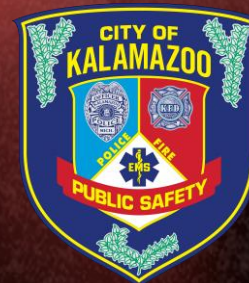# Novel Approach to Improving Health, Safety, and Wellness in Employees

Ottawa County

Ottawa Country Sheriff Department

City of Kalamazoo

Kalamazoo Department of Public Safety

Robertson Brain Health

Robertson Research Institute

2020 MME Winter Institute
Managing Generational and Other Differences in Your Workforce

January 30, 2020
Treetops Resort, Gaylord, MI

Ottawa County
Where You Belong

Al Vanderberg, County Administrator

Desired: Cultural Change

Setting the stage

- ❖ The cost of Ottawa's Employee Health Insurance Plans was soaring.

- ❖ 2010 ICMA Conference in Richmond, VA, CIGNA VP spoke on health management & how over 80% of the most costly health conditions could be avoided and eradicated up to 36 months before they manifest, citing a book authored by a U of M prof.

Ottawa County
Where You Belong

Rearranging the deck chairs on the Titanic

Technical v. Adaptive Thinking

- ❖ I realized that for my career to date I was trying to solve an adaptive problem with technical solutions.

- ❖ My teams focused on increasing employee premium sharing cost and reducing plan benefits to fit with budget realities.

- ❖ We were totally focused on health care benefits as they related to the annual budget process.

Ottawa County
Where You Belong

Results…

A new adaptive approach…

❖ We decided to focus on reducing future claims cost.

❖ We also pursued an approach that would enhance employee choice and consumerism in how they would participate in health benefits.

❖ We chose to focus on the health of our employees and helping them make better health choices rather than focusing on annual health plan increases.

Ottawa County
Where You Belong

The new approach

- ❖ Added a high-deductible plan with HSA to the 2 existing traditional PPO plans and incented employees to move to the high-deductible plan.

- ❖ Implemented a health management plan that required employees and spouses to complete a number of health related tasks that had direct impact on their person health plan expense including annual testing.

- ❖ Bid out both full and self insured options each year. Fully insured has yielded the best price since 2011.

Ottawa County
Where You Belong

Success!

- ❖ Whitepaper entitled *Ottawa County, MI: A Health Benefits Success Story* was completed in Dec. 2018.

- ❖ Employees were proven to be healthier.

- ❖ $2.78 million in claims cost was avoided in 2016 alone.

- ❖ Annual cost increases went down dramatically and continue to be low: 2020 budget = 0%; 2019 budget = 1%.

- ❖ Participation and consumerism are high. 96% of those who take County health insurance choose the high-deductible plan/HSA compared to the industry average of 68%.

- ❖ The County saved over $15 million dollars.

Ottawa County
Where You Belong

So now what?

❖ At Ottawa we believe that organizations don't just stay in the same place….

❖ They either continually grow and improve or they slowly deteriorate and die.

❖ What could we do to significantly up the ante and implement another positive game changer?

Protect the Protectors

❖ Heard of Dr. Robertson's work with law enforcement through the Sheriff & Undersheriff.

❖ Decided to fund a first cohort consisting of Sheriff's Office leadership, HR Director and County Administrator.

❖ Ultimately funded all Sheriff's Office through the Ottawa County Insurance Authority.

❖ Great results
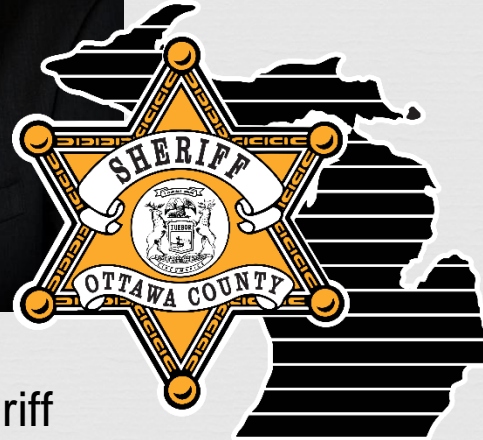
Steve Kempker
Ottawa County Sheriff

https://youtu.be/Uewek1gFYs4

Results

❖ 86% of those who completed the first year of the first cohort desired to continue to a second year.

❖ Personal and professional stressors have been *significantly* reduced.

❖ Financial Risk Projection for heart disease, heart event, obesity, and diabetes all went down significantly.

❖ The average lifetime Financial Risk Projection for those who participated plummeted from $120,370 to $62,883, an average savings per employee of $57,488.

Where are we going from here?

❖ Ottawa is planning to expand the Robertson Brain Health program to all other employees.

❖ The next block of employees will be those with the more difficult stressful occupations such as mental health caseworkers and caregivers, public health staff that work with indigent populations, etc.
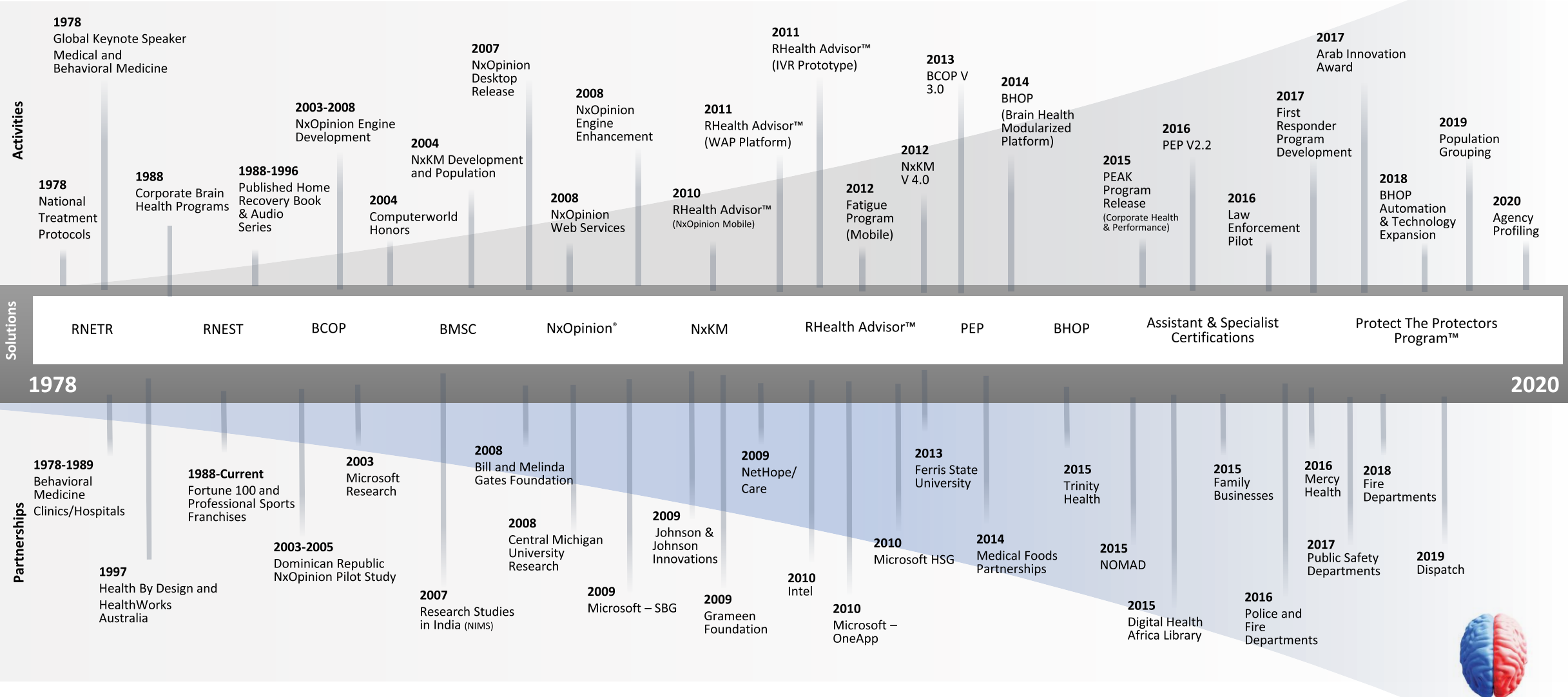
❖ The final group will be the remainder of employees.

Ottawa County
Where You Belong

Chief Karianne Thomas
Kalamazoo Department of Public Safety

Dr. Joel Robertson
CEO, Robertson Health Companies

Robertson Health – a rich history

Activities

1978
Global Keynote Speaker Medical and Behavioral Medicine

1978
National Treatment Protocols

1988
Corporate Brain Health Programs

1988-1996
Published Home Recovery Book & Audio Series

2003-2008
NxOpinion Engine Development

2004
NxKM Development and Population

2004
Computerworld Honors

2007
NxOpinion Desktop Release

2008
NxOpinion Engine Enhancement

2008
NxOpinion Web Services

2010
RHealth Advisor™ (NxOpinion Mobile)

2011
RHealth Advisor™ (WAP Platform)

2011
RHealth Advisor™ (IVR Prototype)

2012
Fatigue Program (Mobile)

2012
NxKM V 4.0

2013
BCOP V 3.0

2014
BHOP (Brain Health Modularized Platform)

2015
PEAK Program Release (Corporate Health & Performance)

2016
PEP V2.2

2016
Law Enforcement Pilot

2017
First Responder Program Development

2017
Arab Innovation Award

2018
BHOP Automation & Technology Expansion

2019
Population Grouping

2020
Agency Profiling

Solutions

| RNETR | RNEST | BCOP | BMSC | NxOpinion® | NxKM | RHealth Advisor™ | PEP | BHOP | Assistant & Specialist Certifications | Protect The Protectors Program™ |

1978 — **2020**

Partnerships

1978-1989
Behavioral Medicine Clinics/Hospitals

1997
Health By Design and HealthWorks Australia

1988-Current
Fortune 100 and Professional Sports Franchises

2003
Microsoft Research

2003-2005
Dominican Republic NxOpinion Pilot Study

2007
Research Studies in India (NIMS)

2008
Bill and Melinda Gates Foundation

2008
Central Michigan University Research

2009
Microsoft – SBG

2009
Johnson & Johnson Innovations

2009
Grameen Foundation

2009
NetHope/ Care

2010
Intel

2010
Microsoft – OneApp

2010
Microsoft HSG

2013
Ferris State University

2014
Medical Foods Partnerships

2015
Trinity Health

2015
NOMAD

2015
Digital Health Africa Library

2015
Family Businesses

2016
Police and Fire Departments

2016
Mercy Health

2017
Public Safety Departments

2018
Fire Departments

2019
Dispatch

ROBERTSON RESEARCH INSTITUTE™

Microsoft ComputerWorld Honors Award

Arab Innovations Award

Fall of 2016 Pilot Program

KENT COUNTY SHERIFF'S OFFICE

GRAND RAPIDS POLICE

MERCY HEALTH

Health Care, Human Resources, and Law

800 officers in line for stress help

Sheriff's department, GR police will test behavioral he

July 15, 2016 | By Mike Nichols | 0 Comments

TAGS GRAND R
KENT COUNTY
RESEARCH INS

'Op5' studies physical, mental health of law enfor

Robertson Research Institute and Mercy Health work with GRPD and Sheriff's Department.

By Mike Nichols
March 4, 2016

2017 – 2020 Program Expansion

- 30 Partners
- Over 1,000 First Responders
  - Police
  - Public Safety
  - Corrections
  - Fire
  - Dispatch

- Stay Well

- Get Well

- Minimize consequences of diseases, moods and behaviors

- AND save organization money

Are we effectively doing this?
Are there metrics that show cost effectiveness of wellness programs?

- Average Wellness Programs attract 19% of the population
  - Most of those employees are already involved in some sort of personal health and wellness program
- Diet programs are only effective 3% of the time after 2 years
- Unhealthy employees are the least likely to participate in a wellness program

- Estimates that up to 60% of our diseases, moods, and behaviors are caused by lifestyle factors
- Recent studies show that lifestyle changes can be as effective as medication for mild depression

If we all "know" this, why don't we change?

- Education doesn't change behavior
  - We all "know" what we should do
- Knowing lab results rarely focuses on prevention rather on maintenance of a disease
  - Important but may not be the best solution

Is there a better way?

