to date to study health associations of optimism and cynical hostility prospectively in postmenopausal women. Our objectives were to determine the association of optimism and cynical hostility with a wide spectrum of cardiovascular risk factors, to assess the combined and independent influences of optimism and cynical hostility on incident CHD and mortality across 8 years of follow-up, and to evaluate associations by race/ethnicity.

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Three Good Tools: Positively reflecting backwards and forwards is associated with robust improvements in well-being across three distinct interventions

Kathryn C. Adair^a, Lindsay A. Kennedy^b and J. Bryan Sexton^{a,c}

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ABSTRACT

Burnout in healthcare workers (HCWs) is costly, consequential, and alarmingly high. Many HCWs report not having enough time or opportunities to engage in self-care. Brief, engaging, evidence-based tools have unique potential to alleviate burnout and improve well-being. Three prospective cohort studies tested the efficacy of web-based interventions: Three Good Things ($n = 275$), Gratitude Letter ($n = 123$), and the Looking Forward Tool ($n = 123$). Metrics were emotional exhaustion, depression, subjective happiness, work-life balance, emotional thriving, and emotional recovery. Across all studies, participants reported improvements in all metrics between baseline and post assessments, with two exceptions in study 1 (emotional thriving and happiness at 6 and 12-month post) and study 3 (optimism and emotional thriving at day 7). The Three Good Things, Gratitude Letter, and Looking Forward tools appear promising interventions for the issue of HCW burnout.

ARTICLE HISTORY

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KEYWORDS

Positive psychology interventions; Three Good Things; gratitude; hope; burnout; healthcare

Introduction

Globally, over half a billion people struggle with anxiety, depression or both, and the rates of these and other mental disorders are on the rise (World Health Organization, 2017). A recent study by the World Health Organization found that such disorders cost the global economy \$1 trillion in lost productivity each year (World Health Organization, 2017). The U.S. Department of Health and Human Services estimates that annually, one out of five adults have a mental illness, and less than half of them received mental health services (Hedden et al., 2015). The prevalence of suffering is high, and the utilization of resources is not keeping pace. This is particularly pronounced for healthcare workers (HCWs), who put themselves in sufferings' way at great personal cost to their own well-being (e.g. Mata et al., 2015; Shanafelt et al., 2015).

Roughly a third to a half of HCWs meet the criteria for burnout (Poghosyan et al., 2010; Shanafelt et al., 2019), and rates of burnout continue to climb. We know that HCW burnout is common (Poghosyan et al., 2010; Shanafelt et al., 2015), consequential to patients (i.e. mortality and healthcare acquired infection; Aiken et al., 2002; Cimiotti et al., 2012), interferes with the safe delivery of patient care (Hall et al., 2016), and the ability to engage in

quality improvement efforts (Adair et al., 2018). We also know burnout is bad for HCWs, with consequences ranging from marital problems (Kumar, 2016) to shorter life-span (Ahola et al., 2010). Moreover, recent evidence suggests burnout and problems with work-life balance are socially contagious (Petitta et al., 2017; Schwartz et al., 2019). In other words, eating lunch, taking breaks, and leaving work on time, as well as your burnout level, are variables that are associated with the behavior and well-being of your colleagues.

Positive emotion

Just as depression and anxiety have been linked to lower levels of positive emotions (Fredrickson, 2001; Gloria & Steinhart, 2016), the same has been found for burnout (Gong, Schooler, Yong, & Mingda, 2018). Research has consistently shown that experiencing positive emotion is a causal link in the chain of feeling greater purpose (Fredrickson et al., 2008) and recovery after emotional upheavals (Fredrickson et al., 2000). Positive emotions, like hope, serve as little engines that effectively recharge our depleted batteries (Fredrickson & Joiner, 2002; Gong & Li, 2017). In controlled experiments, positive emotions

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Both Dr. Adair and Dr. Sexton developed the tools, conducted the studies, performed analyses, and contributed to the write-up. Dr. Kennedy contributed to the development of the Looking Forward tool and the write up.

Supplemental data for this article can be accessed here.

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What is the evidence?

