Gallup · Healthways
Well-Being Index™

America's Wellbeing in 2011

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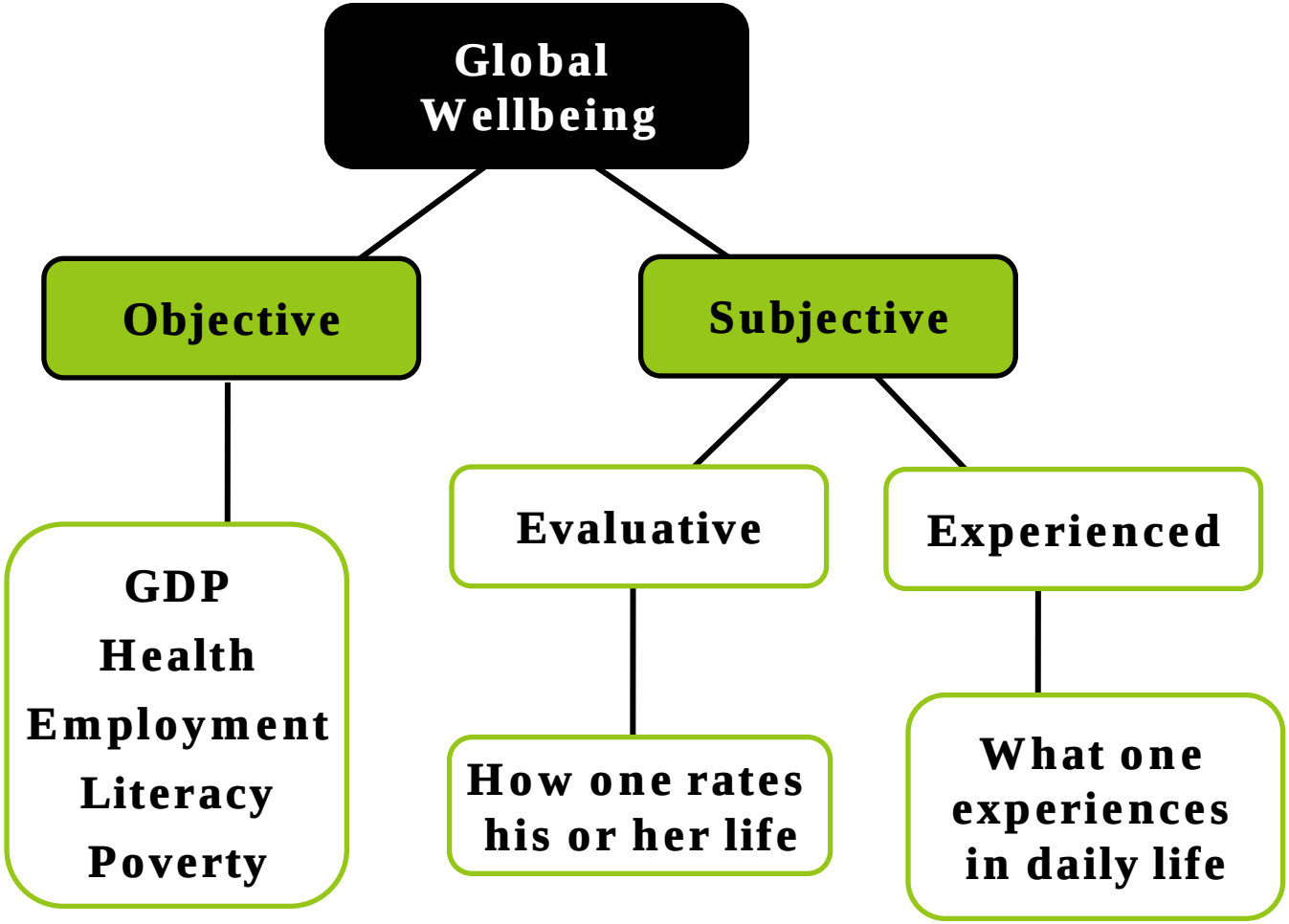
Gallup · Healthways Well-Being Index™

- 25-year commitment; initiated January 2, 2008.
- 1,000 completed surveys per day, 7 days per week, 350 days per year.
- English and Spanish
- Landline (n=600) and Cell (n=400)
- 95%+ coverage of U.S. adult population
- 1.4 million completed surveys and counting
- Sampling error for one year of data for any given item is about +/-0.2% ($p<.05$) nationally.
- Sampling error ($p<.05$) for states, congressional districts, and cities range from around +/-5.0% to under +/-1.0%.
- Well-Being Index (n=1,000 per month) launched in UK and Germany in 2011.

Well-Being Index Measures



The Gallup-Healthways Well-Being Index: A Comprehensive Approach to Measuring Wellbeing

Gallup-Healthways tracks 55 items that comprise six core sub-indexes to provide leaders with a comprehensive metric that covers six key interrelated areas of wellbeing:

Life Evaluation
Ranking one's life today and in the future

Emotional Health
Daily feelings; Clinical depression

Physical Health
Chronic conditions, obesity, physical pain, cold/flu

Healthy Behaviors
Smoking, healthy eating, exercise

Work Environment
Using strengths, supervisor relationships

Basic Access
Healthcare, community satisfaction, money for basics

Well-Being Index Composite Score
(Average of six sub-indexes)

Gallup · Healthways Well-Being Index

2011 Well-Being Index:

State and City Results

There is Range in Wellbeing in America, and it is Consistently Highly Regionalized

Overall Wellbeing Among the 50 States: The Top 10 and Bottom 11 in 2011

1. Hawaii
2. North Dakota
3. Minnesota
4. Alaska
5. Utah
6. Colorado
7. Kansas
8. Nebraska
9. New Hampshire
10. Montana

40. Tennessee, Nevada (tie)
42. Florida
43. Missouri
44. Arkansas
45. Alabama
46. Ohio
47. Delaware
48. Mississippi
49. Kentucky
50. West Virginia

The WBI Sub-Indexes:
Life Evaluation, Emotional Health, and Physical Health

Life Evaluation

Best: Alaska (1st), Hawaii (2nd)

Worst: West Virginia (50th), Kentucky (49th)

Emotional Health

Best: Hawaii (1st), North Dakota (2nd)

Worst: Kentucky (50th), West Virginia (49th)

Physical Health

Best: Minnesota (1st), New Hampshire (2nd)

Worst: West Virginia (50th), Kentucky (49th)

The WBI Sub-Indexes:
Healthy Behaviors, Work Environment, Basic Access

Healthy Behaviors

Best: Hawaii (1st), New Hampshire (2nd)

Worst: Oklahoma (50th), Kentucky (49th)

Work Environment

Best: North Dakota (1st), Vermont (2nd)

Worst: Delaware (50th), Mississippi (49th)

Basic Access

Best: Massachusetts (1st), Minnesota (2nd)

Worst: Mississippi (50th), Nevada (49th)

Overall Wellbeing Among Metro Areas: The Top 10 and Bottom 10 in 2011

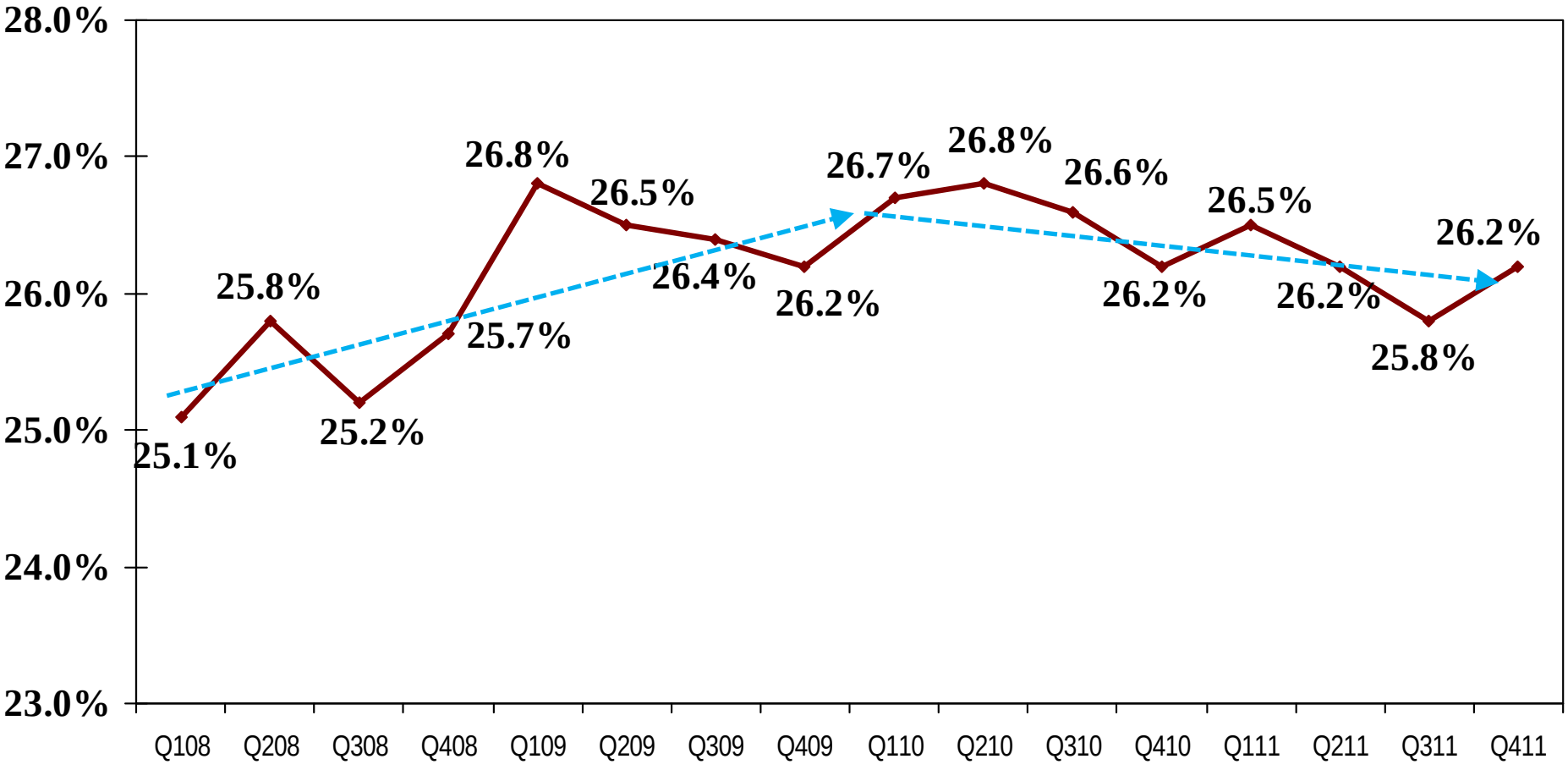
1. Lancaster, PA
2. Charlottesville, VA
3. Ann Arbor, MI
4. Provo-Orem, UT
5. Boulder, CO
6. Honolulu, HI
7. Santa Barbara, CA
8. San Jose, CA
9. Fort Collins, CA
10. Appleton, WI

181. Mobile, AL
182. Charleston, WV
183. Utica-Rome, NY
184. Lakeland-Winter Haven, FL
185. Hickory-Lenoir, NC
186. Port St. Lucie, FL
187. Fort Smith, AR-OK
188. Kingsport-Bristol, TN-VA
189. Flint, MI
190. Huntington-Ashland, WV-KY-OH

Obesity in America:

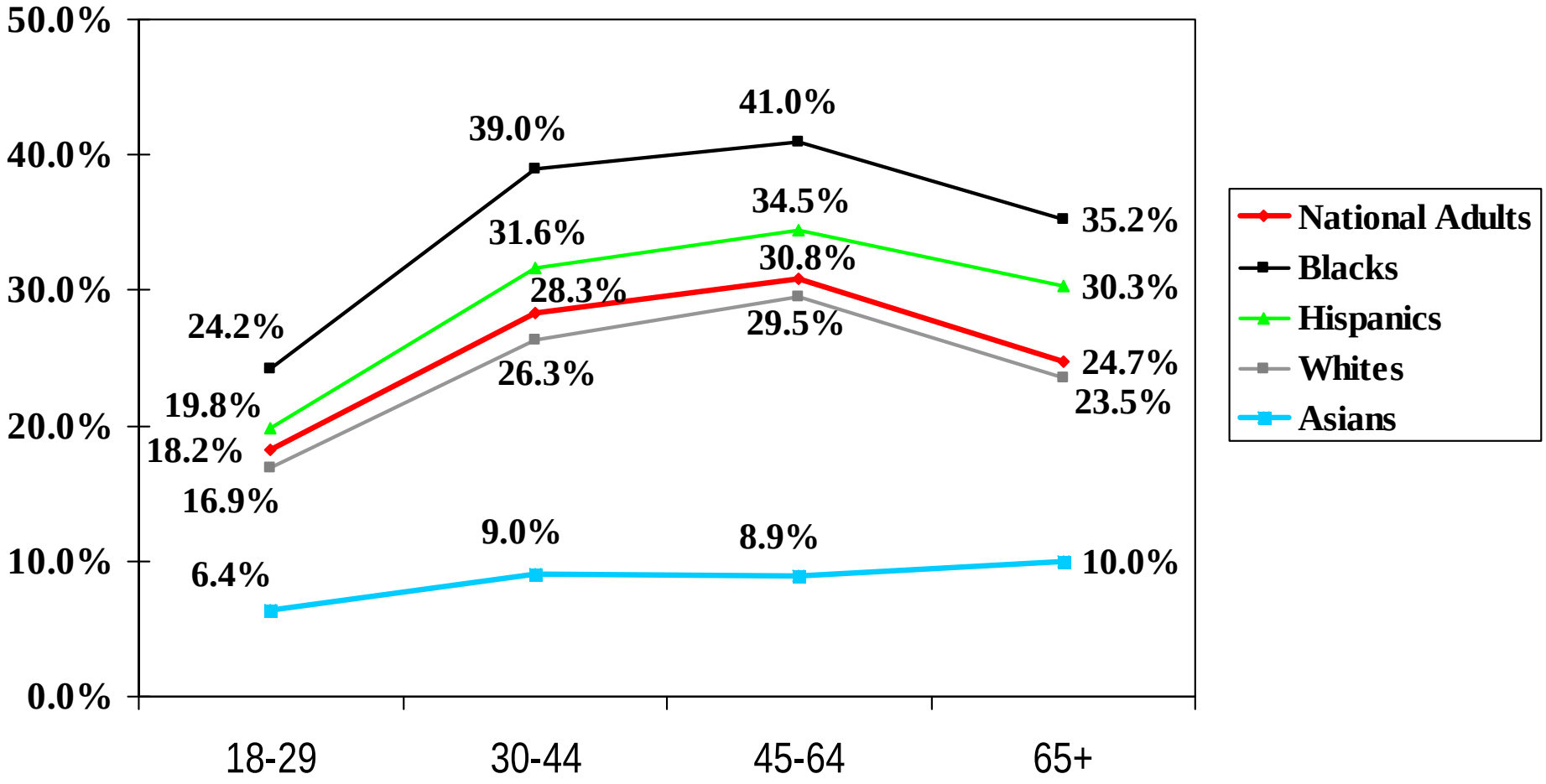
Trends and Costs

The Good News is That Obesity Appears to Have Plateaued...and May Be Slowly Declining



Gallup · Healthways Well-Being Index

Obesity is Shockingly High for Middle Aged Blacks and Hispanics



The 10 Most Obese and Least Obese States in America in 2011

1. Colorado (18.5%)
2. Utah (21.6%)
3. Rhode Island (21.6%)
4. Massachusetts (22.2%)
5. Connecticut (22.3%)
6. Montana (22.3%)
7. New Jersey (22.5%)
8. California (22.5%)
9. Hawaii (23.3%)
10. New Mexico (23.3%)

41. South Carolina (29.1%)
42. Oklahoma (29.1%)
43. Ohio (29.3%)
44. Indiana (29.4%)
45. Kentucky (29.5%)
46. Arkansas (29.7%)
47. Louisiana (30.3%)
48. Mississippi (32.2%)
49. Delaware (32.7%)
50. West Virginia (35.3%)

State Level Improvement?