- ## PREDICT
  - Robertson uses predictive analytics and artificial intelligence to "predict" the diseases, moods and behaviors that one may be at risk

- ## PREVENT
  - Artificial intelligence helps link risk predictors with evidence-based medicine for "what works"

- ## PERSONALIZE
  - Robertson uses artificial intelligence, predictive analytics and inference logic to determine what a person "will do" and "what will work" for that person

- It must be **MY** program and tailored for **ME**:
  - What is broken
  - Why it is broken
  - How do I fix it
  - What will I actually do (vs. what SHOULD I do)

- Agencies and organizations have unique needs based upon employee functions, unique stressors, and environmental factors
- Job Stressors are unique to each organization
- Determining an "Organization Profile" helps to determine what needs to be changed to decrease stress and improve the health of the employees
- Inference logic with artificial intelligence allows the ability to "pinpoint" problems, thus allowing management to provide solutions

Tailoring for the Individual:
The Science

Genetics

- Best identified through family history (demonstrates expression of genes)

Environment

- Pre-12 Years of Age Impact on Brain Health
  - Oppression and the brain
- Present Environment
  - Stress
  - Environmental factors
  - Health factors
  - Relationship factors

Lifestyle

- Diet (What and when)
- Exercise (What type, how much, how often)
- Self Medication (Food and alcohol as self-medication)
- Default Mode Network Factors
  - Music
  - Hobbies
  - Passion

Understanding Your Brain and Why You Do What You Don't Want to Do

"Take control of your brain or it will take control of you"

- ## Your brain has a reward center
  - What feels good to one, may not to another
  - Your brain has no morals
  - If it feels good you will do it, if it doesn't you won't

- ## Have you ever thought about?
  - Exercise may or may not feel good to you
  - Healthy food choices may be good for you, but you can't do it.
  - Hanging out with family may really be harder than with friends
  - Sitting down to spend time with your kids may be difficult

Knowing your brain allows you to change

- Your brain causes you to have "Natural Tendencies"
  - In AD 50 Apostle Paul wrote "why do I do what I don't want to do"
  - Do you drink when you think you probably shouldn't?
  - Do you get angry or over-react when you don't want to?

- Have you ever thought about?
  - Maybe these behaviors are actually giving your brain a reward by "treating imbalances"
  - Drinking may be self-medicating anxiety or depression

You can't prohibit a behavior without replacing it with a similar "brain experience" (or "self-medication")

- ## Your brain has a default mode network
  - ### A brain that doesn't get to relax will cause:
    - Early dementia
    - Anxiety
    - Sleeplessness
    - Anger
    - Health, performance and relationship issues

- ## Have you ever thought about?
  - How often does your brain really get to relax without the use of substances?
  - Are you always in "problem solving mode" or "task mode"?

An "overactive" brain that doesn't have a relaxed default mode network loses grey matter in the brain

(Spatial Patterning of Tissue Volume Loss in Schizophrenia Reflects Brain Network Architecture, Biology of Psychiatry October 2019)

- Brain chemicals are the driving force behind your moods, diseases and behaviors
  - Brain chemicals:
    - Give you energy
    - Cause depression
    - Increase your performance
    - Make you calm
    - Make you excited
    - Change your perceptions
    - Affect your health, performance and relationships

- Have you ever thought about?
  - Why you may be like your parents?
  - Why you can't relax in certain areas?
  - Why you and your spouse (friend) see things so differently?
  - Why life doesn't give you joy?

Brain chemicals are the major determinant of behaviors

**Brain chemistry
is the major determinant
of behavior**

Drugs *don't* change behavior

Drugs *do* affect brain chemistry

**Other lifestyle issues,
such as diet, activity, thoughts and behaviors,
also affect brain chemistry**

Brain Health Optimization

Dopamine Symptom Continuum

Brain Health Optimization

Serotonin Symptom Continuum

Brain Health Optimization

Acetylcholine Symptom Continuum
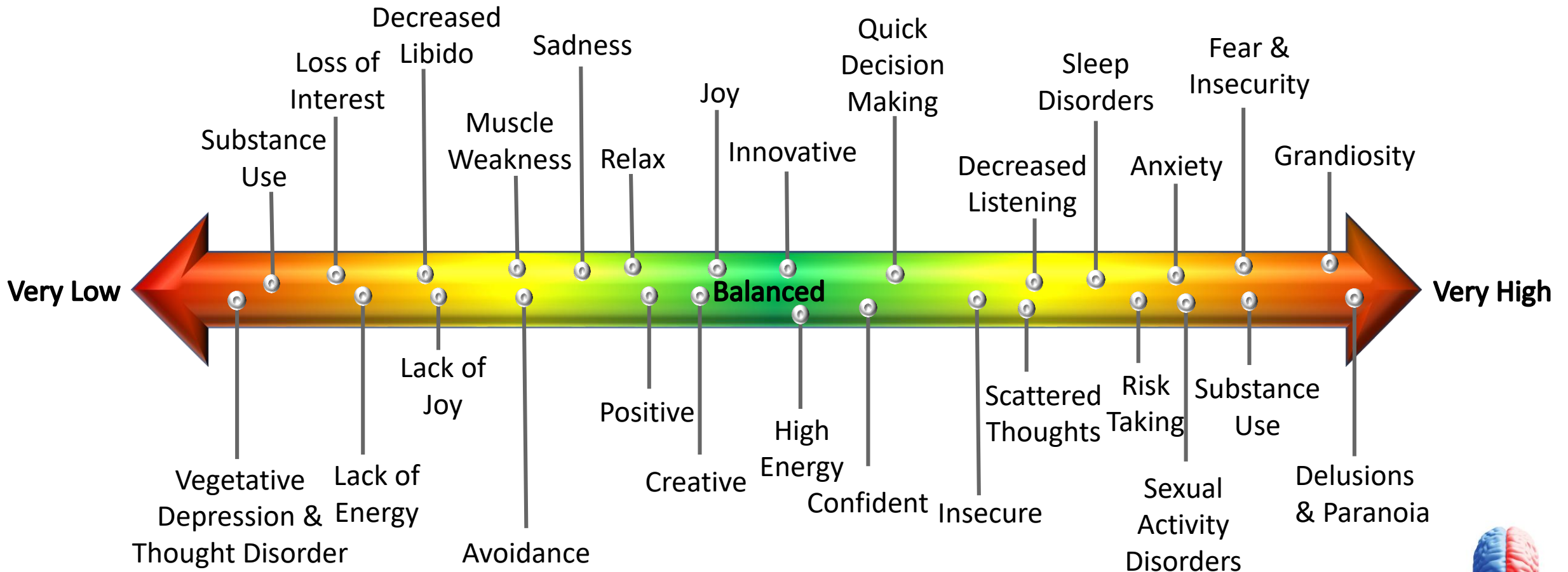
Check engine light
&
Your brain

Recognizing your "brain check engine light"

Tailoring for the Individual:
The Process

Online Assessment (HIPPA Compliant) of family and personal history, environment, symptoms, and "what you are doing now"

- 287,000 variables to determined
- What is broken? CPV Causes and Responses
- How do you fix it? Research and Population Grouping
- What will you do to fix it? Artificial Intelligence and Predictive analytics
- How do you measure it is working?

Delivery (varies with agency)

Brain Chemistry Seminar	Brain Protection Seminar	Health & Prevention Seminar	Performance, Relationships Seminar
Personal Strategic Plan	Personal Strategic Plan	Personal Strategic Plan	Personal Strategic Plan
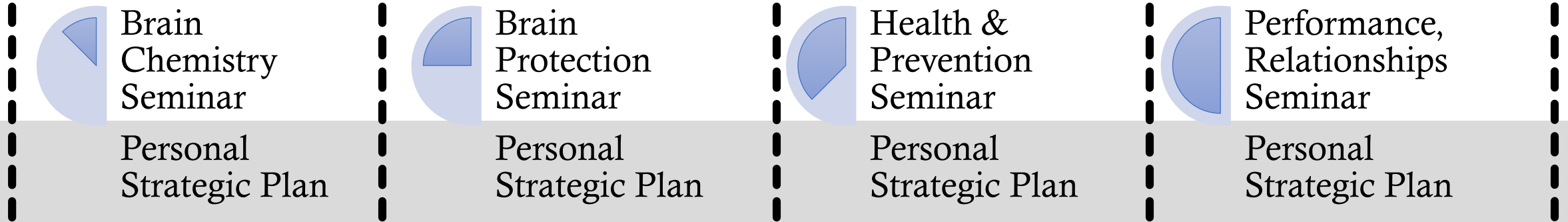
- Video recording of the seminar may be available
- Personal Strategic Plan Part 1 is required to be face-to-face
- Each participant is given:
  - Personalized "results" and other materials for each seminar – program binder
  - Companion guide
  - 3-minute RVideo's via e-mail
  - RSpecialist – face to face or phone appointments available upon request

Tailoring for the Agency:
The Science

- There is no "normal" in reference to genetics, environment and lifestyle

- Artificial intelligence determines the average factor

- An issue is more than or less than the average

- This comparison creates a story about an agency

- Inference logic can take an agency's "story" and drive to the cause of specific, unwanted practices or behaviors

- Partnerships are essential between Robertson and the Agency as data must have observations to be interpreted accurately

The Impact of Position and Years of Service on Employee Health

A Case Study
Kalamazoo Department of Public Safety:
Initial Findings
The differences between positions and length of service

*Note: Years of Service Date for individuals with greater than 25 years of experience is not included due lack of data in this example