Optimists:

Live 8 years longer than pessimists

--More likely to pass 85 years

Lower all cause and CV mortality

--Significantly less likely to die from heart attacks

Have more robust immune systems

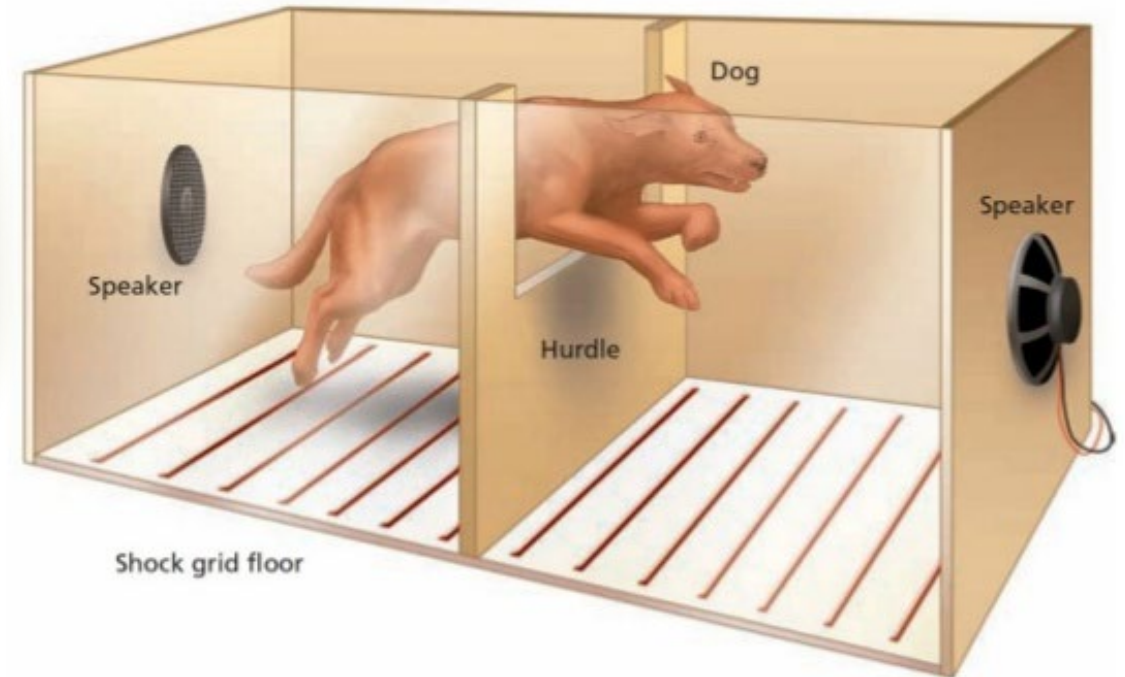
**Uncontrollable
bad events**

**Perceived lack
of control**

**Generalized
helpless
behavior**

Figure 5.11 Seligman's Apparatus

In Seligman's studies of learned helplessness, dogs were placed in a two-sided box. Dogs that had no prior experience with being unable to escape a shock would quickly jump over the hurdle in the center of the box to land on the "safe" side. Dogs that had previously learned that escape was impossible would stay on the side of the box in which the shock occurred, not even trying to go over the hurdle.



Maier and Seligman, 2016. *Psych Review*
Learned Helplessness at Fifty: Insights from Neuroscience

Seligman, Rosellini and Kozak, 1975 *JCPP*
LEARNED HELPLESSNESS IN THE RAT: TIME COURSE, IMMUNIZATION, & REVERSIBILITY

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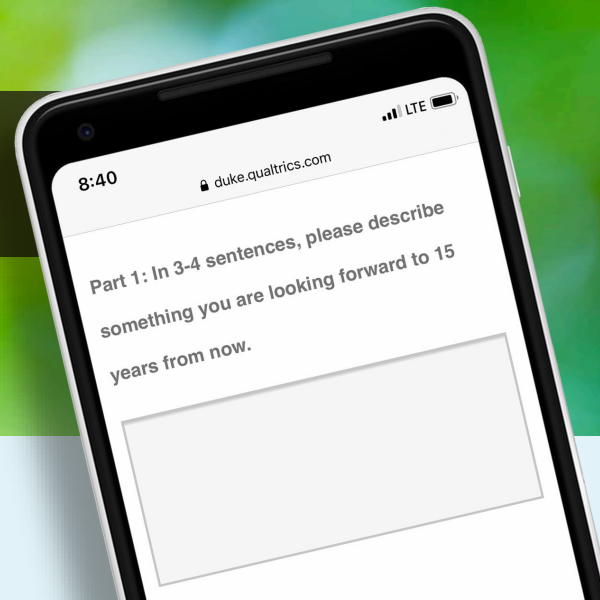
MARTIN E. P. SELIGMAN, Ph.D.