No states increased in obesity in 2011...

...but, only two states had statistically significant decline:

Kentucky (32.0% to 29.5%)

New Jersey (24.2% to 22.5%)

The 10 Most Obese Metros in America in 2011

1. McAllen-Edinburg-Mission, TX (38.8%)
2. Binghamton, NY (37.6%)
3. Huntington-Ashland, WV-KY-OH (36.0%)
4. Rockford, IL (35.5%)
5. Beaumont-Port Arthur, TX (33.8%)
6. Charleston, WV (33.8%)
7. Lakeland-Winter Haven, FL (33.5%)
8. Topeka, KS (33.3%)
9. Kennewick-Pasco-Richland, WA (33.2%)
10. Reading, PA (32.7%)

The Cost of Obesity

$1,429.00:

The incremental cost of healthcare per person per year due to obesity (NIH)

Obesity Costs American Cities a LOT of Money in Incremental Health Care Costs

Metropolitan Statistical Area	% Obese	Savings in Healthcare Costs at 15% Obesity
McAllen-Edinburg-Mission, TX	38.8	**$252,067,278**
Binghamton, NY	37.6	**$79,024,906**
Huntington-Ashland, WV-KY-OH	36.0	**$85,712,906**
Rockford, IL	35.5	**$103,621,091**
Beaumont-Port Arthur, TX	33.8	**$101,678,603**
Charleston, WV	33.8	**$81,727,700**
Lakeland-Winter Haven, FL	33.5	**$154,231,334**
Topeka, KS	33.3	**$60,362,092**
Kennewick-Pasco-Richland, WA	33.2	**$63,887,901**
Reading, PA	32.7	**$102,975,348**

Community-Based Interventions

What Role Does the Environment Play in Influencing the Emotional and Physical Health of a Community?

Walkability and Green Space

- Sarah Pressman, PhD., University of Kansas
- City Data Gathered from:
  - Governmental & NGO sources
    - Environmental working group
    - US Census
    - Center for City Park Excellent, Trust for Public Land
    - American Lung Association
  - Private Research Websites (e.g., city-data.com, walkscore.com)

Green Space: The Importance of City Parks

Top Cities for % of Space:

Anchorage
Albuquerque
San Diego
NYC
DC

Bottom Cities for % of Space:

Honolulu
Stockton
Corpus Christi
Fresno
Tucson

Green Space Matters

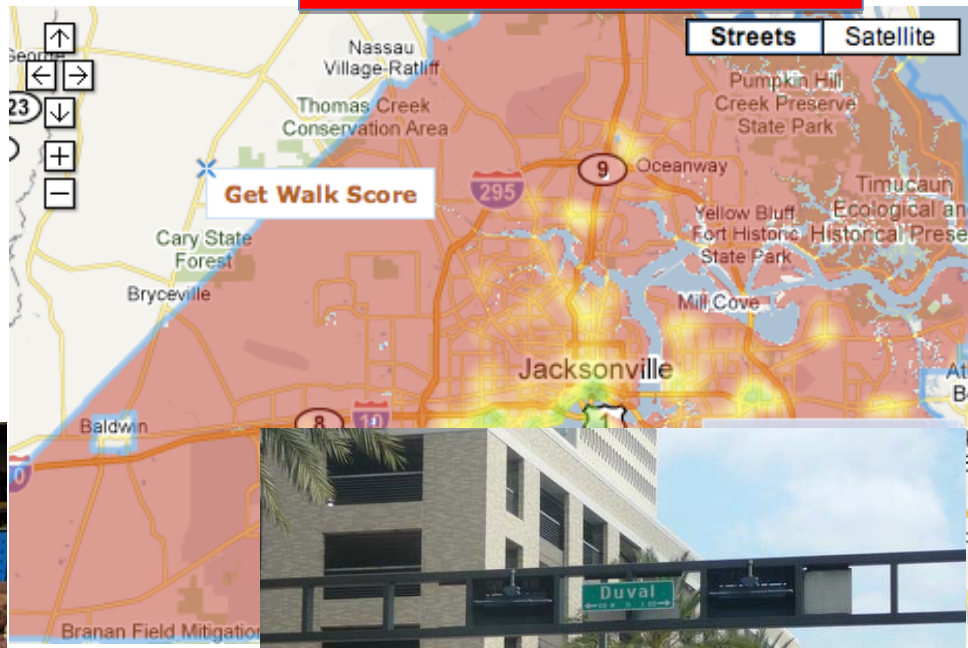
- Compared to people living in low green space cities, citizens of cities with high green space:
  - Evaluate their lives better across the board
  - Have 15% fewer headaches on any given day
  - Exhibit an 11% reduction in lifetime hypertension
  - Have experienced 25% fewer heart attacks
  - Have 10% lower obesity

Pressman, University of Kansas

Walkability: A Tale of Two Cities (San Francisco vs. Jacksonville)

Green = Walker's Paradise (Score of 90-100)

Red = Car Dependent (Score of <50)



Walkability Matters

- Compared to people living high walkability cities, citizens of cities with low walkability:
  - Have 12% more headaches on any given day
  - Exhibit 8% more lifetime hypertension
  - Have experienced 23% more heart attacks
  - Have 14% greater obesity
  - But do have 23% fewer colds on any given day!

Pressman, University of Kansas

HEALTHWAYS

Business Value of Well-Being:

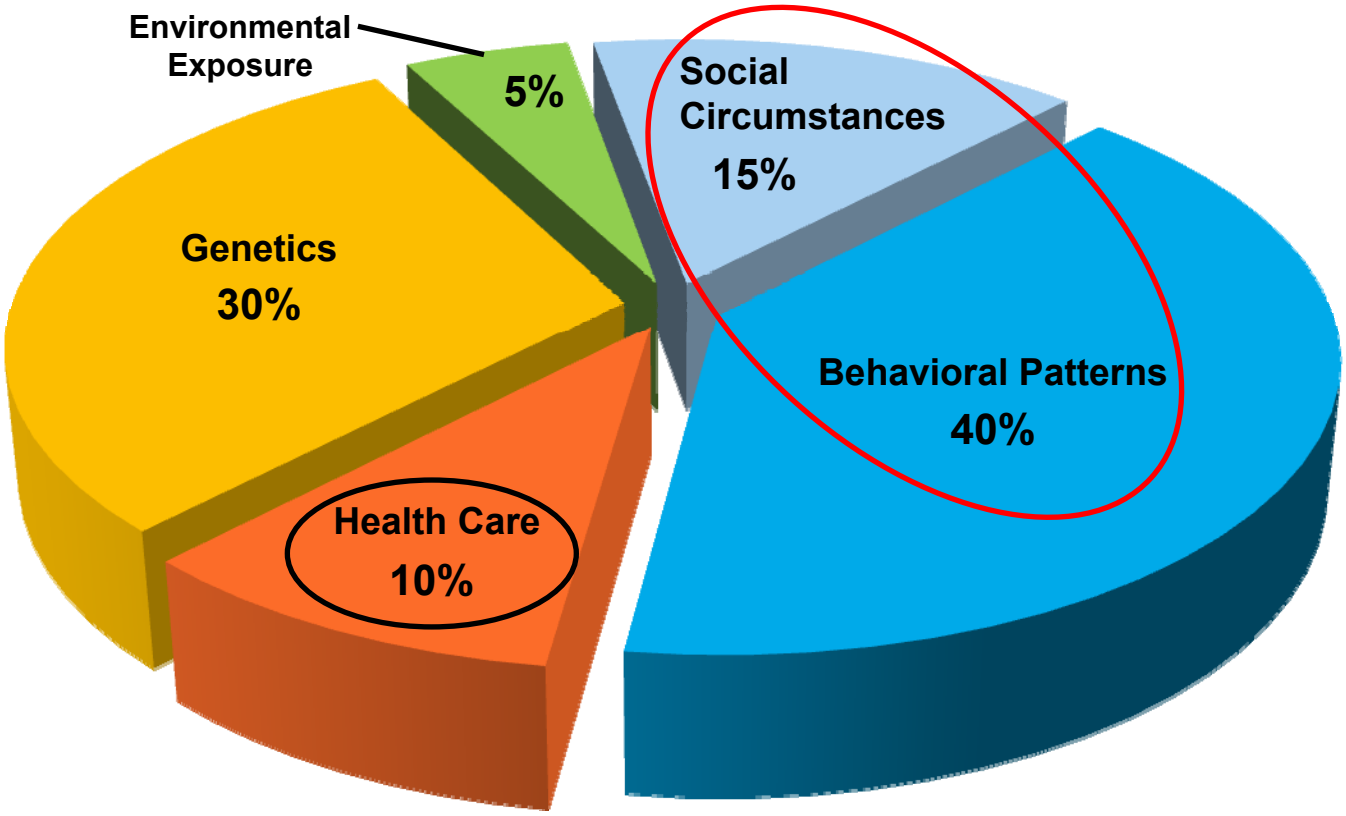
What does the research show?

Population Health Colloquium 2012

James E. Pope, M.D.
Chief Science Officer

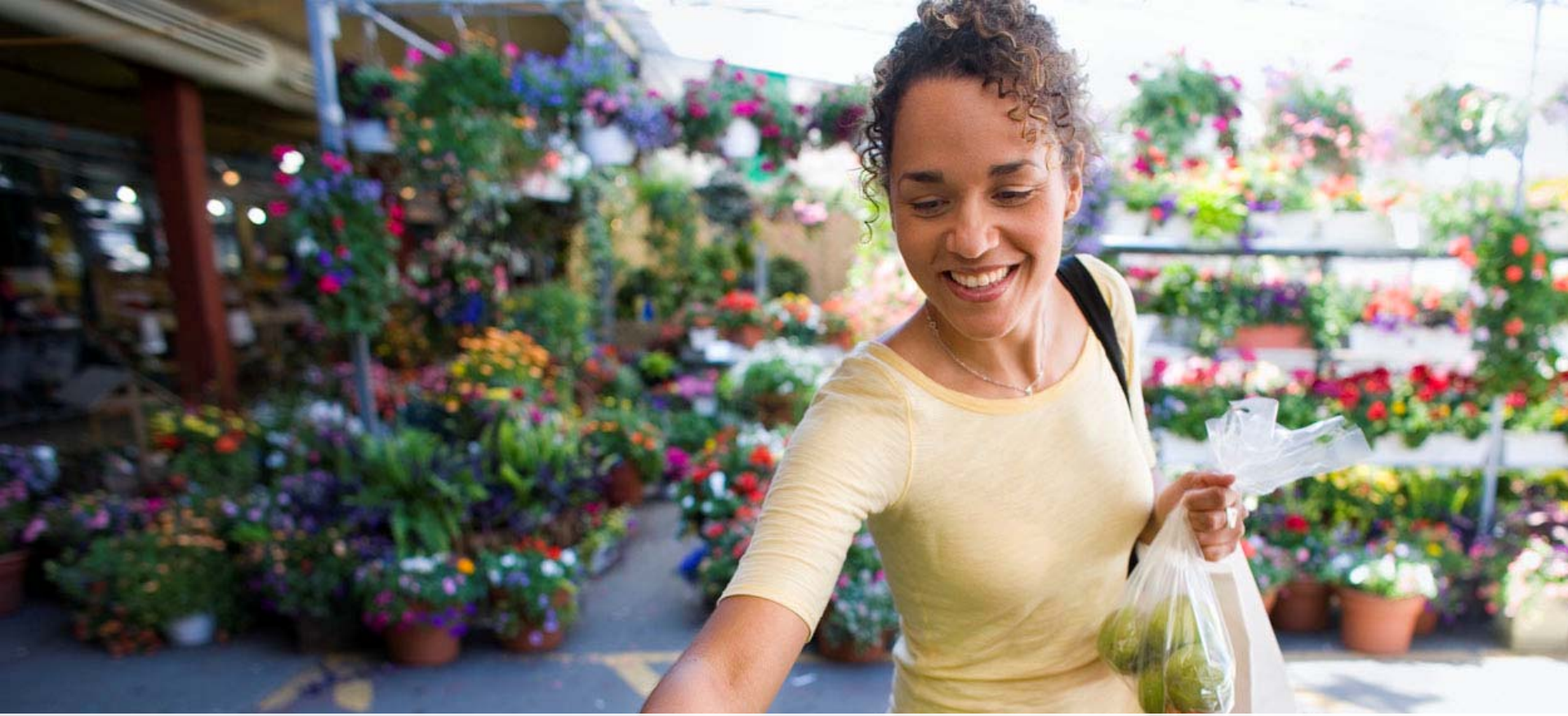
Why Does Well-Being Matter?