Reasons to Participate: Positions
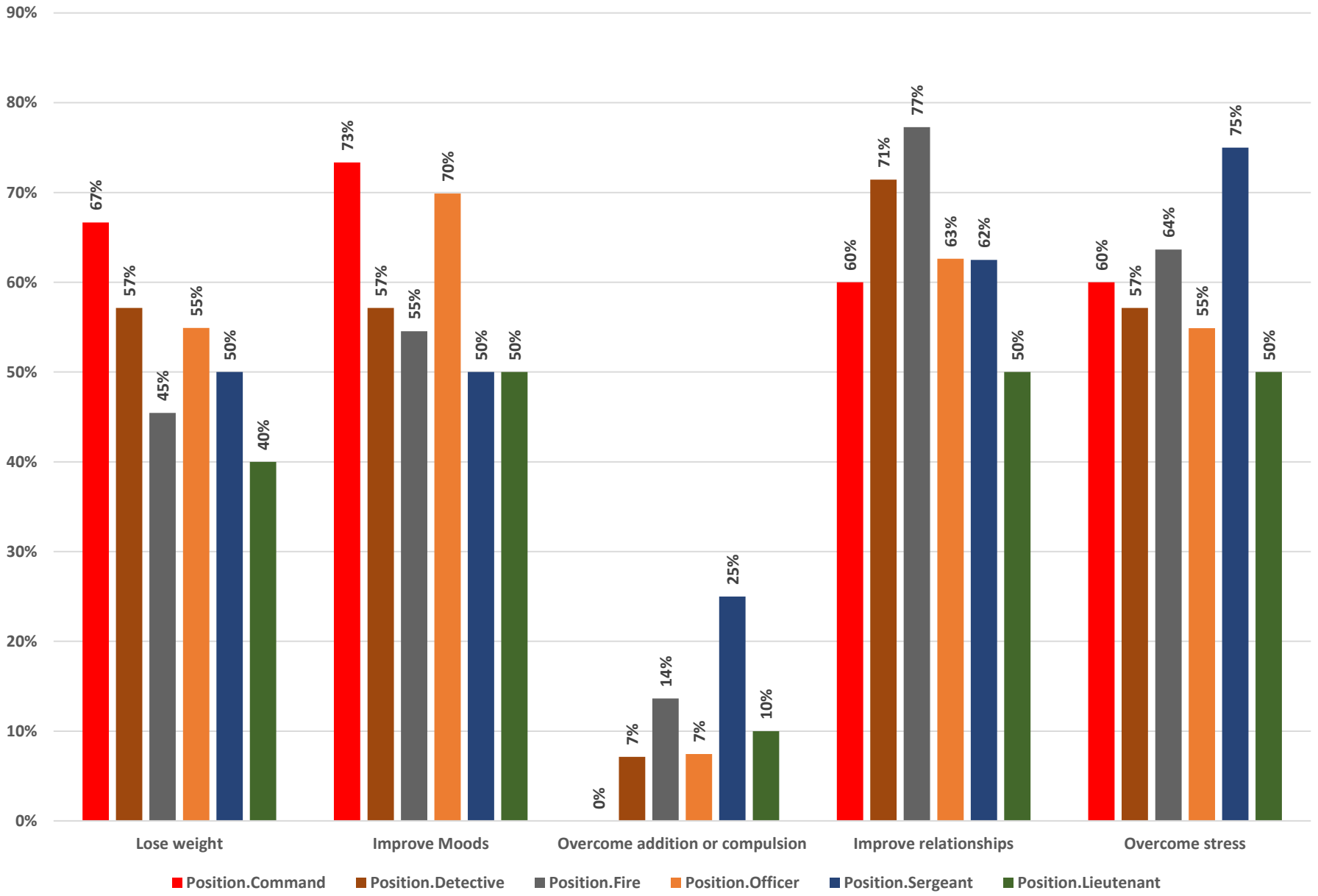
Reasons to Participate: Years of Service
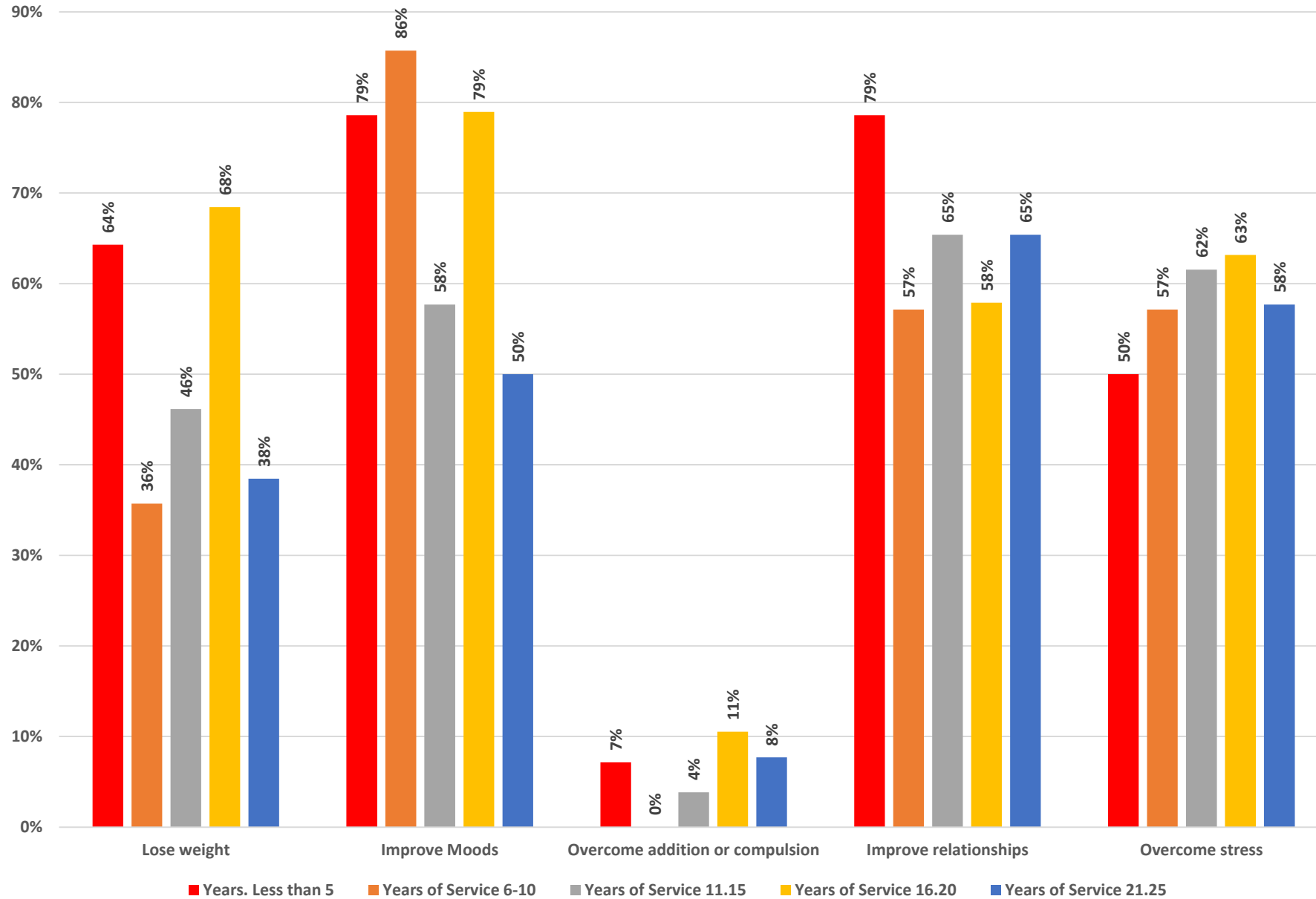
Health Risk Factors: Position
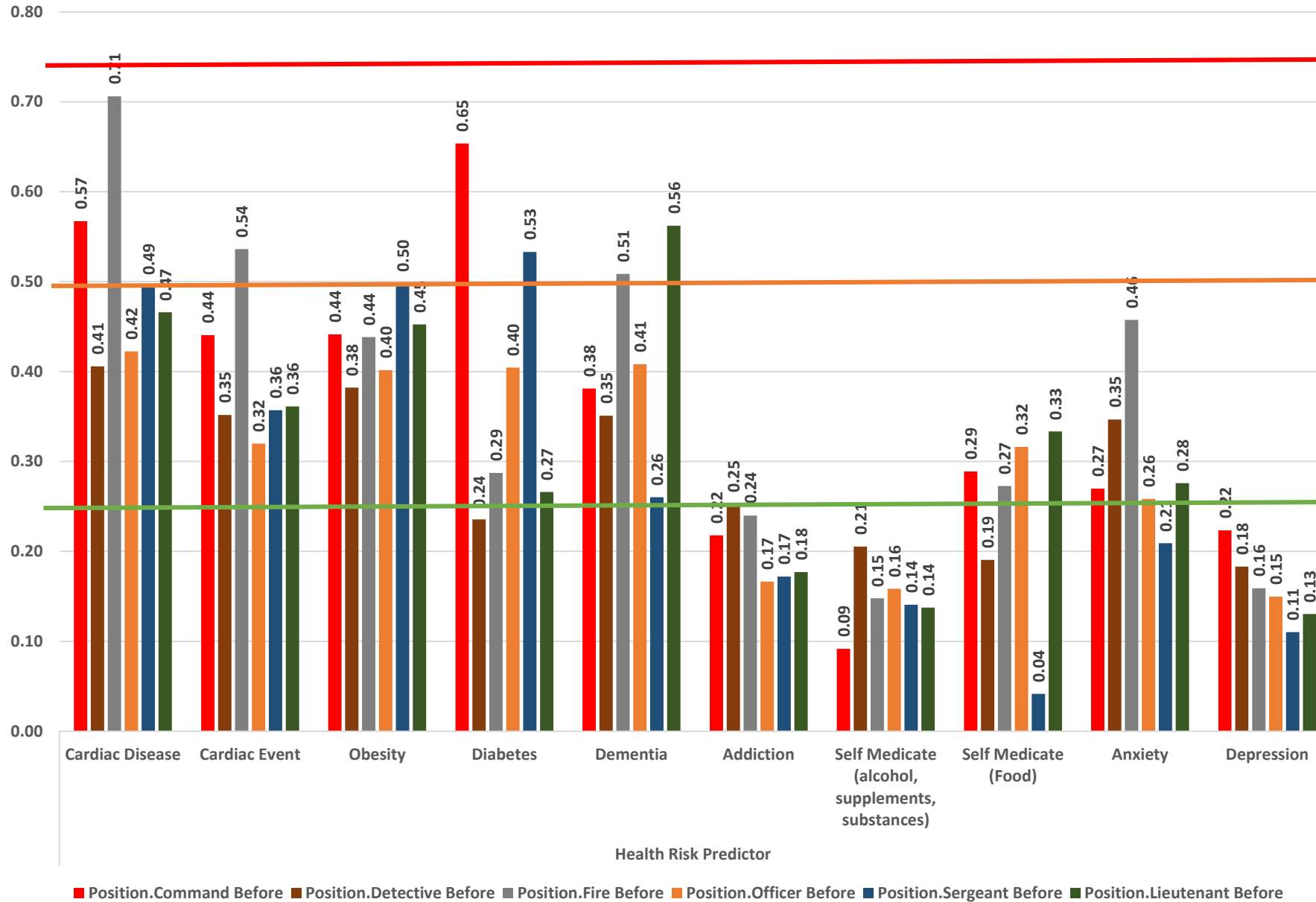
Relationship Risk Factors: Postion