Author of *Authentic Happiness*

"Vaulted me out of my funk. . . . So, fellow moderate pessimists, go buy this book." —Marian Sandmaier, *The New York Times Book Review*

- Time to enroll:
2-5 minutes
- Time each evening:
2 minutes
- Time to finish:
8 days

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Time to complete: mean of 2.20 minutes, median of 1.75 minutes, and a mode of 1.20 minutes.

81%

agreed “I enjoyed this Looking Forward tool.”

94%

agreed “The Looking Forward tool was relatively straightforward.”

73%

agreed “I noticed that it got easier to use the tool over time.”



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Table 2: Changes in well-being metrics across all three studies

| | Time 0 (Baseline) | Time 1 | Time 2 | Time 3 | Time 4 |
|-----------------------------------|------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| | Mean (<i>SD</i>) | Baseline to T1: Mean (<i>SD</i>) <i>t, df</i> | Baseline to T2: Mean (<i>SD</i>) <i>t, df</i> | Baseline to T3: Mean (<i>SD</i>) <i>t, df</i> | Baseline to T4: Mean (<i>SD</i>) <i>t, df</i> |
| Study 1: Three Good Things | | | | | |
| Emotional Exhaustion | 62.32 (25.34) | 53.71 (25.52) 5.36, 145*** | 50.40 (27.40) 5.65, 88*** | 52.34 (27.26) 4.62, 84*** | 50.01 (27.91) 4.91, 112*** |
| Subjective Happiness | 64.14 (21.61) | 66.95 (20.22) -2.24, 145* | 69.87 (21.97) -1.91, 88* | 64.39 (23.37) -1.34 84 | 69.54 (20.6) -2.39, 115* |
| Work-life Balance | 2.32 (0.62) | 1.95 (0.51) 9.74, 145** | 1.81 (0.47) 9.10, 86*** | 1.93 (0.58) 5.96, 84*** | 1.9 (0.60) 8.65, 112*** |
| Depression Symptoms | 10.79 (5.87) | 8.03 (4.90) 6.35, 132*** | 7.02 (5.26) 7.86, 82*** | 7.83 (5.31) 4.31, 80*** | 7.29 (4.79) 5.45, 100*** |
| Emotional Thriving | 61.35 (25.34) | 65.93 (22.99) -3.47 144** | 66.43 (25.54) -2.27, 87 * | 64.78 (25.93) -1.67, 82 [†] | 68.69 (22.52) -1.72, 110 [†] |
| Emotional Recovery | 74.08 (19.69) | 77.21 (17.29) -2.38, 144* | 77.51 (19.40) -2.76, 87** | 77.28 (19.07) -3.89, 83** | 78.83 (17.64) -3.04, 112** |
| Study 2: Gratitude Letter | | | | | |
| Emotional Exhaustion | 61.38 (25.28) | 54.14 (26.44) 4.56, 122*** | | | |
| Subjective Happiness | 65.71 (17.25) | 68.73 (17.71) -3.05, 122** | | | |
| Work-life Balance | 2.33 (0.63) | 2.04 (0.59) 6.21, 121*** | | | |
| Study 3: Looking Forward | | | | | |
| Depression Symptoms | 9.46 (5.56) | 8.31 (5.27) 2.69, 86 ** | 7.06 (6.23) 2.75, 51** | | |
| Optimism | 5.12 (1.36) | 5.11 (1.24) .11, 86 | 5.37 (1.36) -2.49, 51* | | |
| Emotional Thriving | 67.7 (26.33) | 68.90 (26.33) -.75, 85 | 72.84 (27.83) -2.20, 51* | | |
| Emotional Recovery | 72.97 (20.68) | 77.25 (18.91) -2.87, 85** | 76.60 (20.02) -2.37, 51* | | |