Factors Influencing our Health



Personal Behaviors Provides the Greatest Opportunity to Improve Health and Reduce Premature Death

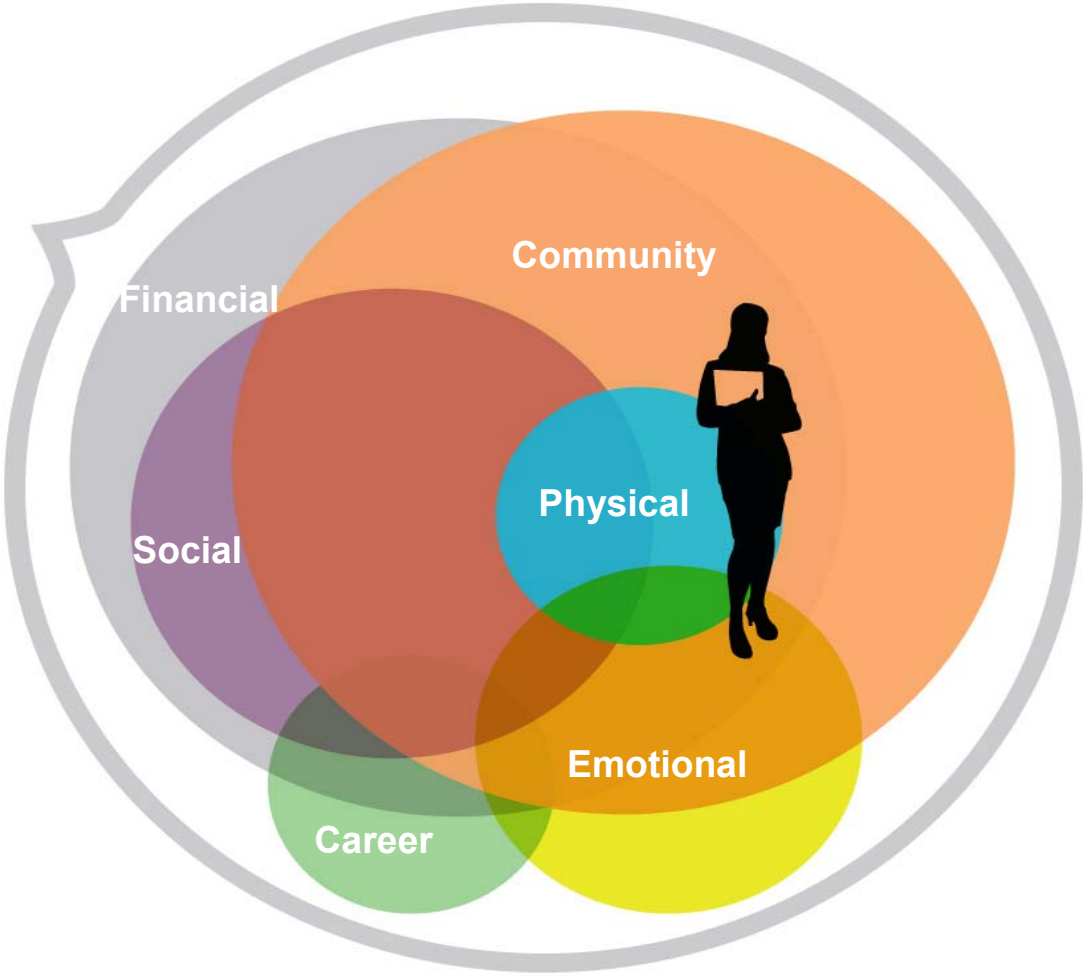
Schroeder, SA. **We Can Do Better — Improving the Health of the American People** *N Engl J Med* 2007; 357:1221-1228



The Choices We Make

Our Choices and Our Well-Being are Linked

Well-Being is all the things that are important to how we think about and experience our lives



Individuals ● **Experts** ● **Social Connections** ● **Environment** ● **Policy**

Early Lessons:
Health Utilization & Business Performance

Well-Being and Future Health Care Utilization

POPULATION HEALTH MANAGEMENT
Volume 00, Number 00, 2012
© Mary Ann Liebert, Inc.
DOI: 10.1089/pop.2011.0069

Evaluation of the Relationship Between Individual Well-Being and Future Health Care Utilization and Cost

Patricia L. Harrison, M.P.H., James E. Pope, M.D., Carter R. Coberley, Ph.D., and Elizabeth Y. Rula, Ph.D.

Abstract

Escalating health care expenditures highlight the need to identify modifiable predictors of short-term utilization and cost. Thus, the authors explored the predictive value of individual well-being scores with respect to 1-year health care expenditures and hospital utilization among 2245 employees and members of a health plan who completed the Well-Being Assessment (WBA). The relationship between well-being scores and hospital admissions, emergency room (ER) visits, and medical and prescription expenditures 12-months post WBA was evaluated using multivariate statistical models controlling for participant characteristics and prior cost and utilization. An inverse relationship existed between well-being scores and all measured outcomes ($p \leq 0.01$). For every point increase in well-being on a 100-point scale, respondents were 2.2% less likely to have an admission, 1.7% less likely to have an ER visit, and 1.0% less likely to incur any health care costs. Among those who did incur cost, each point increase in well-being was associated with 1% less cost, and individuals with low well-being scores (≤50) had 2.4 times the median annual expenditure of individuals with high well-being (>75) ($5172 and $2885, respectively). Also, well-being proved lowest among respondents who incurred more than $20,000, and was highest among those who incurred ≤$5000, with median scores of 71.1 and 80.3, respectively. These results indicate that individual well-being is a strong predictor of important near-term health care outcomes. Thus, well-being improvement efforts represent a promising approach to decrease future health care utilization and expenditures. (*Population Health Management* 2012;15:xx–xx)

Introduction

Current projections are that health care expenditures will account for 20% of the gross domestic product (GDP) by 2016.[1] An increase in hospital utilization and prescription drug costs contribute, in part, to the rising economic burden of health care in the United States[2] and often stem from conditions such as cardiovascular disease, arthritis, diabetes, and obesity.[3,4] Programs that adopt a holistic view of health, including promoting healthy behavior, reducing physical and emotional health risk factors, and effectively maintaining diseases, are projected to reduce expenditures long term.[5,6]

Specific assessment tools, such as health risk assessments, have been used to identify factors (ie, unhealthy behaviors) that may contribute to the proliferation of chronic disease and escalating health care utilization and expenditures. Although known to incur significant health care costs,[8–11] individuals with chronic disease(s) also have been shown to have poorer well-being.[7,12] However, less is known about whether well-being may be a holistic measure that also can serve as a predictor of health care expenditure across entire populations. Support for this idea is provided by research that has demonstrated that several outcomes related to the utilization and financial burden of health care correlate with specific measures that likely contribute to an individual's overall well-being. For example, independent studies have found that utilization is elevated in those who perceive their health as poor,[13,14] obese patients and those with type 2 diabetes generally have poorer psychological well-being.[7,15–19]

Contemporary definitions of well-being can be differentiated into 2 broad categories: (1) objective measures of income, life expectancy, GDP, and poverty rates; and (2) subjective measures of a person's perception of his or her life.[20] Subjective well-being can be divided further into 2 areas evaluative and experienced well-being.[21,22] Evaluative well-being assesses emotions associated with past events, whereas experienced well-being assesses emotions associated with events that are currently occurring.[22,23]

Traditionally, well-being research, including those studies cited, has focused on a specific aspect of well-being as opposed to a measure of well-being that integrates all well-being concepts. For example, multiple studies have

Center for Health Research, Healthways, Inc, Franklin, Tennessee.

- Study examines if well-being is predictive of health care utilization and cost

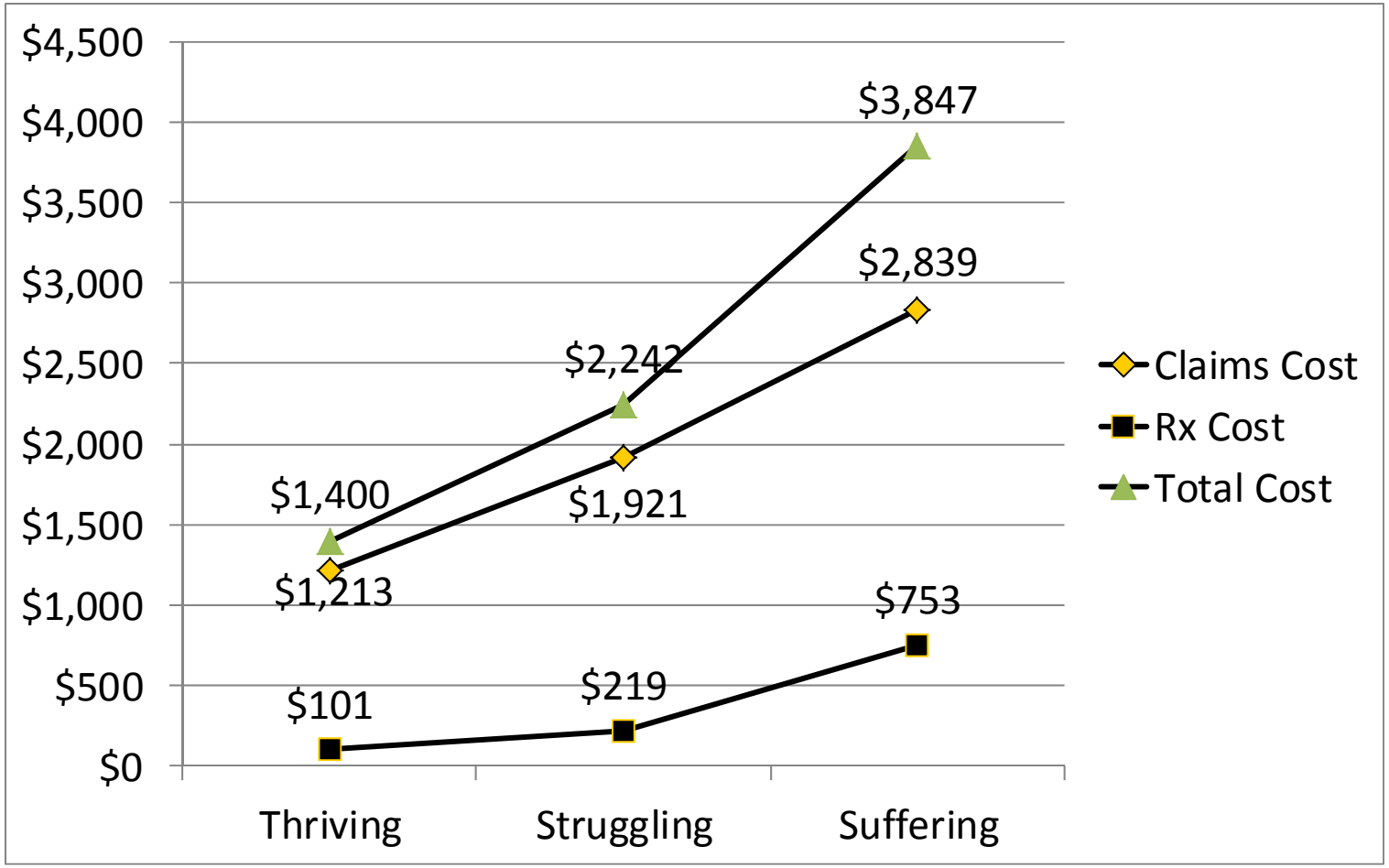
- Outcomes of interest
  - Hospital admissions
  - ER visits
  - Cost

Available on-line at Population Health Management:

http://online.liebertpub.com/POP

Harrison, PL, et al; Evaluation of the Relationship between Individual Well-Being and Future Health Care Utilization and Cost; (in-press *Population Health Management*)

Well-Being and Claims Cost by Life Evaluation

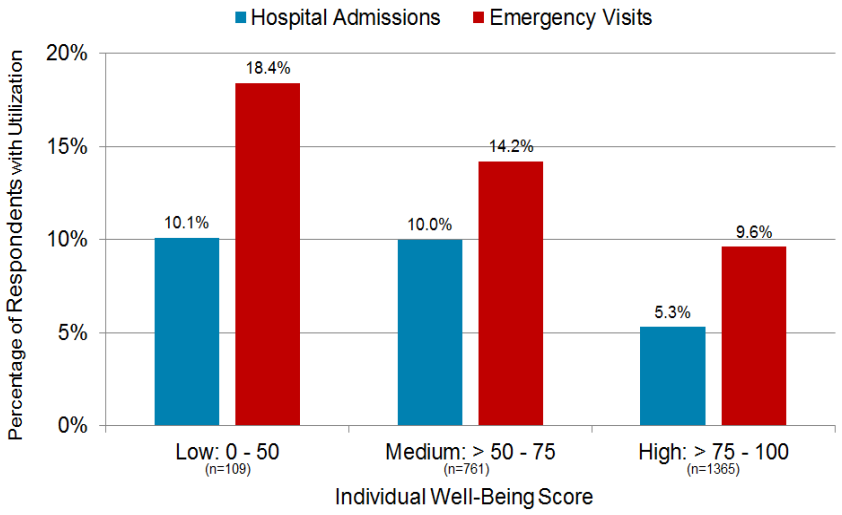


Harrison, PL, et al; Evaluation of the Relationship between Individual Well-Being and Future Health Care Utilization and Cost; (in-press *Population Health Management*)

Well-Being Predictive of Cost & Utilization

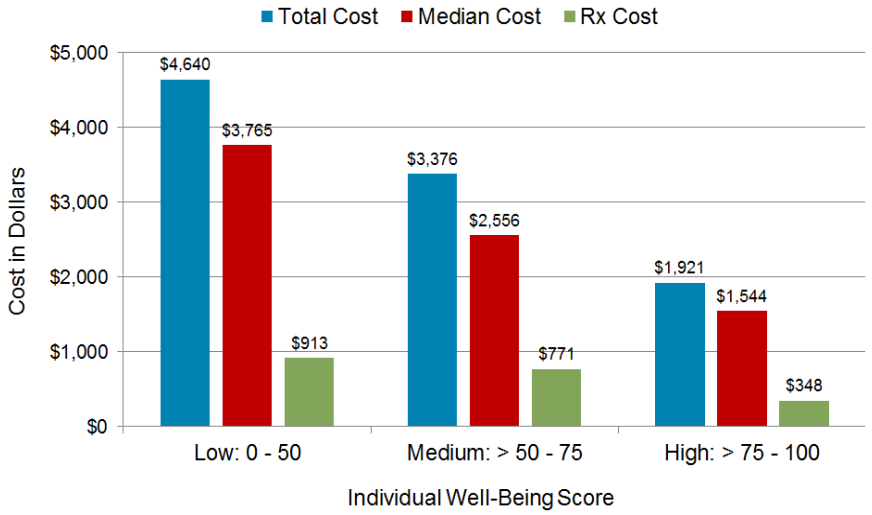
ER & Admits By Well-Being Score

In the 12 months following WB Assessment



Median Cost* By Well-Being Score

In the 12 months following WB Assessment



- **For every point increase, respondents were:**
  - ✓ **2% less likely to have an hospital admission (p<0.001)**
  - ✓ **1.6% less likely to have an Emergency Room visit (p<0.001)**

- **For every point increase, respondents were:**
  - ✓ **1% less likely to incur any health care cost (p=0.012)**

***excludes individuals without any cost during the period**

Harrison, PL, et al; Evaluation of the Relationship between Individual Well-Being and Future Health Care Utilization and Cost; (in-press *Population Health Management*)

Well-Being is Not the Same as Satisfaction

- High Well-Being is associated with
  - Reduced hospitalizations and ER visits
  - Lower health care claims cost

- In contrast, recent analysis of medical expenditure data showed that high patient satisfaction scores were associated with:
  - higher health care spending
  - more likely to be admitted - although less likely to visit the ER

* Fenton, JJ; et al. *The Cost of Satisfaction*; *Arch Intern Med.* Published online February 13, 2012. doi:10.1001/archinternmed.2011.1662