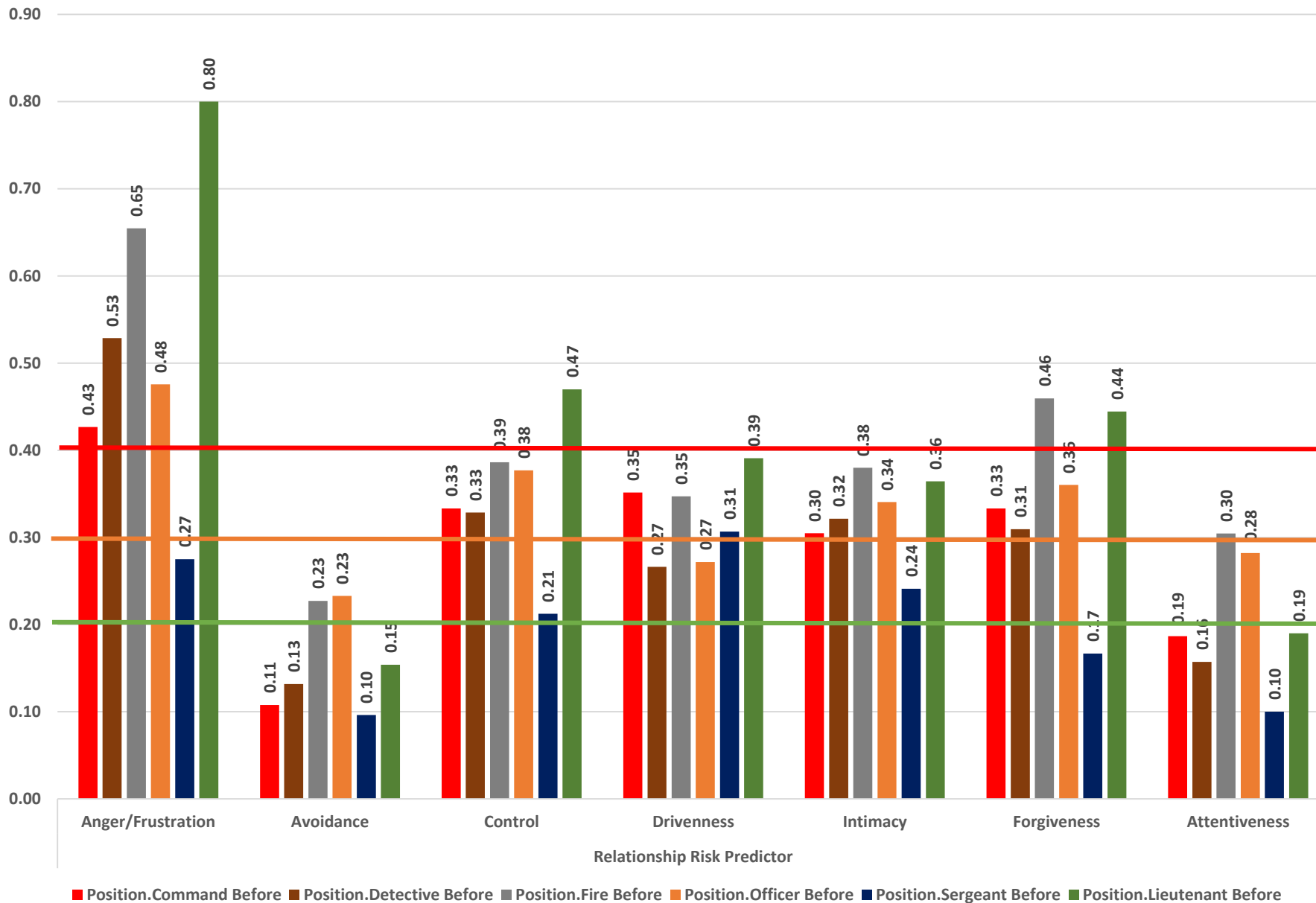
Performance Risk Factors: Position
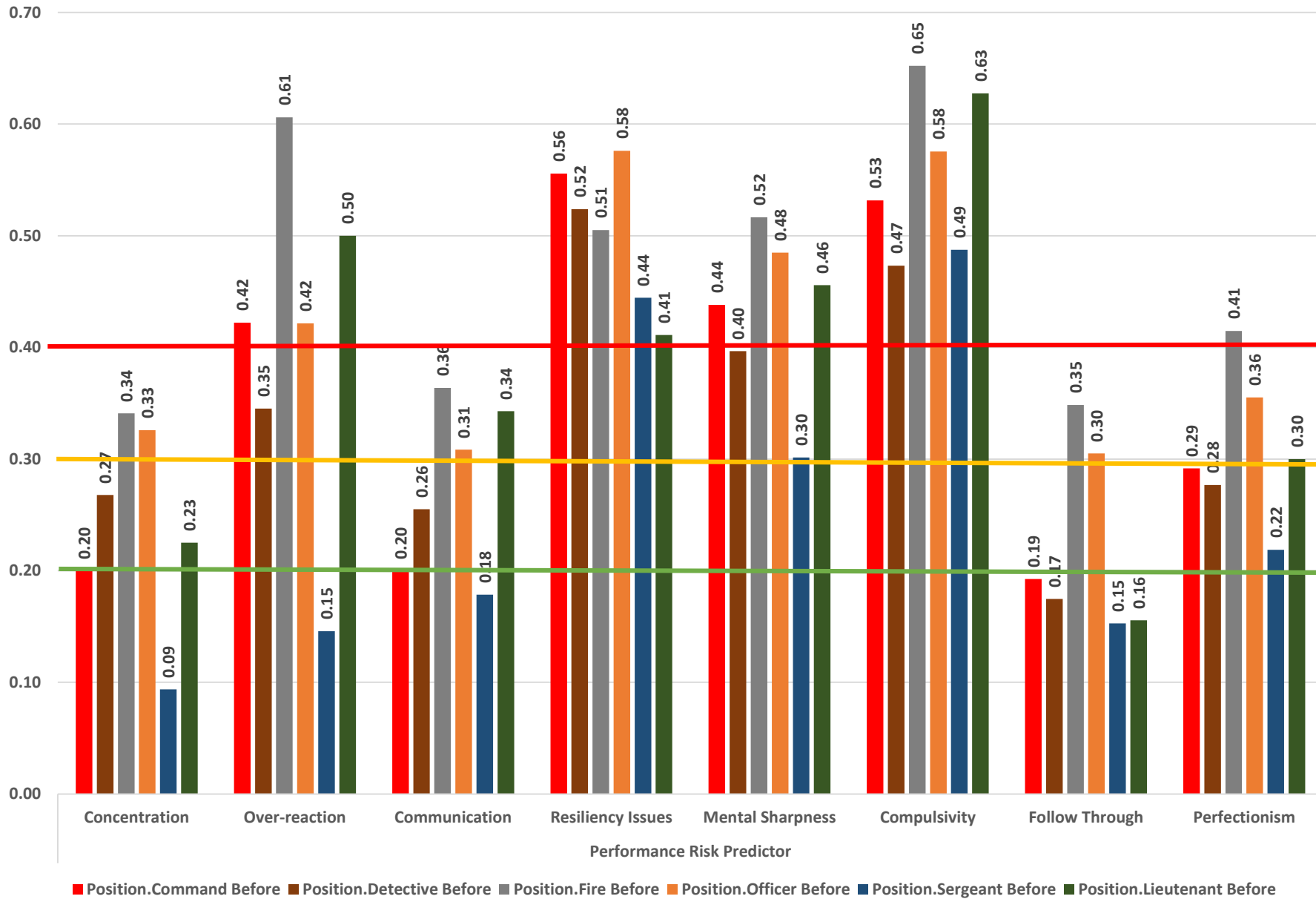
Lifetime Financial Impact of Complacency: Position
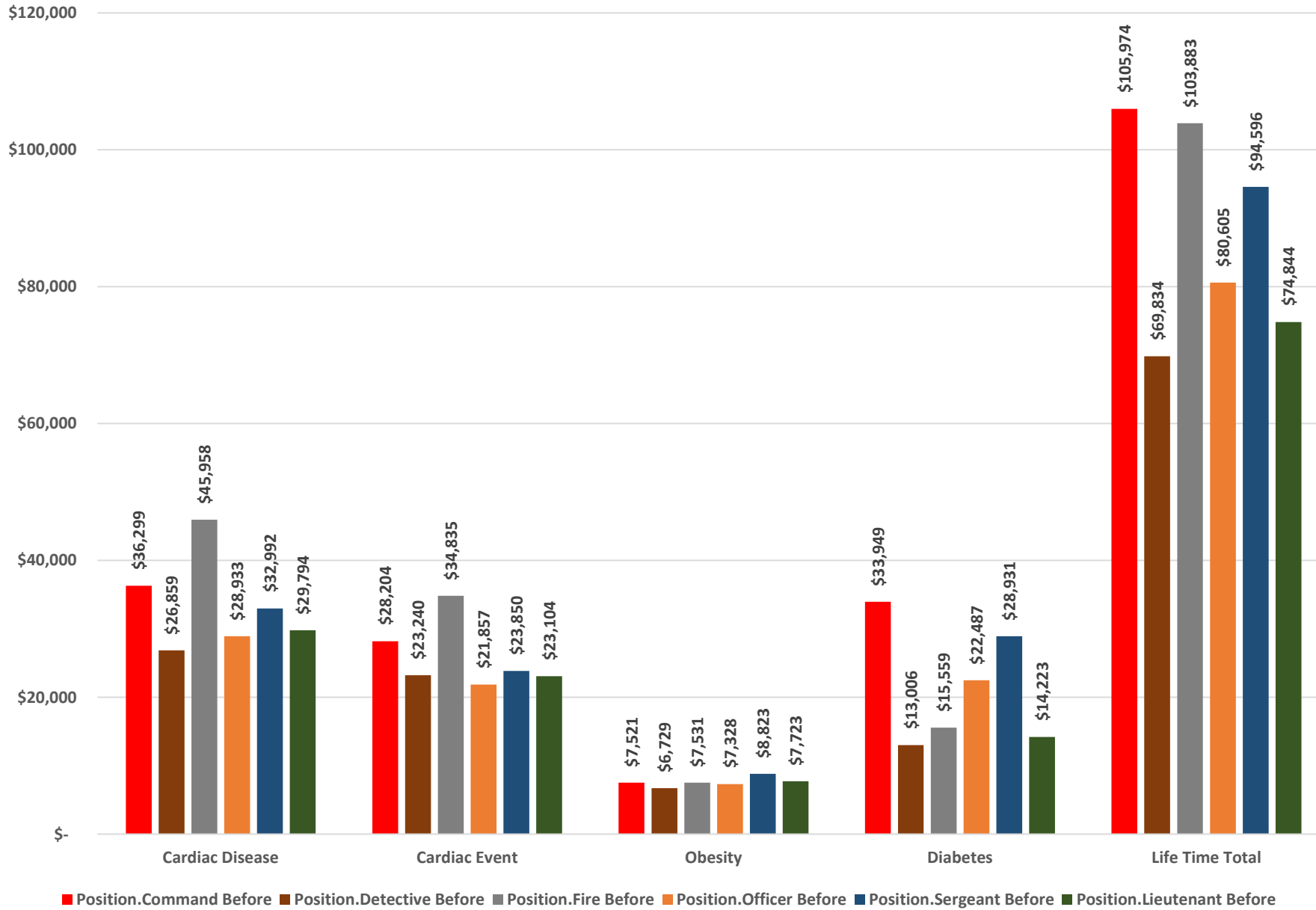
Health Risk Predictor: Years of Service