*** $p < .001$, ** $p < .01$, * $p < .05$, [†] $p < .10$ **Note:** Baseline means, *SDs*, and *Ns* reported are those used in the baseline to T1 paired T-tests. Assessment timing for each study was as follows: Study 1 (T1 = Day 15; T2 = 1 month; T3 = 6 months; T4 = 12 months); Study 2 (T1 = 1 month); Study 3 (T1 = Day 7; T2 = Day 28).





What questions do you have?

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| MAY | Signature Strengths at Work |
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| AUGUST | Grief, Growth or Both?: A Primer on Recovery after Emotional Upheaval |
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Review

Stressor controllability and learned helplessness: The roles of the dorsal raphe nucleus, serotonin, and corticotropin-releasing factor

Steven F. Maier*, Linda R. Watkins

Department of Psychology and Center for Neuroscience, University of Colorado, Boulder, CO, USA

Abstract

The term 'learned helplessness' refers to a constellation of behavioral changes that follow exposure to stressors that are not controllable by means of behavioral responses, but that fail to occur if the stressor is controllable. This paper discusses the nature of learned helplessness, as well as the role of the dorsal raphe nucleus, serotonin, and corticotropin-releasing hormone in mediating the behavioral effects of uncontrollable stressors. Recent research indicates that (a) uncontrollable stressors sensitize serotonergic neurons in the dorsal raphe, and that a corticotropin-releasing factor-related ligand, acting at the Type II receptor, is essential to this sensitization process, and (b) the consequent exaggerated release of serotonin in response to subsequent input is at least in part responsible for the behavioral changes that occur. Finally, implications for the general role of corticotropin-releasing hormone in stress-related phenomena and for the learned helplessness paradigm as an animal model of either depression or anxiety are discussed.

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Keywords: Stress; Learned helplessness; Serotonin; Dorsal raphe nucleus; Amygdala; Bed nucleus of the stria terminalis; Corticotropin-releasing factor; Depression; Anxiety

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The main purposes of this paper are to (a) summarize recent work concerning the roles of serotonin (5-HT), the dorsal raphe nucleus (DRN), and corticotropin-releasing

hormone (CRH) in mediating the behavioral phenomenon that has been called behavioral depression (Weiss, 1968) and learned helplessness (Maier and Seligman, 1976), and (b) to discuss the implications of this work for the utility of learned helplessness/behavioral depression as a model of depression or antidepressant activity. However, because different investigators have used the term 'learned helplessness' to refer to very different procedures, it will first be useful to discuss what learned helplessness is, and what it is not.

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Learned Helplessness at Fifty: Insights from Neuroscience

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University of ColoradoMartin E. P. Seligman
University of PennsylvaniaSteven F. Maier: smaier@psych.colorado.edu

Abstract

Learned helplessness, the failure to escape shock induced by uncontrollable aversive events, was discovered half a century ago. Seligman and Maier (1967) theorized that animals learned that outcomes were independent of their responses—that nothing they did mattered – and that this learning undermined trying to escape. The mechanism of learned helplessness is now very well-charted biologically and the original theory got it backwards. Passivity in response to shock is not learned. It is the default, unlearned response to prolonged aversive events and it is mediated by the serotonergic activity of the dorsal raphe nucleus, which in turn inhibits escape. This passivity can be overcome by learning control, with the activity of the medial prefrontal cortex, which subserves the detection of control leading to the automatic inhibition of the dorsal raphe nucleus. So animals learn that they can control aversive events, but the passive failure to learn to escape is an unlearned reaction to prolonged aversive stimulation. In addition, alterations of the ventromedial prefrontal cortex-dorsal raphe pathway can come to subservise the expectation of control. We speculate that default passivity and the compensating detection and expectation of control may have substantial implications for how to treat depression.