Linking Well-Being to Business Performance

Ranking 25 Separate Business Units by Well-Being Score

Well-Being Scores

Internal corporate measure
% at Optimal Income

Well-Being Assessment Results by Business Unit

Overall	Life Evaluation	Emotional Health	Physical Health	Healthy Behavior	Work Environment	Basic Access	% at Optimal Income
68.4	60.9	76.4	78.1	62.6	46.9	85.5	41.7%
73.5	73.1	80.6	80.2	65.1	53.7	88.1	66.7%
72.4	70.4	79.7	82.4	66.3	49.5	86.0	64.5%
72.0	71.4	73.8	81.1	67.0	51.2	85.9	59.6%
72.0	69.6	78.6	78.1	65.6	52.6	88.6	39.2%
71.9	66.5	78.4	78.6	66.5	54.9	86.7	50.3%
71.8	67.7	79.1	81.5	64.9	53.9	85.9	69.2%
71.4	68.6	78.0	78.5	67.5	49.3	86.7	47.9%
71.2	67.7	80.0	81.7	64.4	49.1	84.5	51.4%
70.6	60.7	76.5	80.2	66.5	51.9	85.4	44.9%
70.6	65.8	79.6	77.6	62.6	54.4	86.0	41.6%
70.0	63.9	76.2	80.3	63.6	48.5	87.4	55.6%
69.7	58.0	76.5	78.4	68.4	53.2	83.6	63.6%
69.6	62.5	75.0	79.0	65.0	50.0	86.0	56.2%
69.2	64.7	77.5	76.8	62.6	46.0	87.9	51.8%
69.1	60.8	76.8	78.1	61.9	52.2	85.0	39.3%
68.6	61.6	75.5	76.8	65.2	46.4	86.2	51.8%
68.6	59.6	76.3	80.3	66.4	44.4	84.8	41.6%
68.1	59.9	77.9	78.9	61.5	45.3	85.0	40.8%
67.8	58.0	75.7	78.1	63.9	45.6	87.7	57.2%
66.3	58.3	74.7	76.4	59.2	46.0	83.3	31.7%
66.2	52.4	75.0	76.9	61.1	45.4	86.5	37.9%
65.8	59.1	76.4	75.8	53.4	45.6	84.2	28.4%
65.7	57.3	73.9	76.8	61.7	40.1	84.2	36.6%
65.5	56.8	76.3	76.7	56.8	43.2	83.4	28.3%
64.5	52.5	73.0	75.3	60.2	42.4	83.8	26.8%

TOP QUINTILE | 2ND QUINTILE | 3rd QUINTILE | 4TH QUINTILE | 5TH QUINTILE

Source: Healthways Well-Being Assessment Results, March 2010;

CATERPILLAR®

HEALTHWAYS

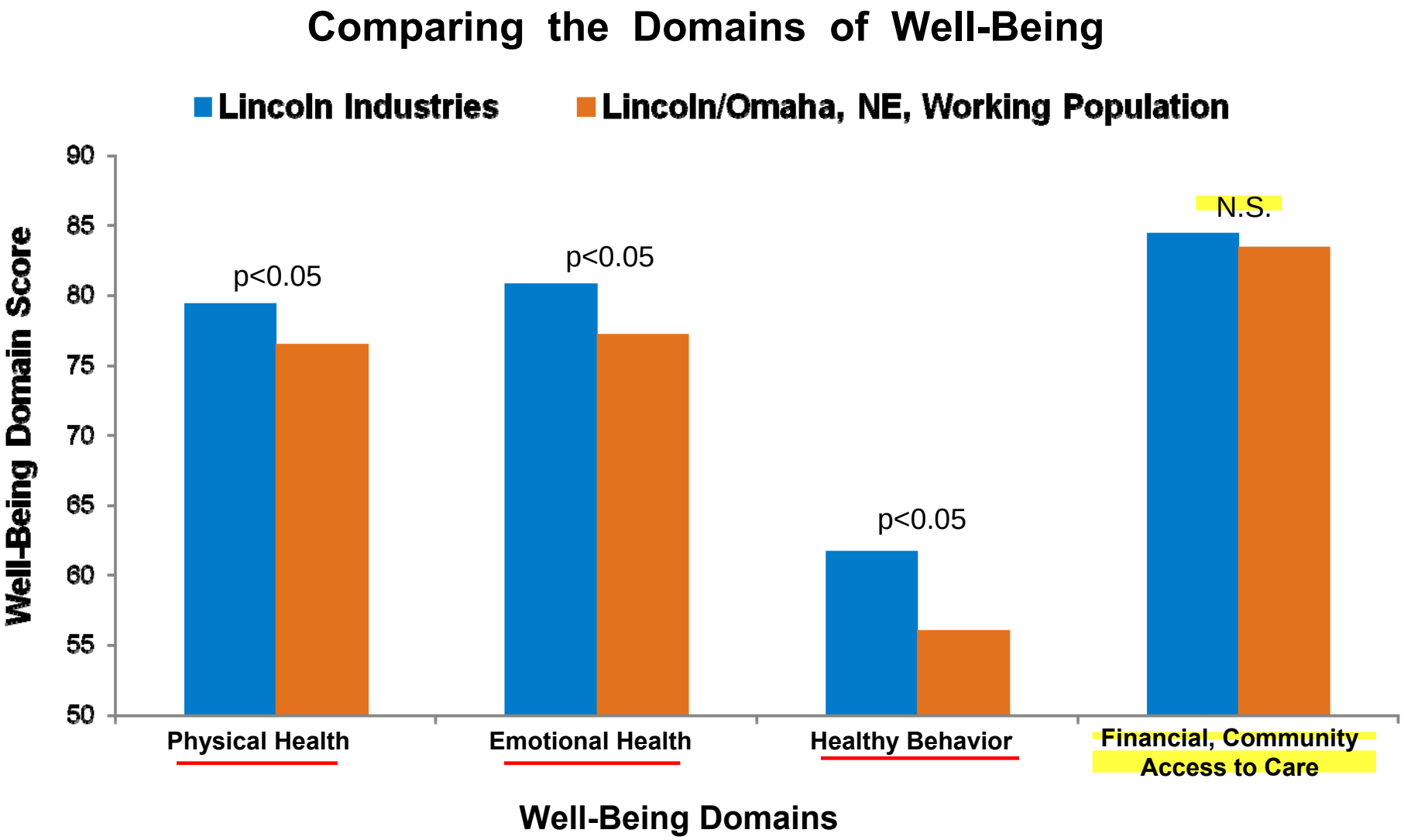
Case Study #1: Does a focus on wellness & Well-Being make a difference?

A Culture of Well-Being for the Whole Person

- Lincoln Industries is a mid-sized manufacturer
- Company focus on “Wellness for the Whole Person”
- Dedicated wellness resources and numerous program components
  - free pedometers, tobacco free campus, onsite tobacco cessation, health education seminars, gym reimbursements, annual “poker walk”, “brain ‘n pain challenge”, etc.

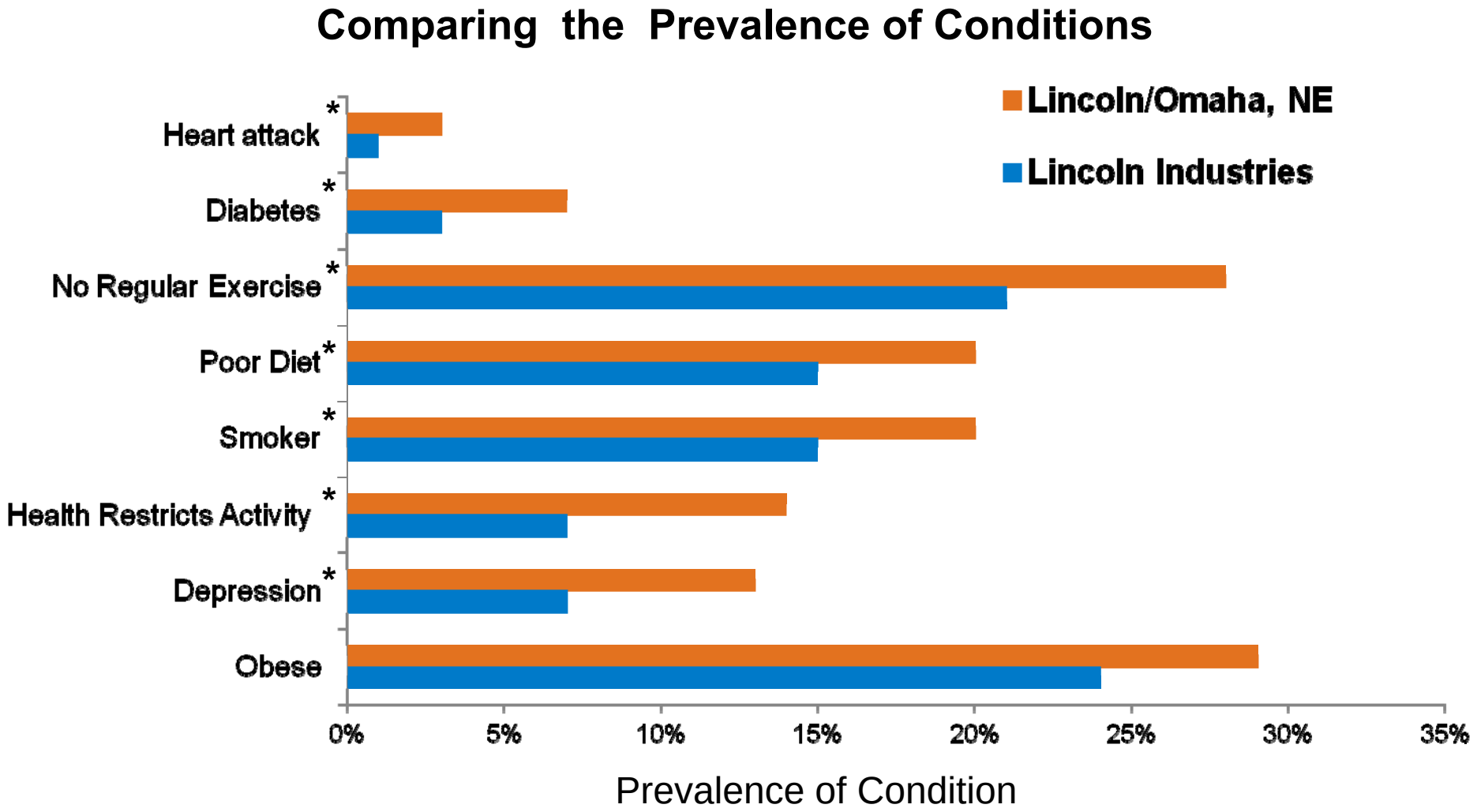
- 4 “levels” of participation based on biometrics, health risks & behaviors
- Highest level of participation is eligible for a company-paid trip to climb a 14,000 foot mountain

Lincoln Employees Compared to their Community



Merrill, RM et al. Evaluation of a best-practice worksite wellness program in a small-employer setting using selected Well-Being indices. JOEM (April 2011)

Lincoln Employees Compared to their Community

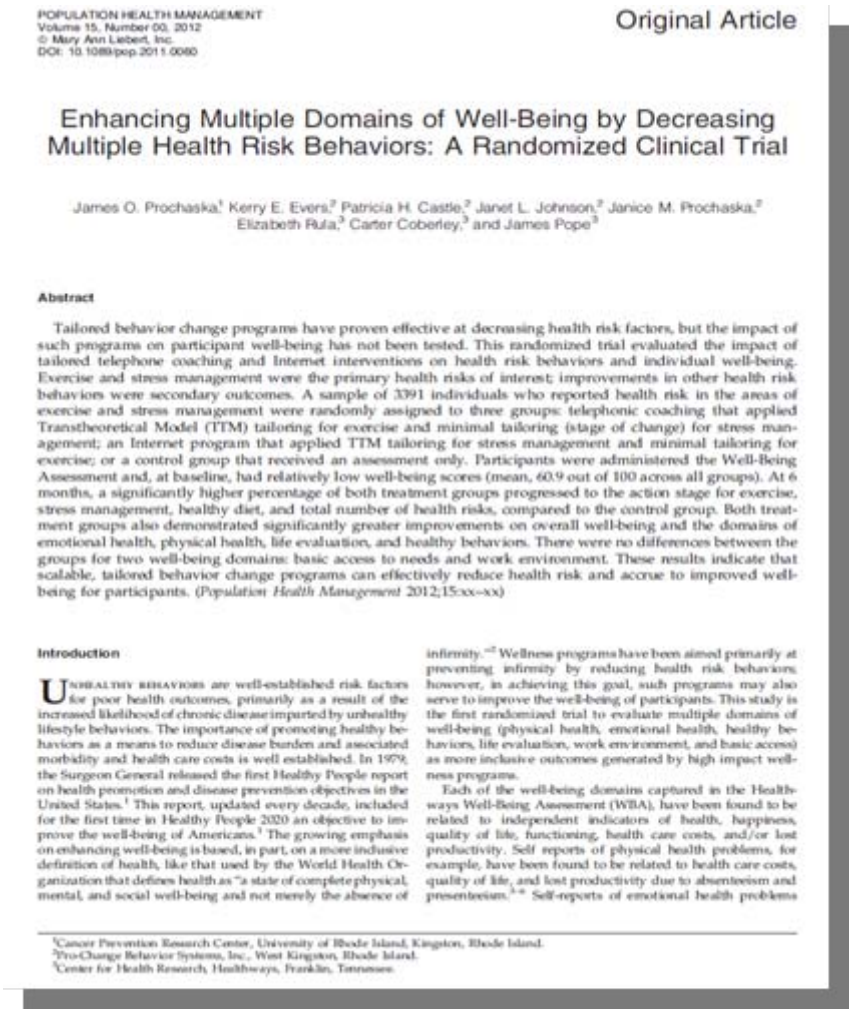


* Lincoln Industries employees have significantly lower prevalence compared to the working population of Lincoln / Omaha, NE, $p<0.05$

Merrill et al. Evaluation of a best-practice worksite wellness program in a small-employer setting using selected Well-Being indices. *JOEM* (April 2011)

How about prospective Well-Being improvement?