	Cardiac Disease	Cardiac Event	Obesity	Diabetes	Dementia	Self Medicate (Food)	Anxiety	Depression
Years. Less than 5	0.33	0.29	0.38	0.39	0.31	0.40	0.24	0.16
Years of Service 6-10	0.49	0.36	0.29	0.32	0.54	0.24	0.31	0.21
Years of Service 11.15	0.47	0.37	0.35	0.31	0.42	0.21	0.26	0.19
Years of Service 16.20	0.66	0.53	0.52	0.30	0.56	0.35	0.41	0.16
Years of Service 21.25	0.69	0.46	0.41	0.39	0.41	0.28	0.34	0.16
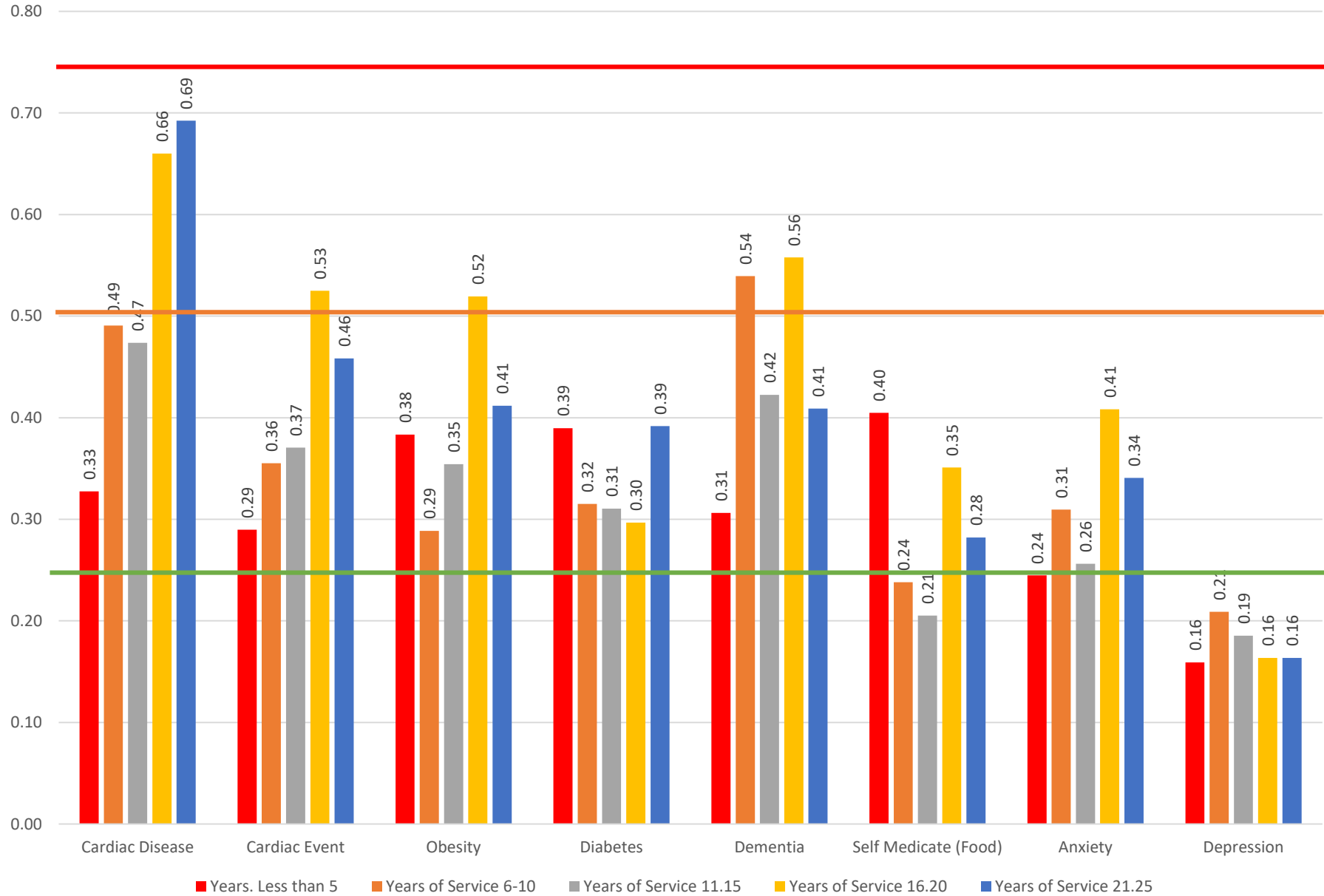
Relationship Risk Predictor: Years of Service
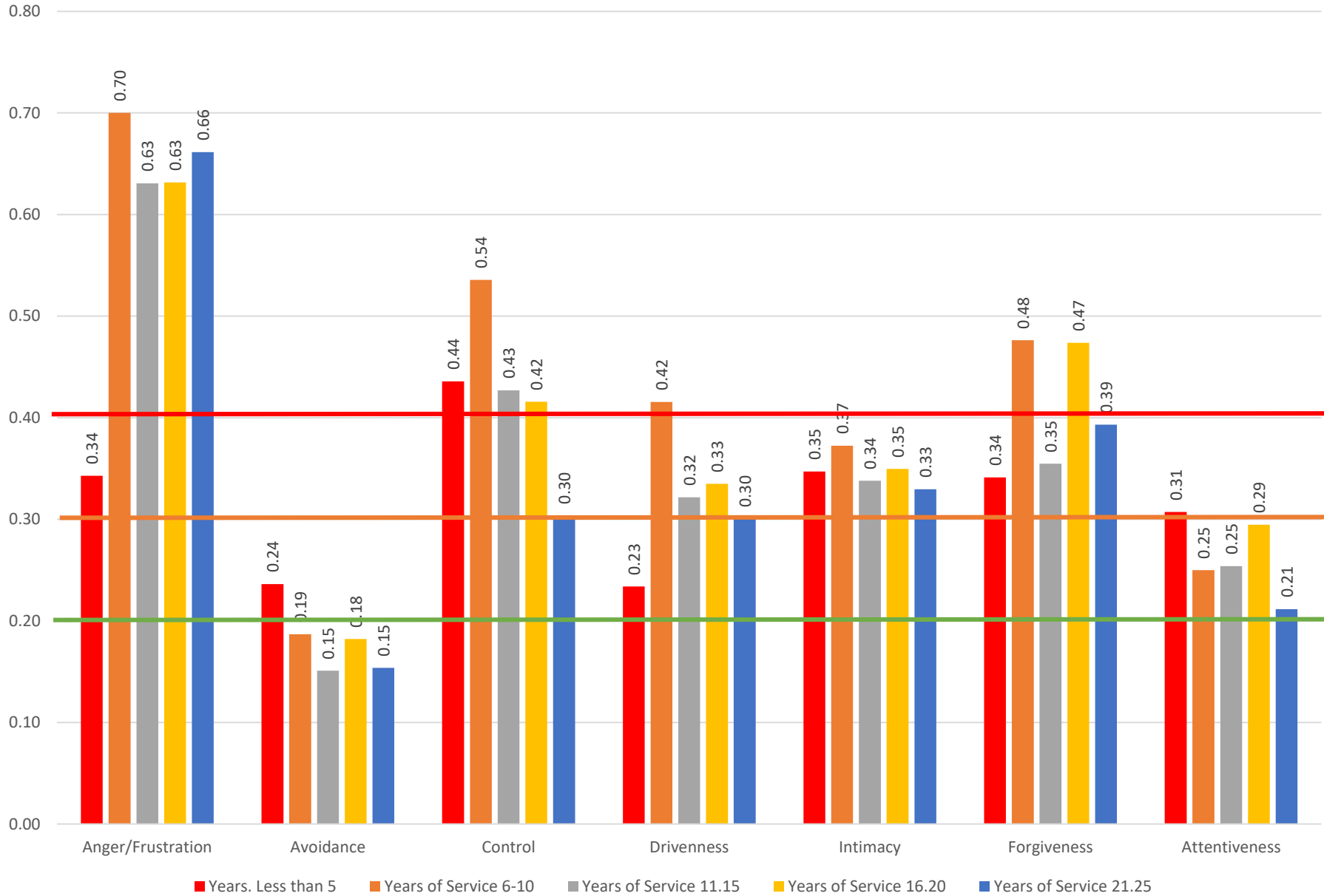
Performance Risk Predictor: Years of Service
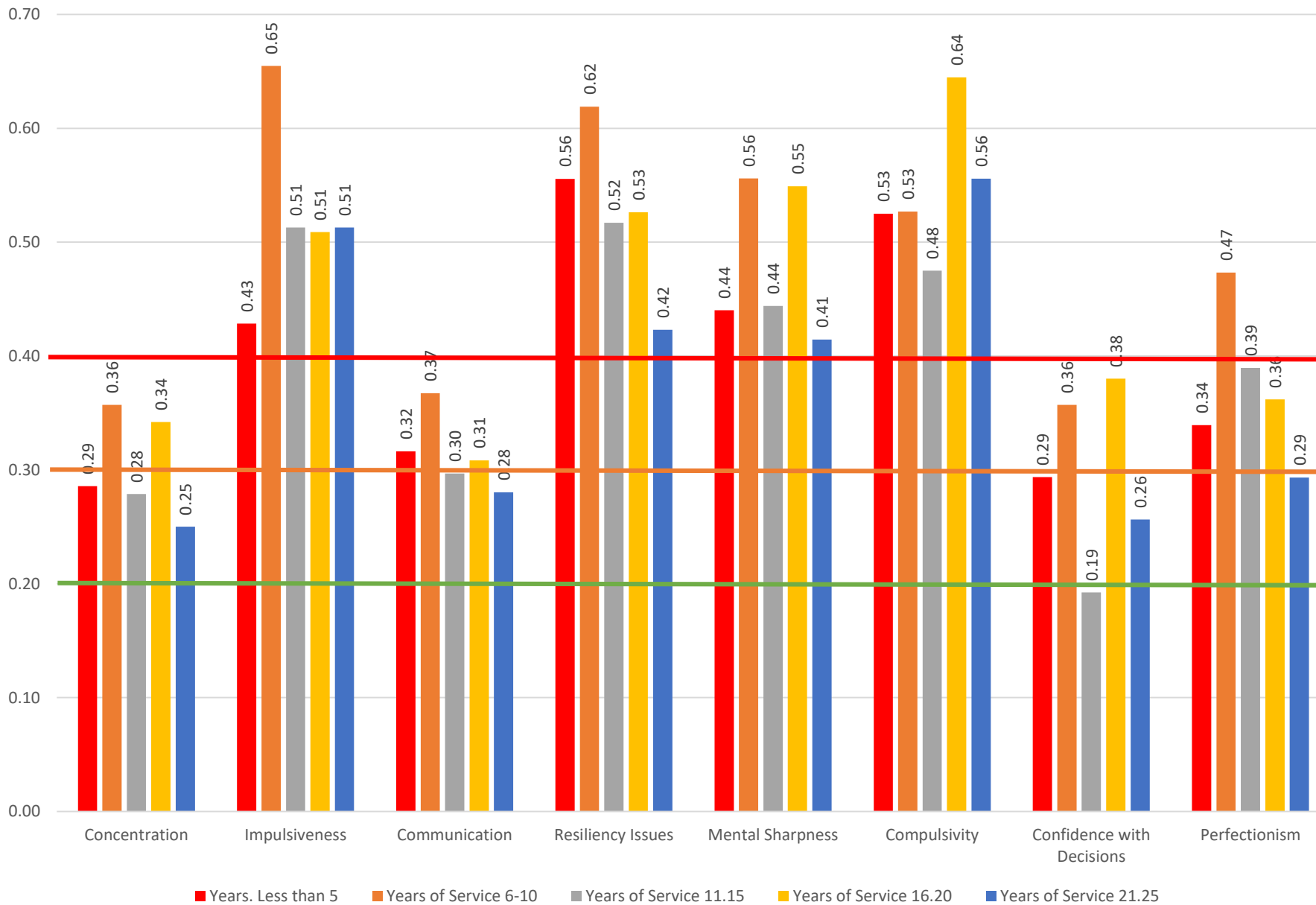
Lifetime Financial Impact of Complacency: Years of Service
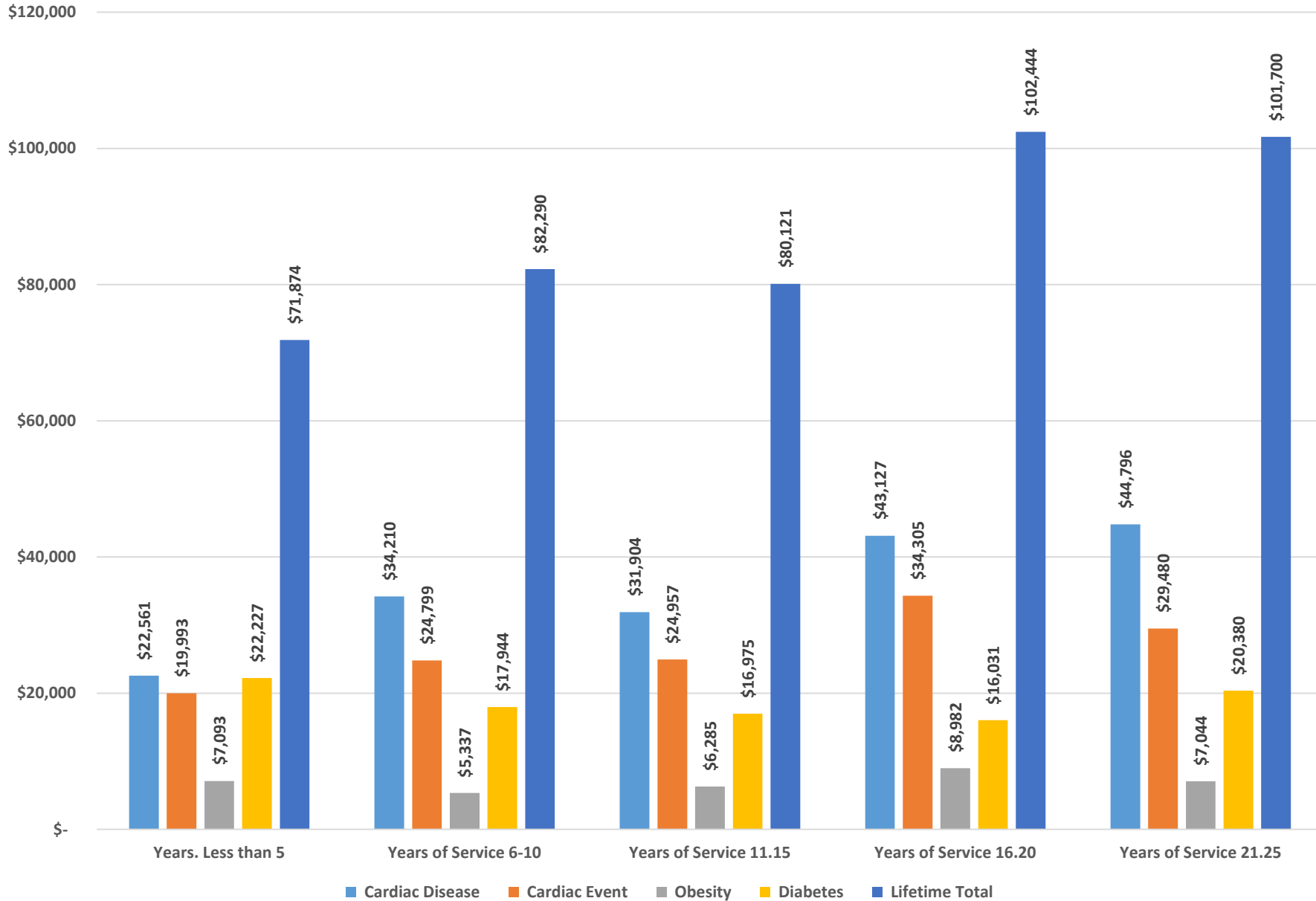
- A person's reason to participate (the pain the are experiencing) and the impact of that "pain" on their health, performance and relationships is unique to:
  - Position
  - Years of Service
  - Shift (not shown in this example)