Keywords

Learned Helplessness; Dorsal raphe nucleus; Ventromedial Prefrontal Cortex; Depression; Hope

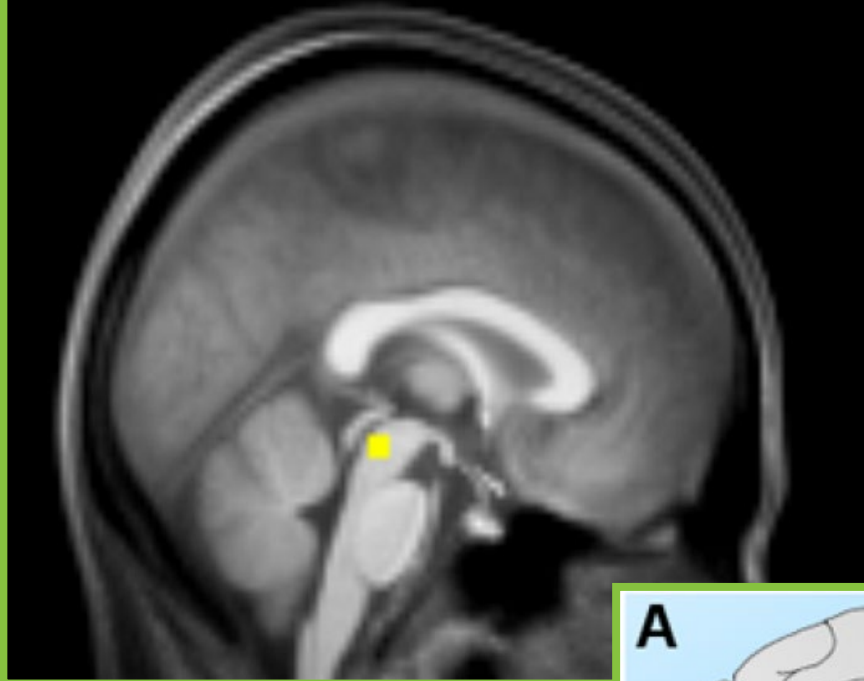
In the early 1960s, Richard Solomon and his students at the University of Pennsylvania wanted to know how prior Pavlovian fear conditioning would influence later instrumental learning. To find out they restrained dogs in a hammock and the dogs got 64 mild-moderate electric shocks to their back paws, each shock heralded by a tone. Twenty-four hours later the dogs were placed in a shuttlebox and were supposed to learn to escape shock by jumping a short barrier between the two chambers. The two-factor theory of avoidance learning

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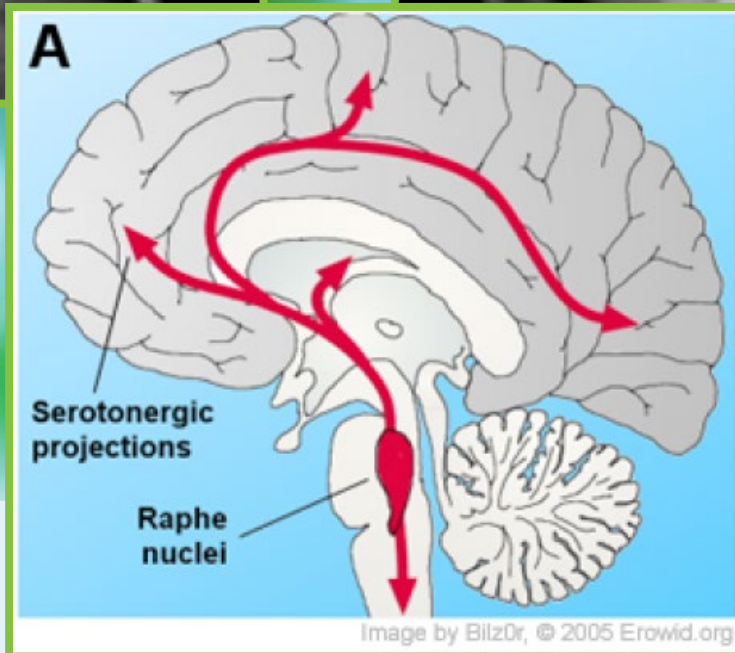
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Dorsal raphe nucleus
[0, -28, -12]



Medial prefrontal cortex
[6, 58, 0]



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Questions

Thank you

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