Randomized Trial of Stress & Exercise Interventions



POPULATION HEALTH MANAGEMENT
Volume 15, Number 00, 2012
© Mary Ann Liebert, Inc.
DOI: 10.1089/pop.2011.0060

Original Article

Enhancing Multiple Domains of Well-Being by Decreasing Multiple Health Risk Behaviors: A Randomized Clinical Trial

James O. Prochaska,[1] Kerry E. Evers,[2] Patricia H. Castle,[2] Janet L. Johnson,[2] Janice M. Prochaska,[2] Elizabeth Rula,[3] Carter Coberley,[3] and James Pope[3]

Abstract

Tailored behavior change programs have proven effective at decreasing health risk factors, but the impact of such programs on participant well-being has not been tested. This randomized trial evaluated the impact of tailored telephone coaching and Internet interventions on health risk behaviors and individual well-being. Exercise and stress management were the primary health risks of interest; improvements in other health risk behaviors were secondary outcomes. A sample of 3391 individuals who reported health risk in the areas of exercise and stress management were randomly assigned to three groups: telephonic coaching that applied Transtheoretical Model (TTM) tailoring for exercise and minimal tailoring (stage of change) for stress management; an Internet program that applied TTM tailoring for stress management and minimal tailoring for exercise; or a control group that received an assessment only. Participants were administered the Well-Being Assessment and, at baseline, had relatively low well-being scores (mean, 60.9 out of 100 across all groups). At 6 months, a significantly higher percentage of both treatment groups progressed to the action stage for exercise, stress management, healthy diet, and total number of health risks, compared to the control group. Both treatment groups also demonstrated significantly greater improvements on overall well-being and the domains of emotional health, physical health, life evaluation, and healthy behaviors. There were no differences between the groups for two well-being domains: basic access to needs and work environment. These results indicate that scalable, tailored behavior change programs can effectively reduce health risk and accrue to improved well-being for participants. (*Population Health Management* 2012;15:xx–xx)

Introduction

Unhealthy behaviors are well-established risk factors for poor health outcomes, primarily as a result of the increased likelihood of chronic disease imparted by unhealthy lifestyle behaviors. The importance of promoting healthy behaviors as a means to reduce disease burden and associated morbidity and health care costs is well established. In 1979, the Surgeon General released the first Healthy People report on health promotion and disease prevention objectives in the United States.[1] This report, updated every decade, included for the first time in Healthy People 2020 an objective to improve the well-being of Americans.[3] The growing emphasis on enhancing well-being is based, in part, on a more inclusive definition of health, like that used by the World Health Organization that defines health as "a state of complete physical, mental, and social well-being and not merely the absence of infirmity."[4–7] Wellness programs have been aimed primarily at preventing infirmity by reducing health risk behaviors; however, in achieving this goal, such programs may also serve to improve the well-being of participants. This study is the first randomized trial to evaluate multiple domains of well-being (physical health, emotional health, healthy behaviors, life evaluation, work environment, and basic access) as more inclusive outcomes generated by high impact wellness programs.

Each of the well-being domains captured in the Healthways Well-Being Assessment (WBA), have been found to be related to independent indicators of health, happiness, quality of life, functioning, health care costs, and/or lost productivity. Self reports of physical health problems, for example, have been found to be related to health care costs, quality of life, and lost productivity due to absenteeism and presenteeism.[8–9] Self-reports of emotional health problems

[1]Cancer Prevention Research Center, University of Rhode Island, Kingston, Rhode Island.
[2]Pro-Change Behavior Systems, Inc., West Kingston, Rhode Island.
[3]Center for Health Research, Healthways, Franklin, Tennessee.

- Study to test whether telephonic coaching to increase exercise and on-line stress management program could improve Well-Being compared to a control group

- Outcomes of Interest
  - Reported behavior change
  - Well-Being

Available on-line at Population Health Management at

http://online.liebertpub.com/POP

Can we improve Well-Being with Behavior Change?

Randomized Trial of Stress and Exercise Interventions

Study Design

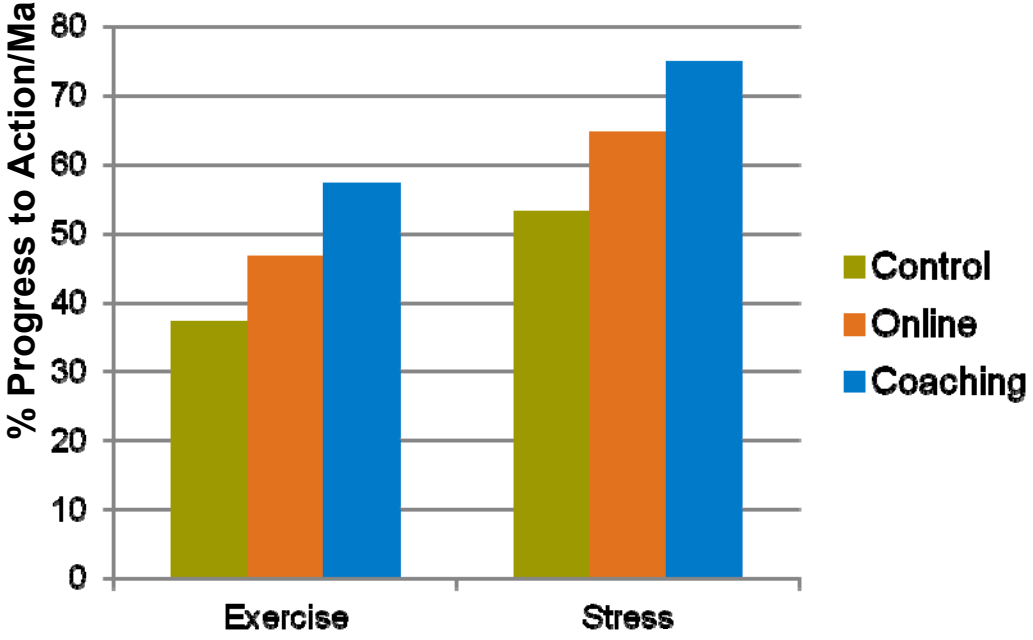
3,391 individuals randomized to 3 groups:

1. **Coaching**: Tailored Telephonic coaching (exercise as principle focus)

2. **Online**: Tailored online interventions (stress management as principle focus)

3. **Control:** Only WB Assessment X 2

Behavior Change Outcomes



Findings

- **Was Behavior Changed?**

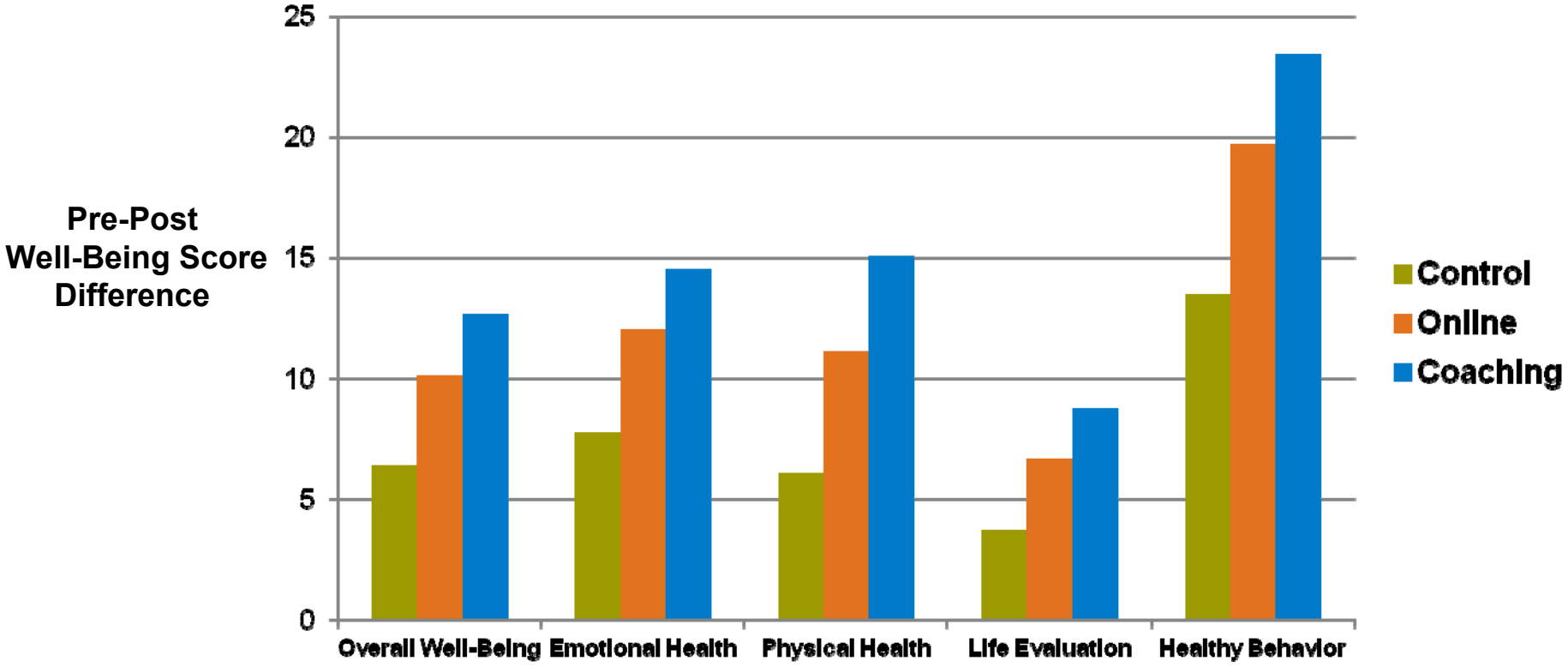
1. Interventions were shown to produce significant behavior change as compared to control.
2. Telephonic coaching produced significantly better improvement than the online tool

Prochaska, JO, et al; Enhancing Multiple Domains of Well-being by Decreasing Multiple Health Risk Behaviors: A Randomized Clinical Trial. Popul Health Management, in press.

Randomized Trial of Stress and Exercise Interventions

Finding (continued)
•Was Well-Being Changed?

3. Significant improvement in overall Well-Being, Emotional Health, Physical Health, Life Evaluation and Healthy Behaviors.



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Case Study #2: Well-Being and Productivity

Well-Being Assessment for Productivity

ORIGINAL ARTICLE

The Well-Being Assessment for Productivity

A Well-Being Approach to Presenteeism

James O. Prochaska, PhD, Kerry E. Evers, PhD, Janet L. Johnson, PhD, Patricia H. Castle, MA, Janice M. Prochaska, PhD, Lindsay E. Sears, PhD, Elizabeth Y. Rula, PhD, and James E Pope, MD

Objective: To develop a presenteeism assessment, the *Well-Being Assessment for Productivity (WBA-P)*, that provides an informative evaluation of job performance loss due to well-being related barriers. **Method:** The WBA-P was developed using exploratory and confirmatory factor analysis using survey data from 1827 employed individuals. Evidence of criterion-related validity was established using multivariate analysis of variance across measures of health and well-being. **Results:** A hierarchical, two-factor model demonstrated good fit and included factors capturing productivity loss from personal reasons (WBA-PP) and work environment (WBA-PW). Significant interactions existed between these and previously validated presenteeism measures with respect to physical and emotional health, risk factors, and life evaluation. **Conclusions:** This initial psychometric evidence suggests that the WBA-P and its subscales are valid measures of presenteeism that capture actionable well-being–related performance barriers.

Employee productivity is a core component of a company's ability to generate revenue. As productivity declines, organizations struggle to maintain profitability and growth. While research has shown that absenteeism has a substantial negative impact on business performance,[1] recent studies suggest that unproductive workers who are present may have a more dramatic impact on costs.[2] Presenteeism is the term used to describe employees who are physically present at their jobs, but experience decreased productivity because of illness or other barriers to performance.

Recent interest in presenteeism measurement and research stems from the idea that solving the presenteeism problem results in considerable savings and can serve as a competitive advantage for companies.[3,4] One national survey estimated that sickness presenteeism cost the United States more than $150 billion annually and accounts for 71% of the total cost of lost productivity.[5] Studies estimate that total productivity loss, accounting for both health-related presenteeism and absenteeism, costs companies three times what they pay for pharmacy and medical claims.[6] Although the current science of converting self-reported productivity scales into monetary units has many limitations,[7] the evidence is sufficient to conclude that there is significant economic opportunity through reducing presenteeism. Specifically, investment in wellness programs that target presenteeism stemming from health issues present a strong opportunity for cost savings, but researchers have yet to quantify the impact of other barriers to performance in the context of presenteeism.

From the Cancer Prevention Research Center, University of Rhode Island (Dr Prochaska); Pro-Change Behavior Systems, Inc (Dr Evers, Dr Johnson, Dr Prochaska, Dr Castle), West Kingston, RI; and Center for Health Research, Healthways, Inc (Dr Sears, Dr Rula, Dr Pope), Franklin, Tenn.

The research presented was conducted by Pro-Change Behavior Systems, Inc, and was funded by Healthways, Inc. Research design and the drafting and editing of the manuscript was a collaborative effort among all authors, who are employees of either the University of Rhode Island or Pro-Change Behavior Systems or Healthways.

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DOI: 10.1097/JOM.0b013e318222af48

To date, many studies define presenteeism as productivity loss due to illness and attempt to quantify the impact of health conditions and symptoms on productivity.[8,9] This approach is consistent with the tradition of interventions that target health risk, illness, and disease. There is a growing movement, however, toward a more inclusive view of improving health that encompasses an individual's overall well-being with an aim of improving the functioning of the whole individual at home, at work, and in the community.[10] Domains of well-being, such as physical and emotional health, work environment, and basic access to resources are important to capture, especially in conjunction with measures of key outcomes of well-being, such as job performance and productivity. Such concurrent measurement allows organizations to diagnose problem locations or departments and identify the strongest drivers of key outcomes.

Consistent with a multifaceted well-being approach, researchers have argued that capturing sources of presenteeism from a range of life domains provides a more inclusive and accurate picture of productivity loss for companies.[11] There is an abundance of literature, summarized below, linking health, work, and personal problems to performance on the job. Accordingly, measures of presenteeism that determine how aspects of each of these well-being–related areas act as barriers to productivity can provide a more informative evaluation of productivity loss than measures focusing only on illness.

Pragmatically, organizations interested in improving the performance of their employees have a need to identify, understand, and target the aspects of well-being potentially leading to productivity loss. To date, however, existing measures of presenteeism, some of which are single-item indicators, have focused on productivity loss due to general health or specific illnesses.[9] For instance, the Work Productivity and Activity Impairment Questionnaire (WPAI) measures the impairment of work and other activities due to overall health and symptoms,[8] while measures like the Stanford Presenteeism scale can be used to assess productivity loss from specific health problems.[9] Another widely used measure, the absolute presenteeism item from the Health and Work Performance Questionnaire (HPQ), captures general productivity on the job but does not assess the cause(s) of any productivity loss. Consequently, this measure has historically been used in conjunction with self-reported illness to study the association between presenteeism and specific health conditions.[12,13] Such studies strengthen the business case for health enhancement programs but do not demonstrate the causes of productivity loss through direct relationships with health problems or other potential sources of that loss. For organizations to more effectively improve productivity, there is a need for presenteeism measures that are both specific in providing actionable information, and more holistic in capturing the range of well-being–related barriers that affect productivity at work.

Studies from multiple disciplines have linked productivity loss to barriers from a person's health, work, and personal life domains. With respect to health, in addition to the well-established link between physical health conditions and presenteeism discussed earlier, substantial productivity loss can stem from emotional health problems, such as depression and anxiety. In a study of more than 12,000 Dow Chemical Company employees, emotional problems were the greatest source of productivity loss when compared to a

- **Reports on development of a productivity / presenteeism assessment that can be used in concert with Well-Being**
- **Develop productivity loss scale and validate with established HPQ and WPAI measures.**

Prochaska et al. The Well-Being Assessment for Productivity : A Well-Being Approach to Presenteeism. *JOEM*. 2011; 53(7):735-742.