The Impact of Precision, Personalization, and Predictive Programs

A Case Study
Ottawa County Sheriff Department: Outcomes

NIH states that genetics, environment and lifestyle contribute to a person's diseases moods and behaviors

Genetics (Using family history)
    Grandparents weighting .25
    Parents weighting   .50

    Your weighting   1.00

Environment
    Pre-12 years factors
    Present environment (Health, relationships,
            performance and stress)

    AI calculates the "norm" and the value is the deviance
    from the norm
            Example: Dysfunctional family

Lifestyle
    Addresses activity, use of foods, hobbies and other factors
    Addresses symptoms that relate to disease
            Example: Shortness of breath and cardiac disease

    AI calculates the "norm" and the value is the deviance from the norm

CPV Calculations determine "Risk Factors"
    Combine all of the above factors
    Calculates an aggregated "norm"
            RBH has 16,000 participants
    Determines a CPV Value

CPV improvement calculations are determined by the symptoms, brain chemical and behavioral improvements and subtracted as contributing factors

Disease Risk Predictor Impact
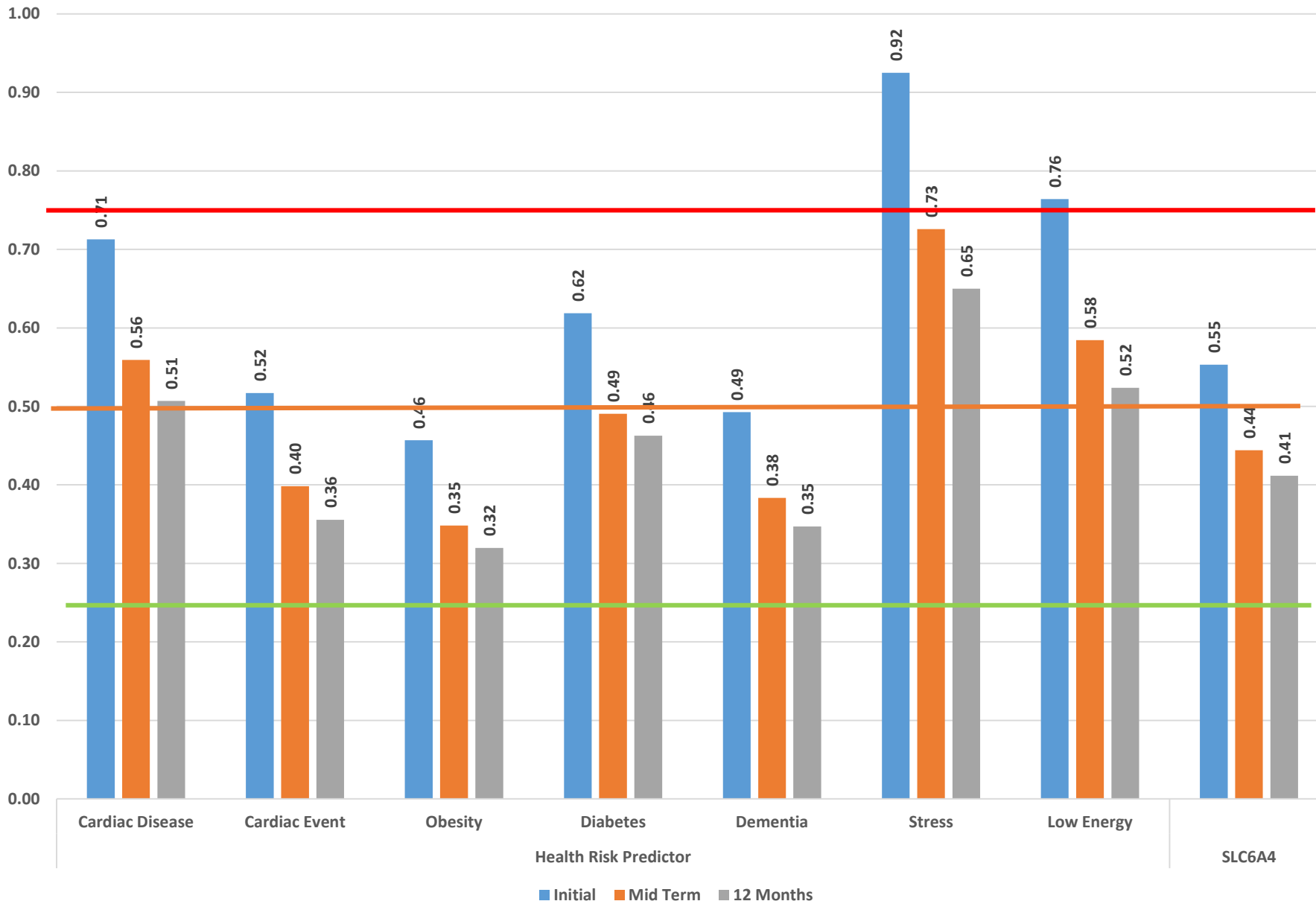
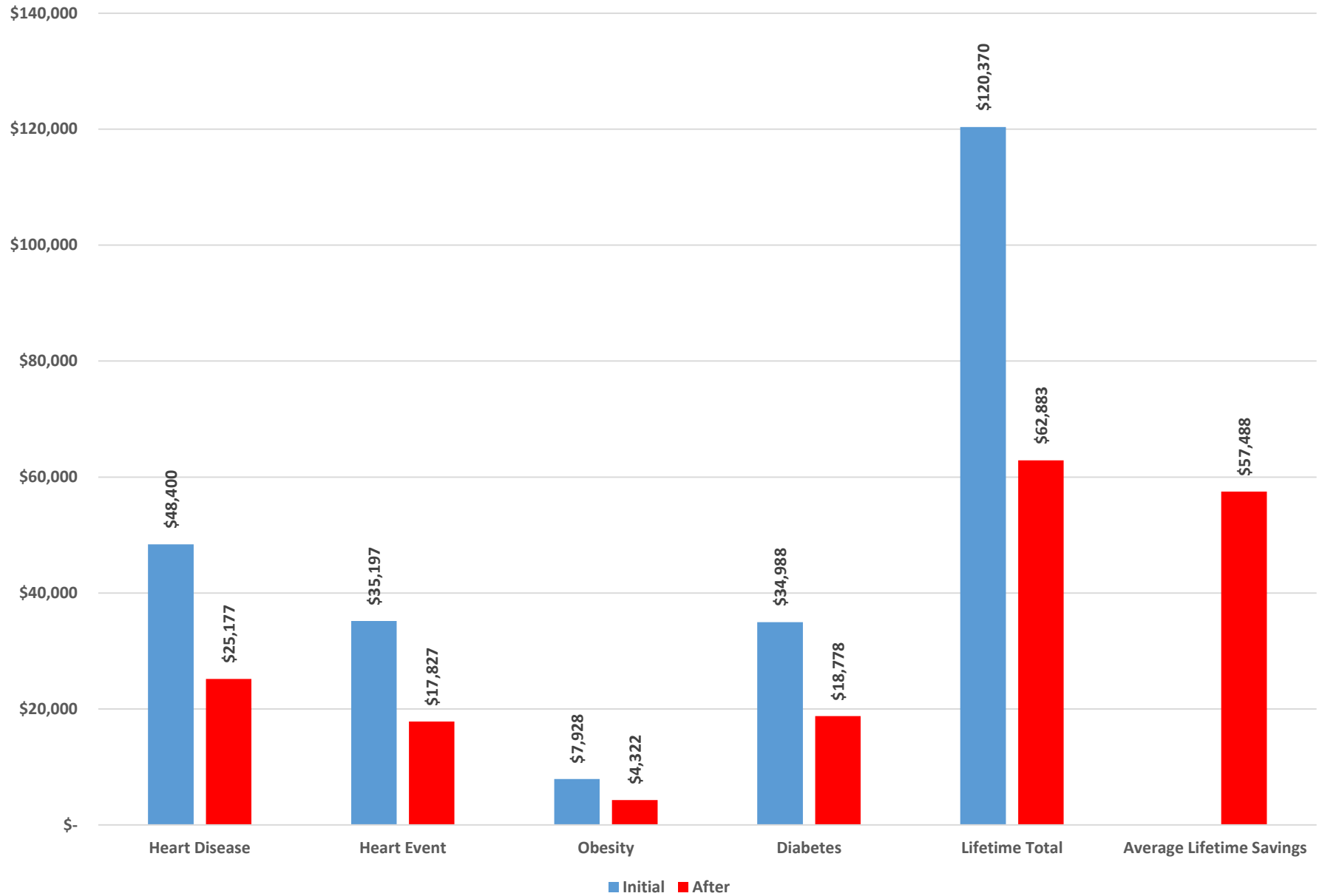Disease: Behavioral Risk Predictor Impact
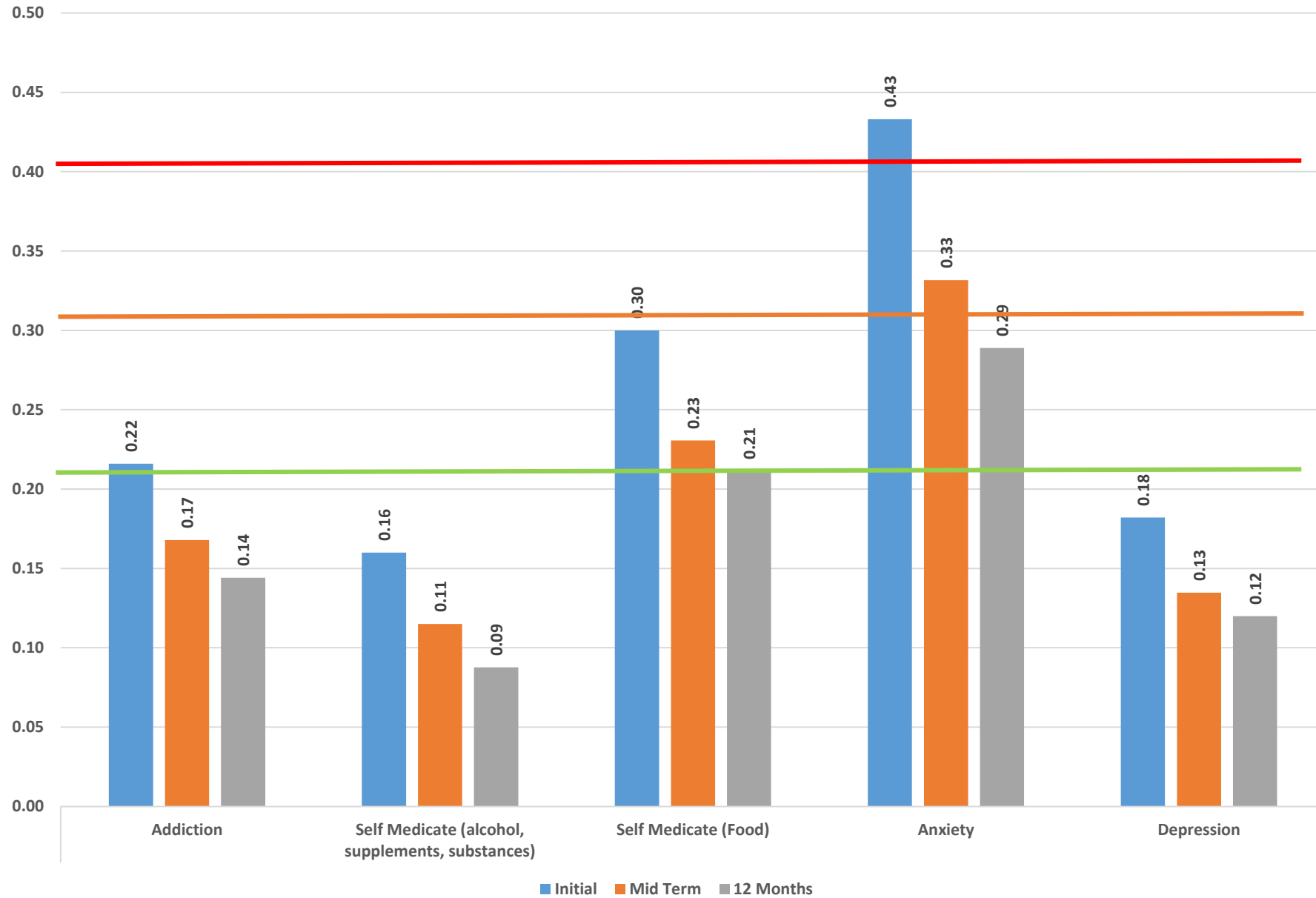
Performance Risk Predictor Impact
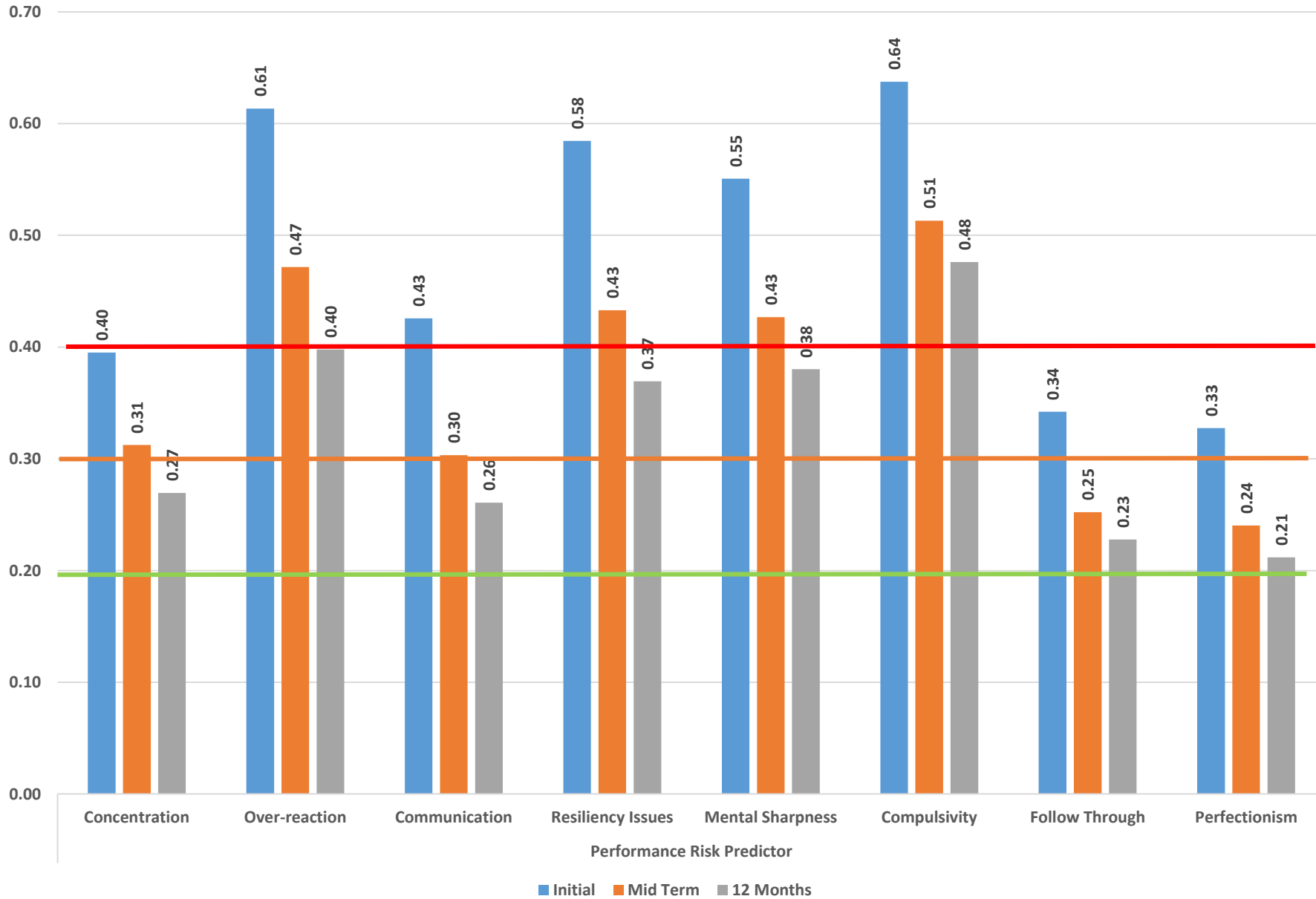
Relationship Risk Predictor Impact
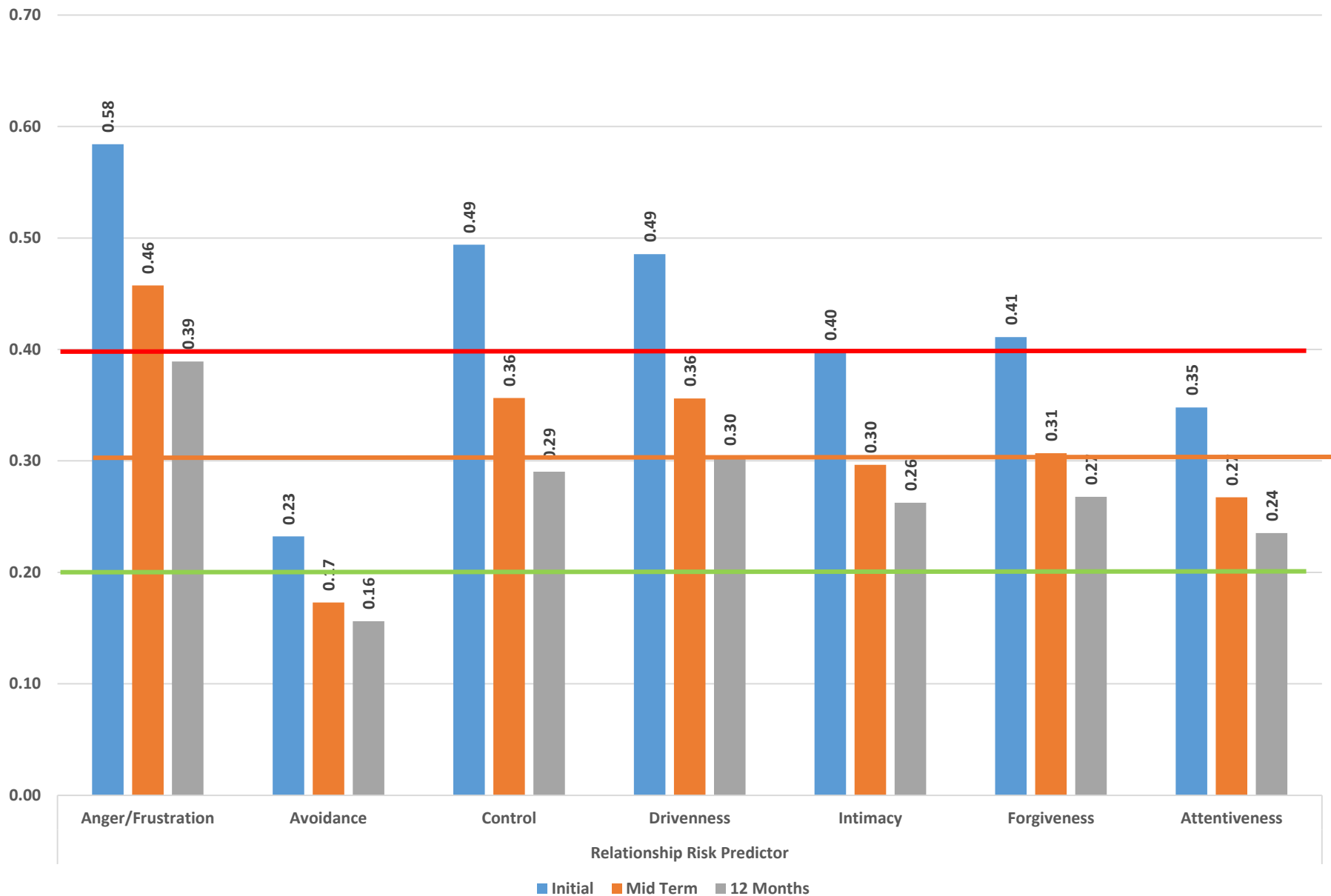
"Big Three" Risk Predictor Impact
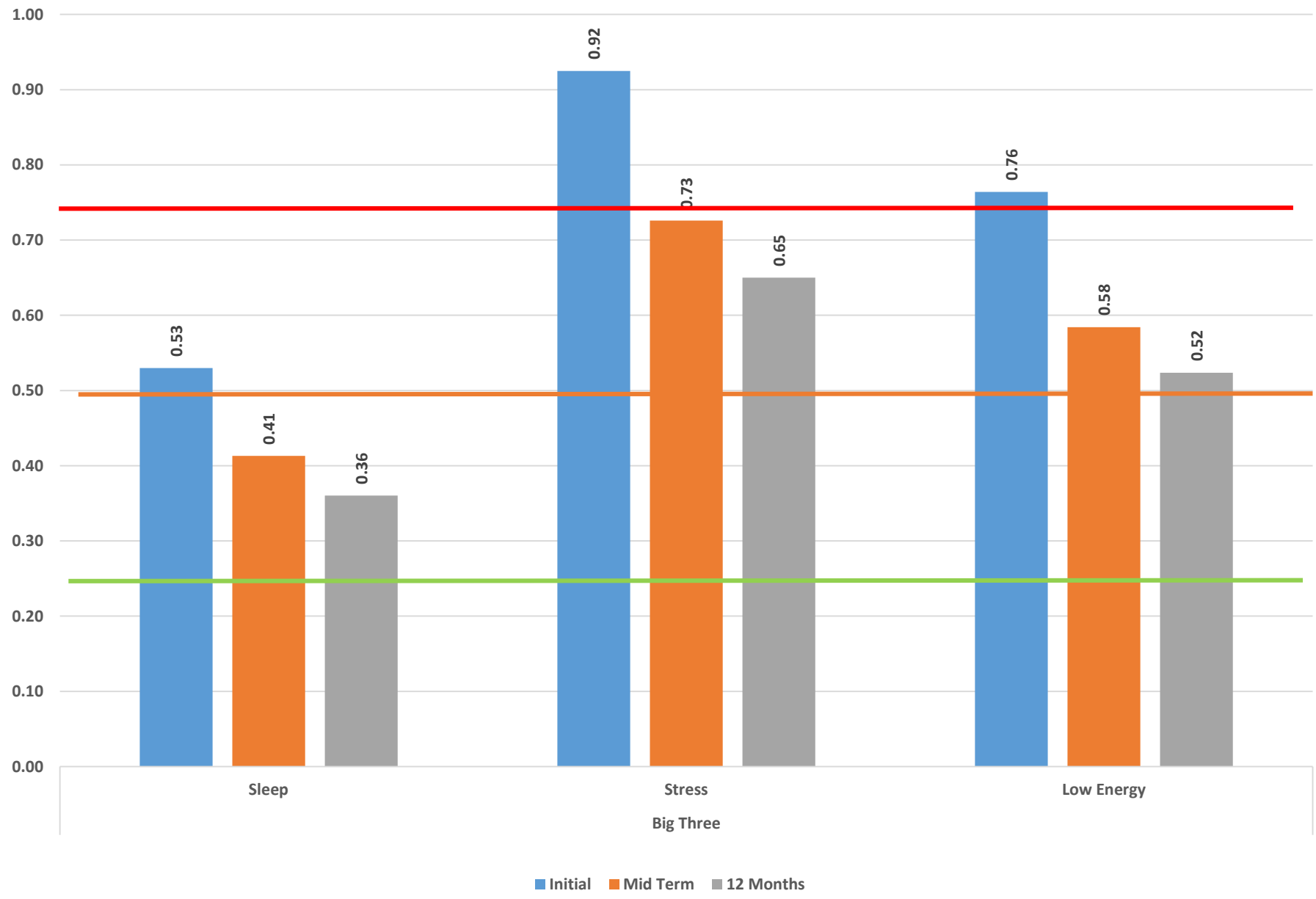
Financial Risk Predictor (Per Person Average)

Heart Disease — Initial $48,400, After $25,177
Heart Event — Initial $35,197, After $17,827
Obesity — Initial $7,928, After $4,322
Diabetes — Initial $34,988, After $18,778
Lifetime Total — Initial $120,370, After $62,883
Average Lifetime Savings — After $57,488

Legend: Initial, After

When programs are tailored are based upon a brain reward system (what a person will do), combined with personal strategic plans, we can achieve greater results than with generic education.