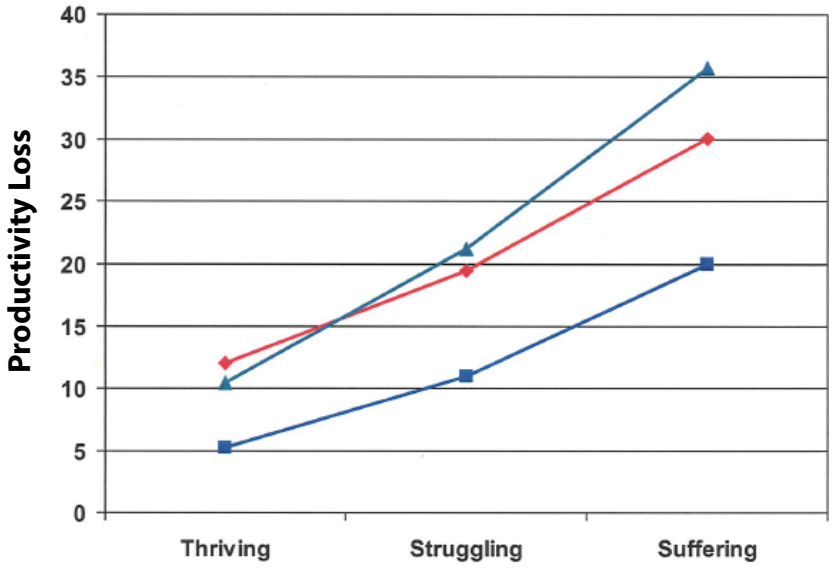
Well-Being & Human Performance

Well-Being Assessment of Productivity Loss

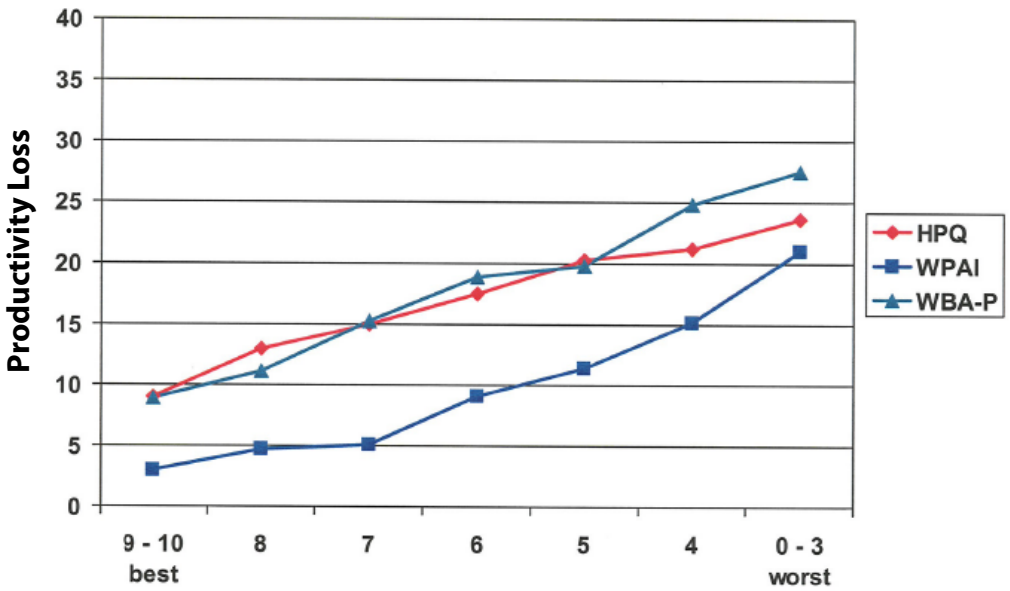
- 11 items that assess common drivers of productivity loss
- An HPQ[1] item that measures of overall productivity loss on a 1-10 scale
- A WPAI[2] item that measures presenteeism as a result of health problems

[1] HPQ: Health and Productivity Quotient (WHO/Kessler)
[2] WPAI: Work Productivity and Activity Limitations Questionnaire

Presenteeism and Life Evaluation



Presenteeism and Physical Health Rating



Prochaska et al. The Well-Being Assessment for Productivity : A Well-Being Approach to Presenteeism. *JOEM*. 2011; 53(7):735-742

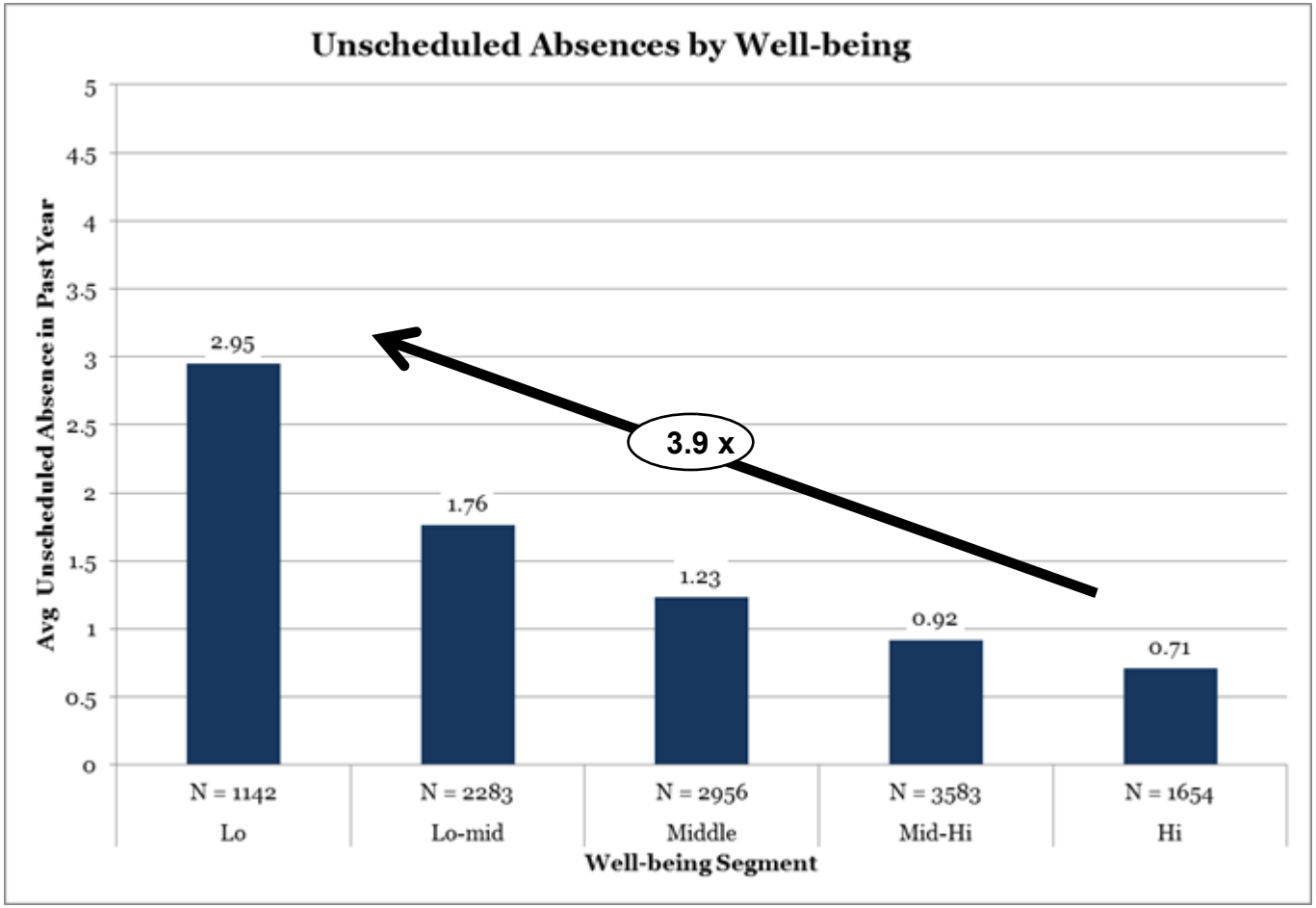
Well-Being Improvement Case Study

After baseline measurement, a Well-Being Improvement Strategy was implemented for employees:

- Annual health assessment with the WB Assessment
- Onsite biometric screenings
- Chronic condition / disease management
- Lifestyle coaching including Smoking Cessation and Weight Management
- Supporting Activities
  - Lunch and learns
  - Annual Health Fair
  - Annual sprint and stride
  - Step counting competition
  - Marketing / messaging / changes to physical environment

Well-Being and Unscheduled Absence

Lower Well-Being is associated with more days of unscheduled absence

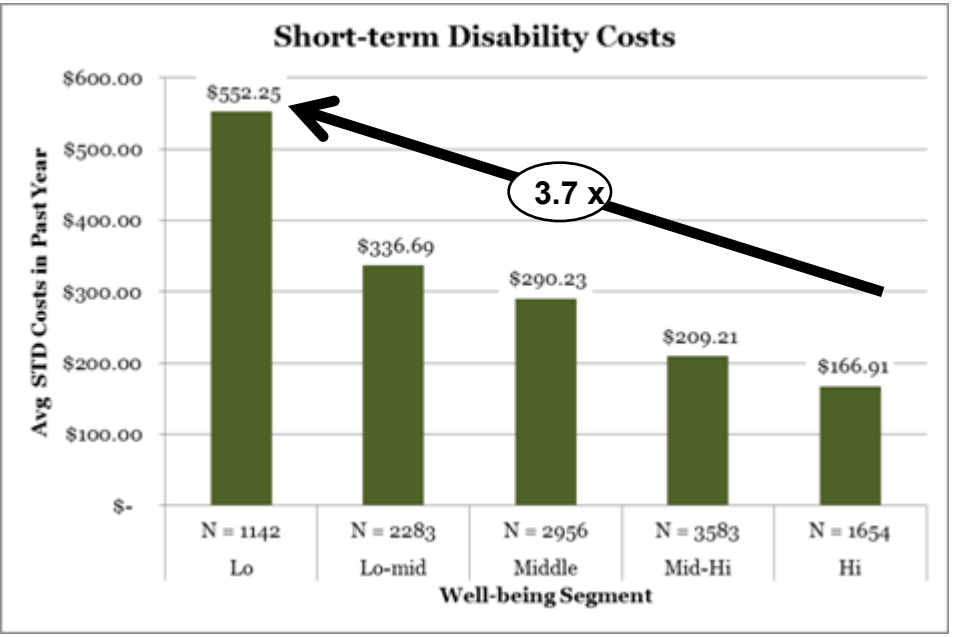


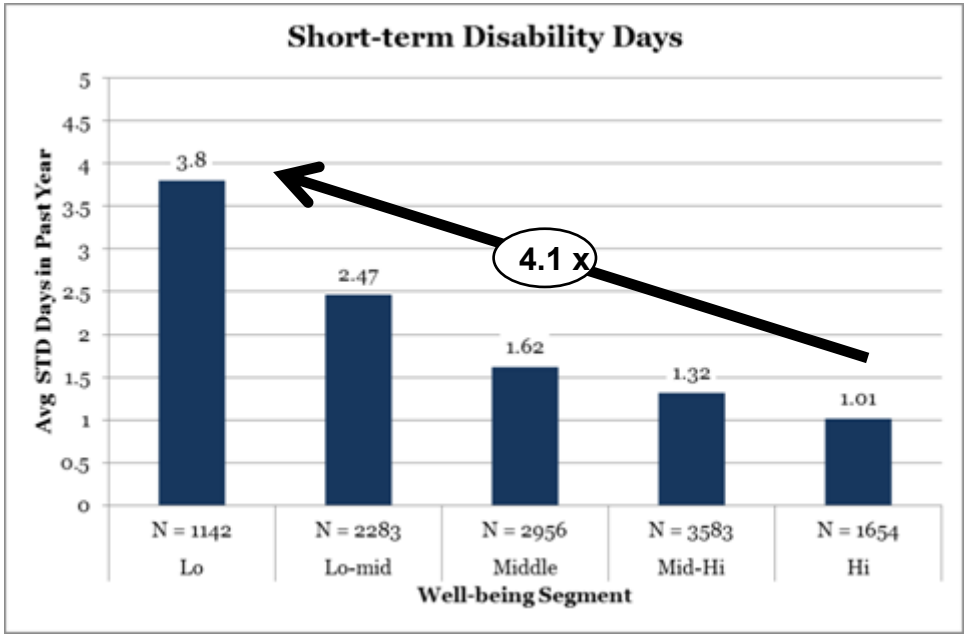
Employer, N = 11,702 ; WBA data collected 2010

*Logistic regression to produce odds ratio statement statistically controlled for age, gender, marital status, and education.

Well-Being and Short-Term Disability

Low Well-Being is associated with more days of STD and higher costs



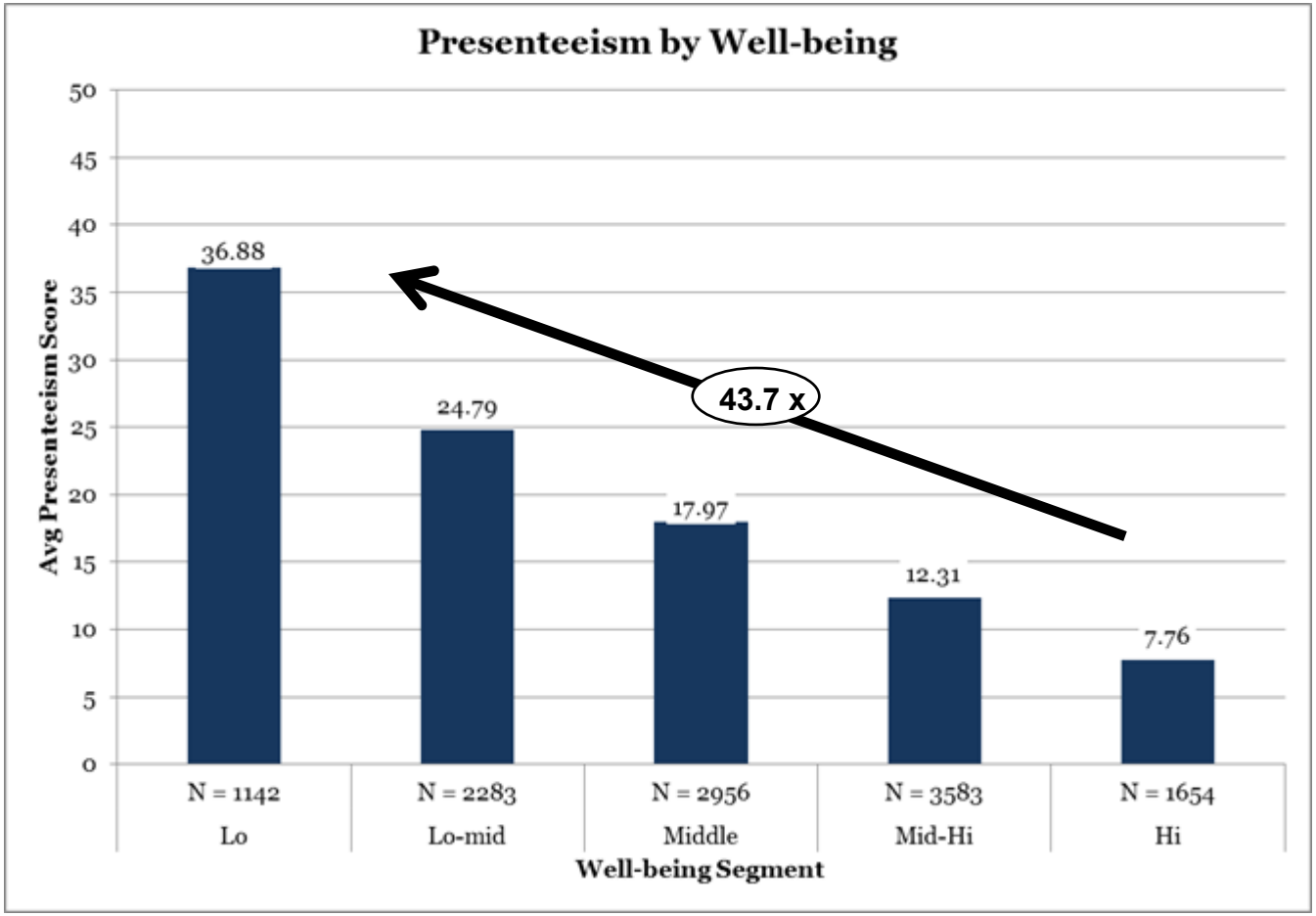


Employer, N = 11,702 ; WB data collected 2010

*Logistic regression to produce odds ratio statement statistically controlled for age, gender, marital status, and education.

Well-Being and Presenteeism

Lower Well-Being is associated with Higher presenteeism

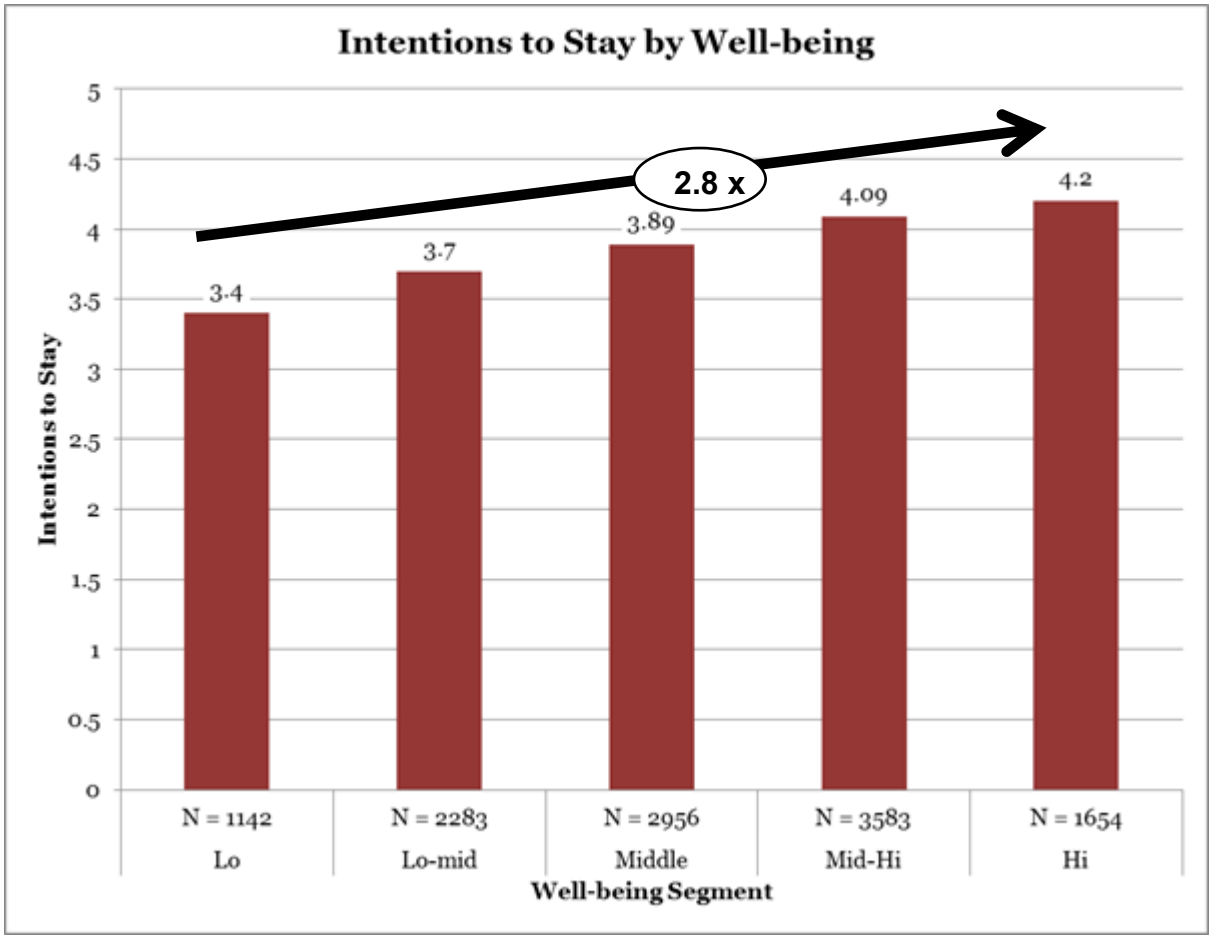


Employer, N = 11,702 ; WB data collected 2010

*Logistic regression to produce odds ratio statement statistically controlled for age, gender, marital status, and education.

Well-Being and Employee Retention

Higher Well-Being is associated with stronger intentions to stay with the company

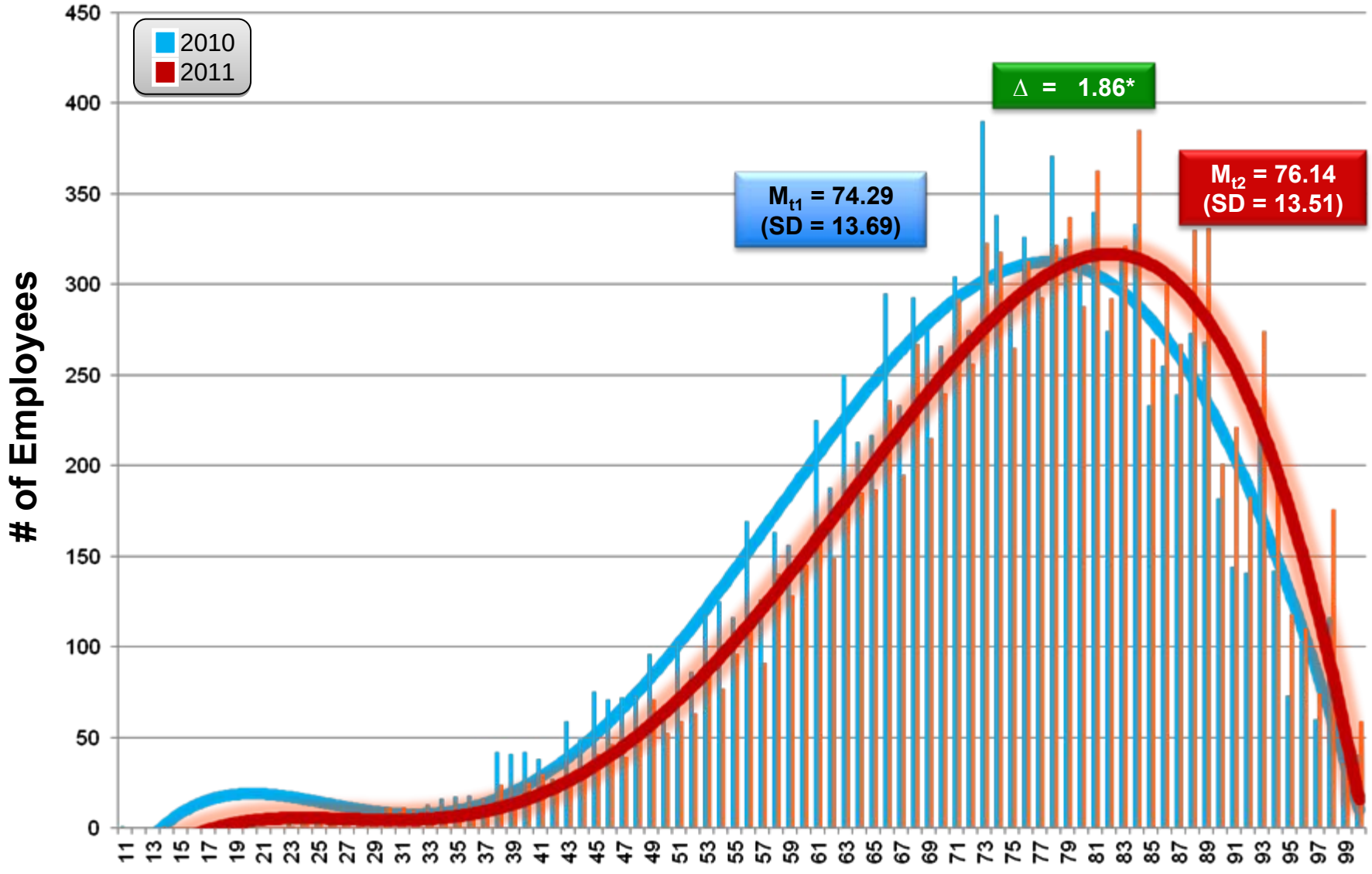


Employer, N = 11,702 ; WBA data collected 2010

*Logistic regression to produce odds ratio statement statistically controlled for age, gender, marital status, and education.

Significant Wellbeing Improvement Observed

Matched Respondents



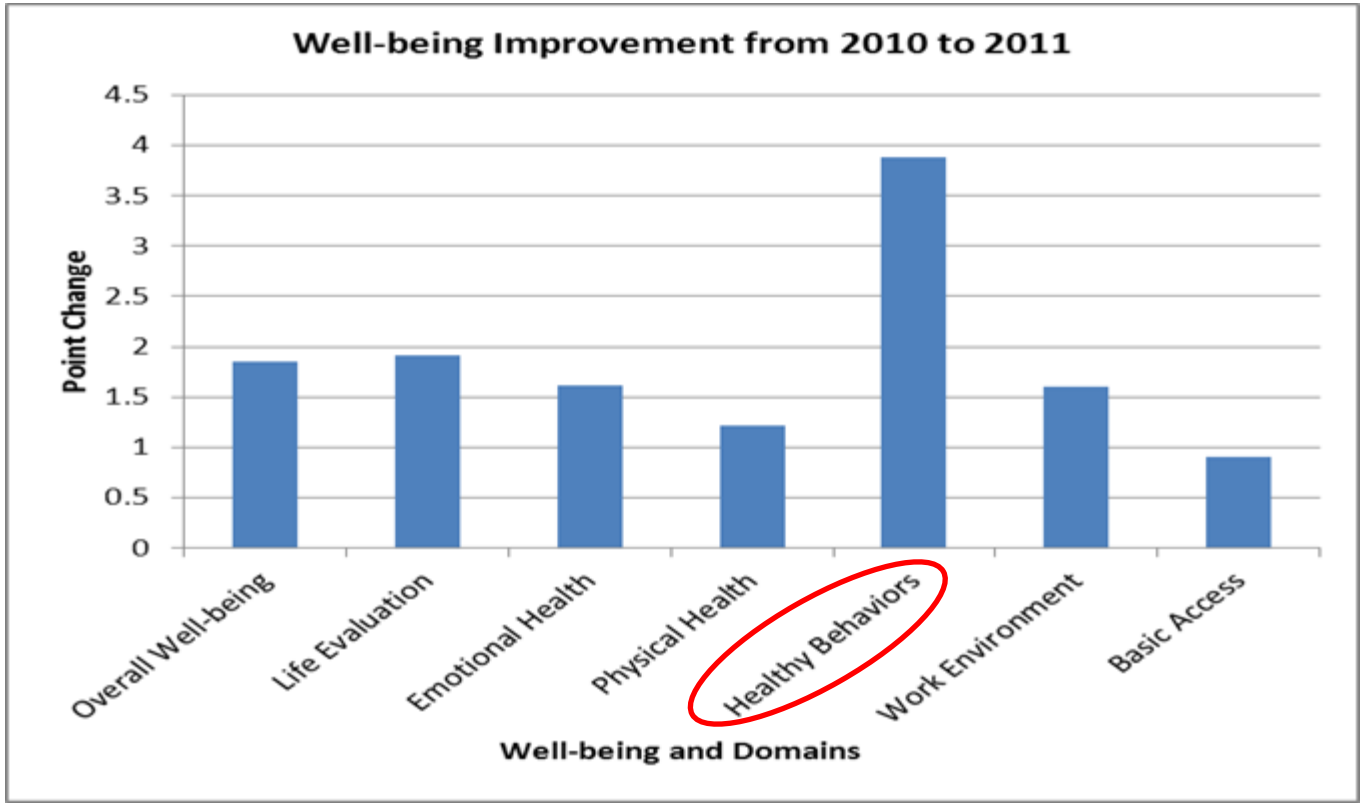
T1 WB data collected 2010, T2 WB data collected 2011, N = 6108

*Paired sample t-test, $p < .05$

HEALTHWAYS

Well-being Improved over 1 Year

Well-being and each of the domains significantly improved between 2010 and 2011*.



Healthy Behaviors improved the most from 2010 to 2011.

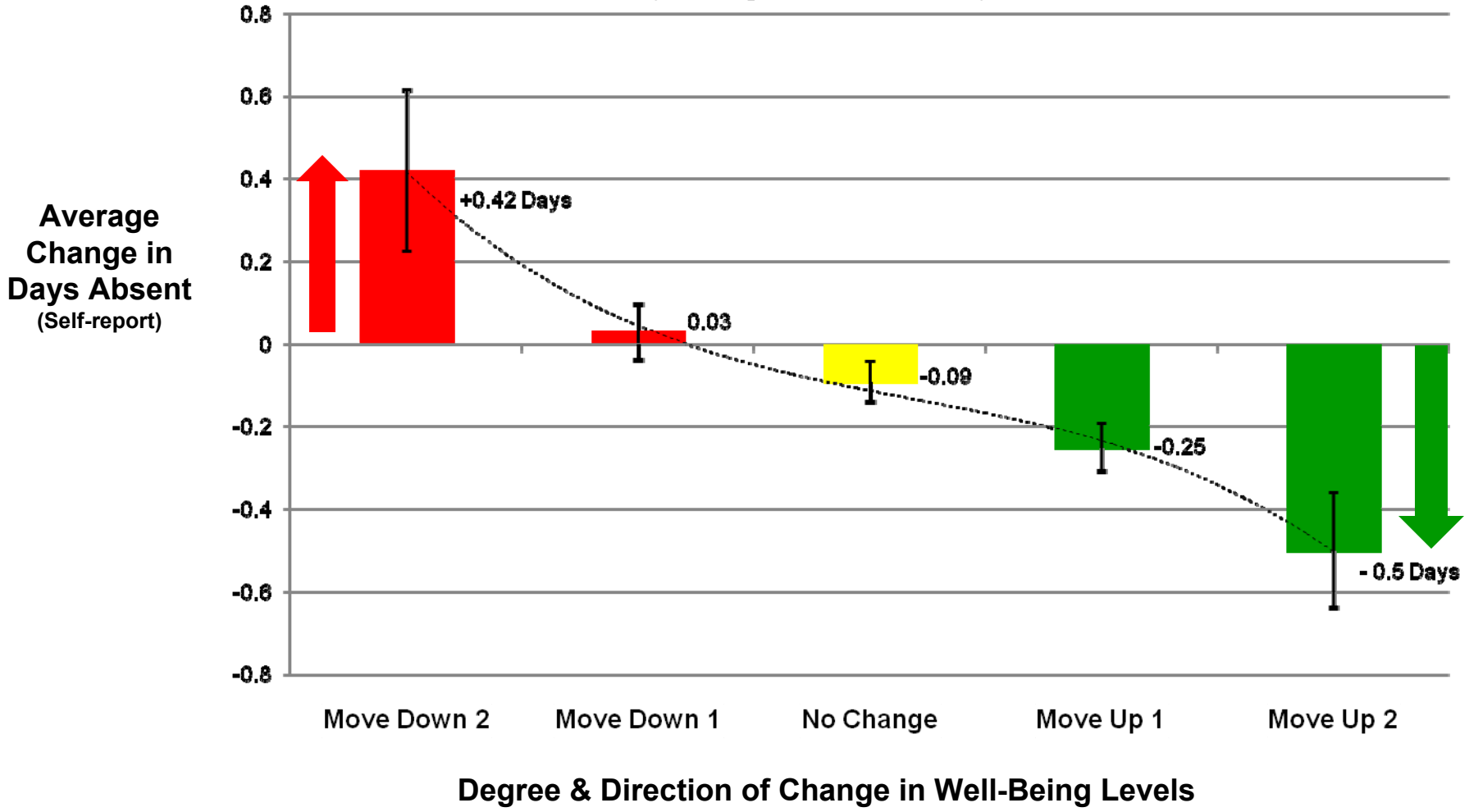
*N = 6,181. p < .01.

T1 Data: WB data collected 2010 and T2 Data: WB data collected 2011

Change in Well-Being and Absence

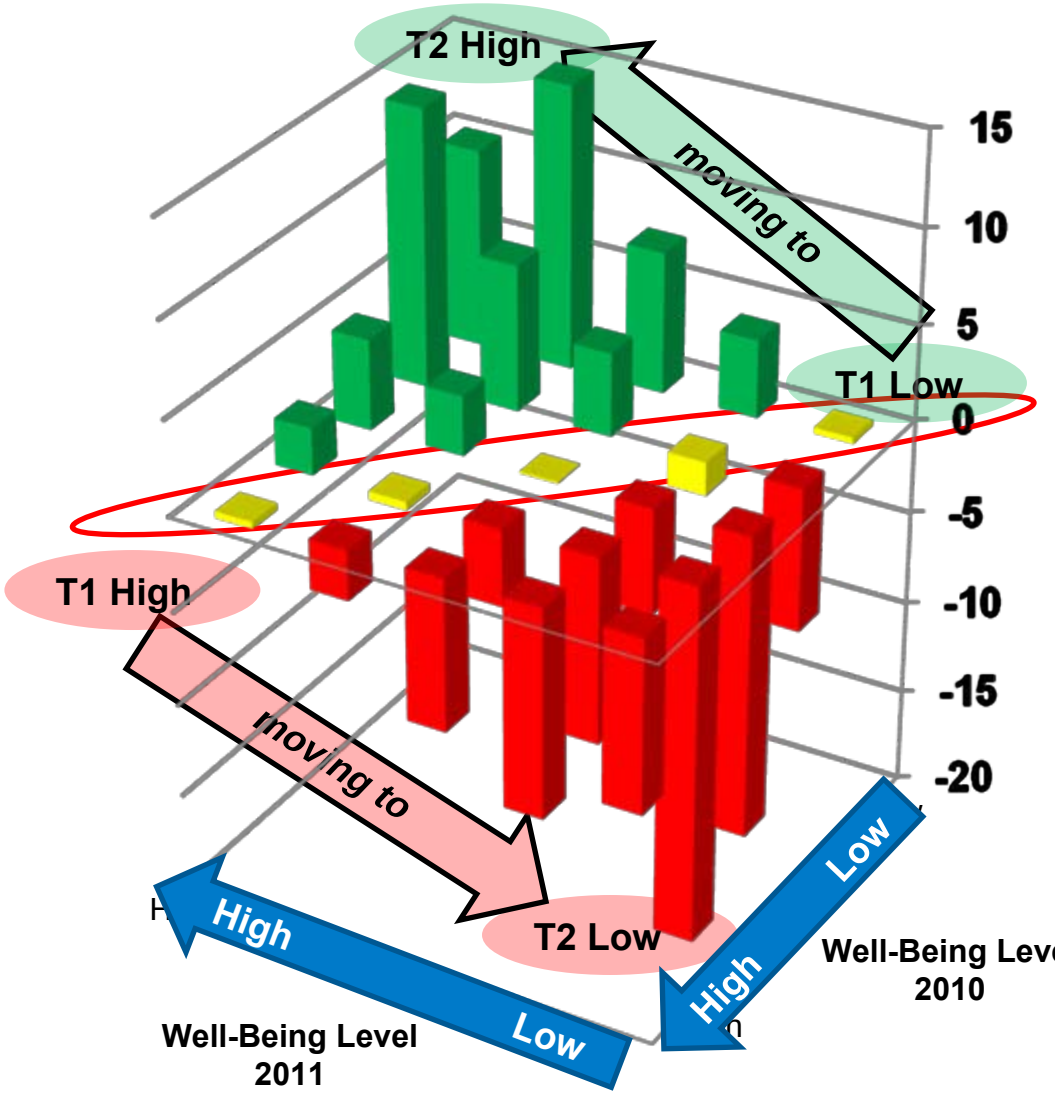
1/3 Fewer Days of Reported Absence Due to Personal Health

Year 1 with 3,012 days compared to 2,213 days for Year 2.



T1 Data: WB data collected 2010 and T2 Data: WB data collected 2011

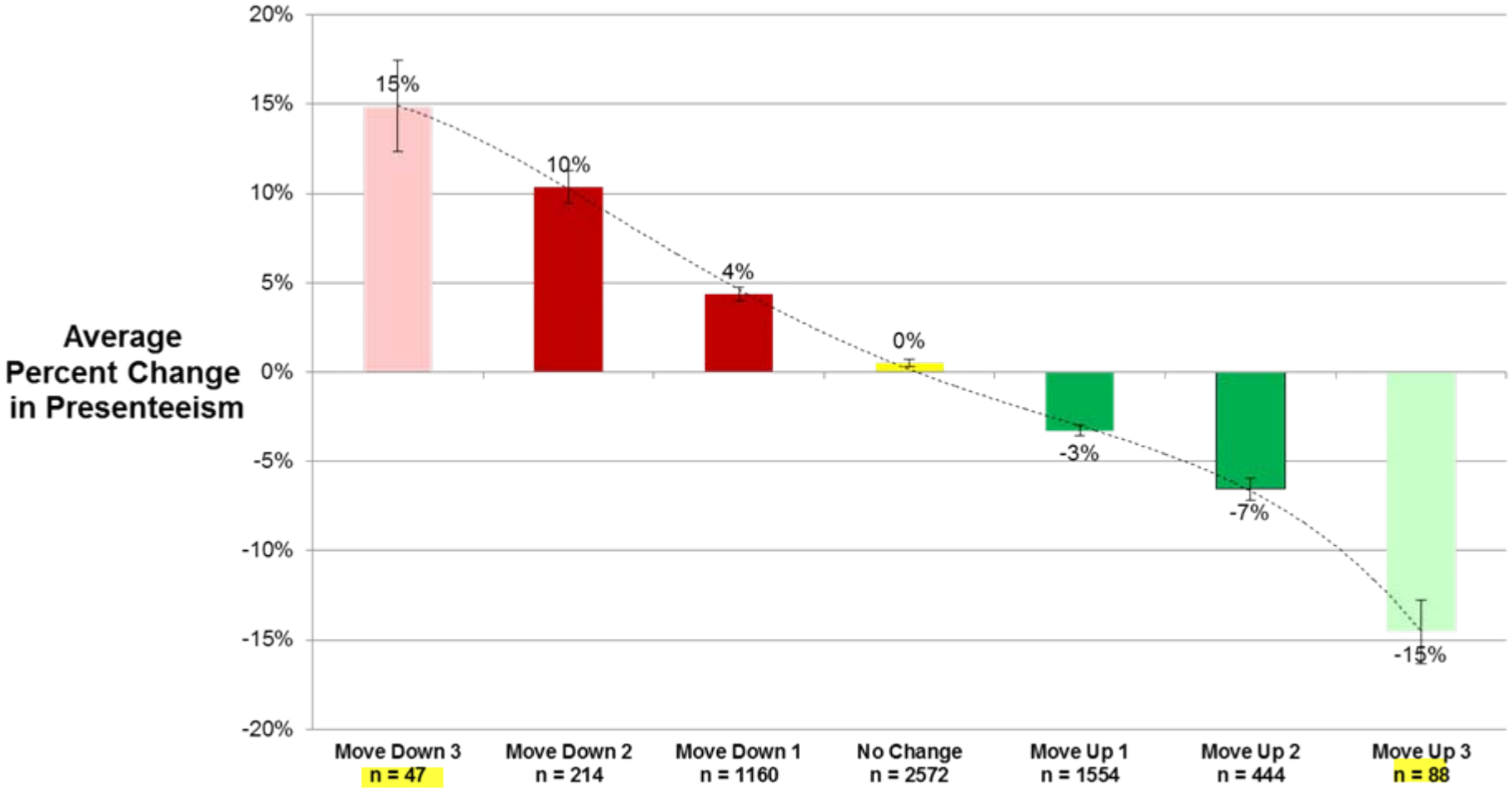
How Much Change & From What Starting Level?



T1 Data: WB data collected 2010 and T2 Data: WB data collected 2011

Change in Well-Being and Presenteeism

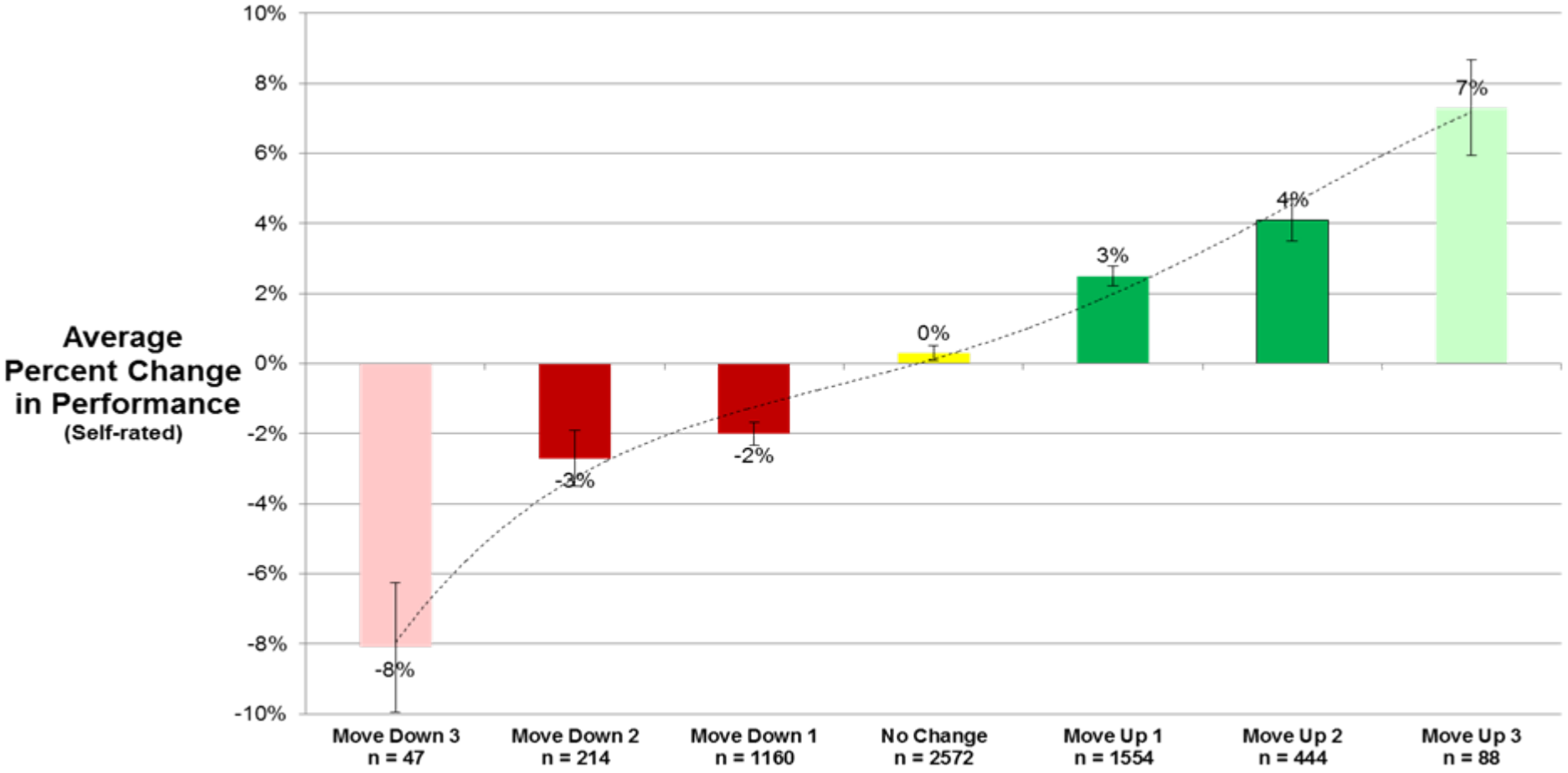
Percent Change in Presenteeism by Degree of Well-Being Change



T1 Data: WB data collected 2010 and T2 Data: WB data collected 2011

Change in Well-Being and Performance

Percent Change in Performance by Degree of Well-Being Change



T1 Data: WB data collected 2010 and T2 Data: WB data collected 2011

Why Well-Being Matters....

- …is all the things that are important to how we think about and experience our lives. It varies widely across the country and within communities
- …can help identify needs and guide interventions as it is predictive of future health cost / utilization even after controlling for historical cost / utilization.
- …is correlated to self-reported measure of human performance and these correlate to objective measures of performance
- …can be improved as at the individual level as demonstrated in a controlled trial and at the population level as observed in the case study.
- …improvement is associated with longitudinal improvement in self-reported measures
- …longitudinal relationship of self-reported data to objective measures of performance is underway

Learn More

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