Inference Logic & Agency Profiling
Pinpointing strengths and potential areas of weakness

A Case Study
City of Kalamazoo
Agency Profile

- Agency Profiling uses artificial intelligence to "define" factors that are variables within organizations

- Individual's Clinically Predictive Values (CPV), natural tendencies, brain chemistry, and risk factors are combined into groupings that are aggregated for each factor

- For Example:
  - Anger, over-reaction, and avoidance are factors that can be combined into the "Communication Issues" factor

- Clinical weighted prevalences (CWP) determines the norm of all factors

- The aggregated results of a team, organization, or grouping of people will be compared against the CWP
  - Values greater than the CWP (norm) are stronger
 - Values less than the CWP (norm) are weaker
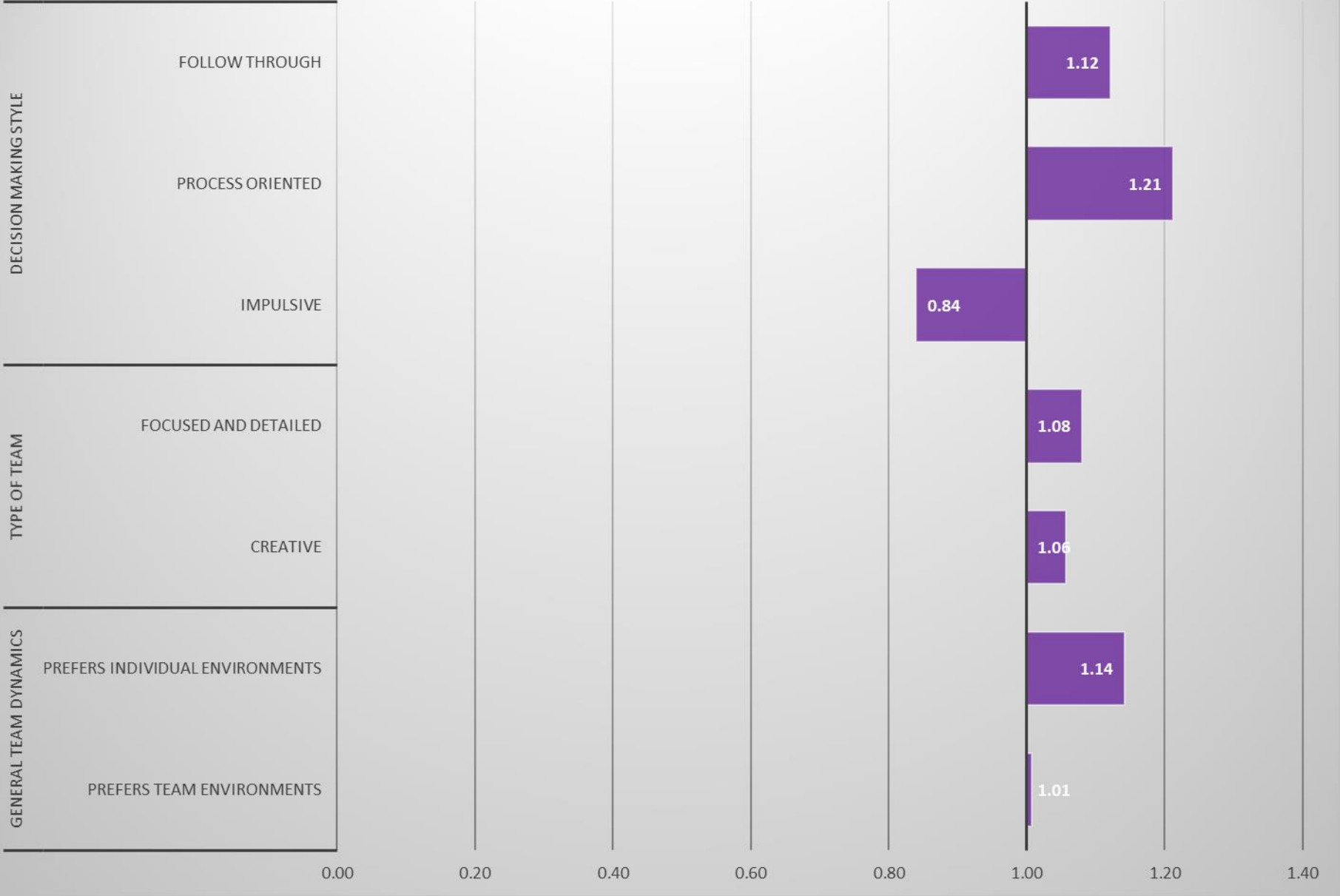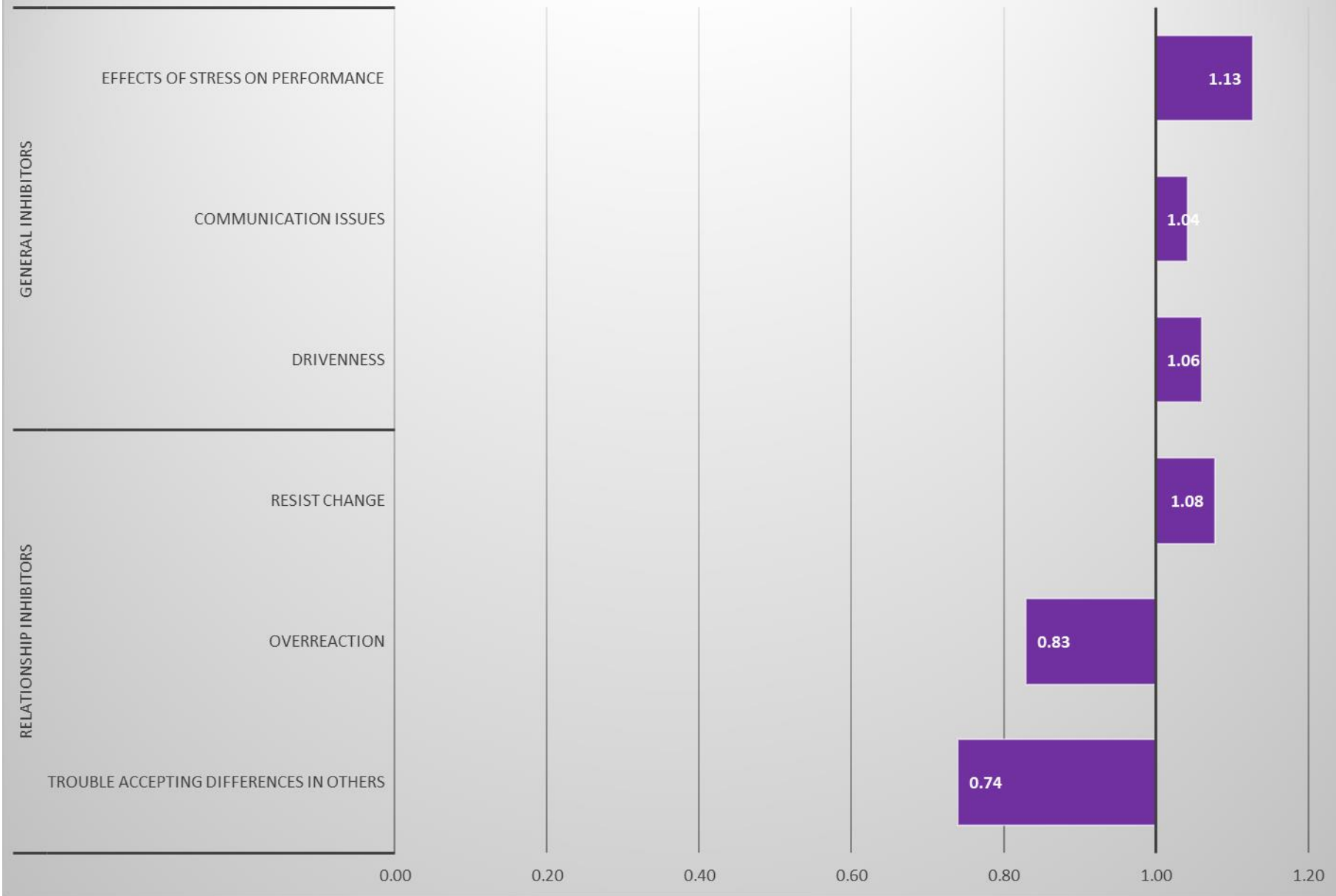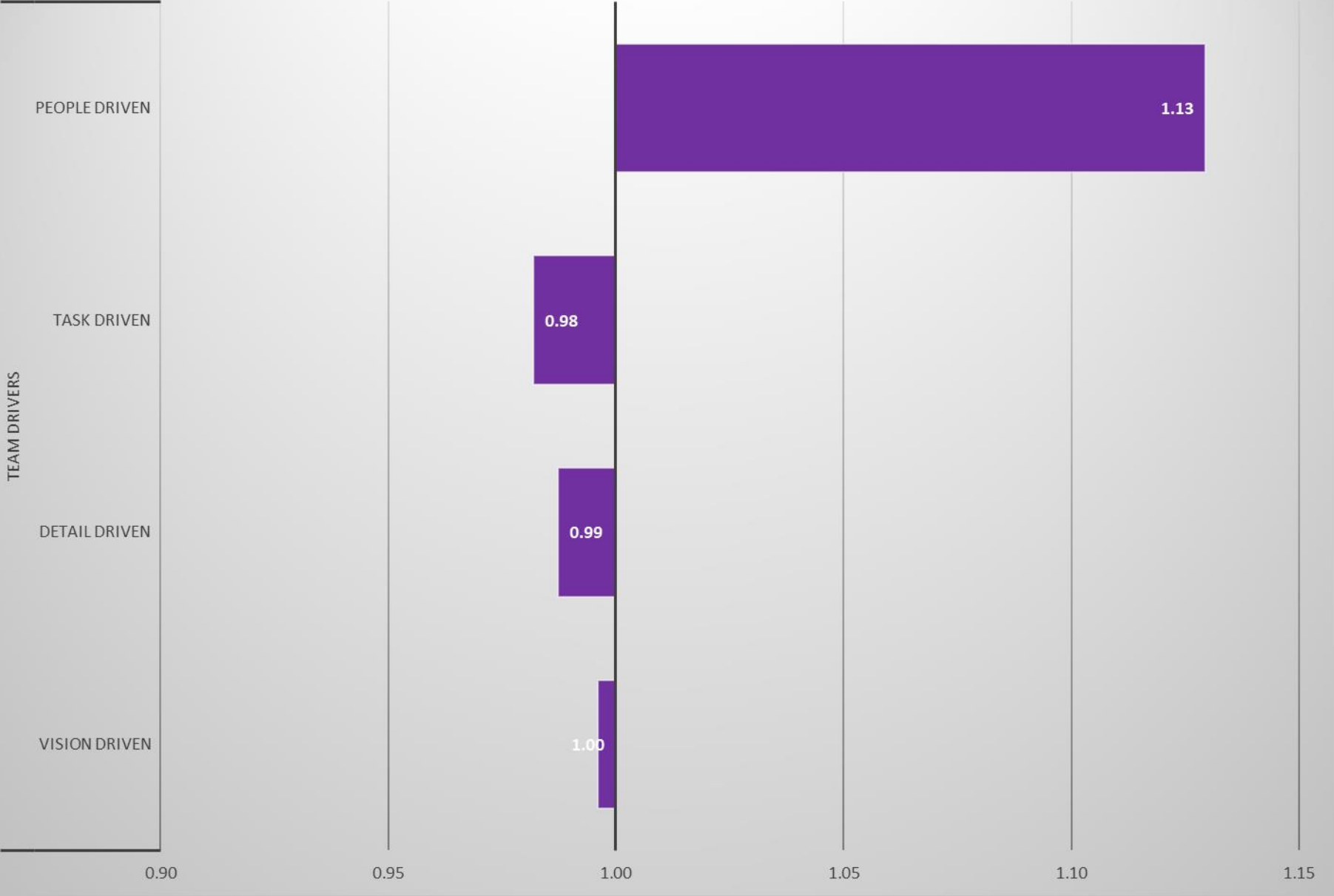
Team: Impact of Health on Performance
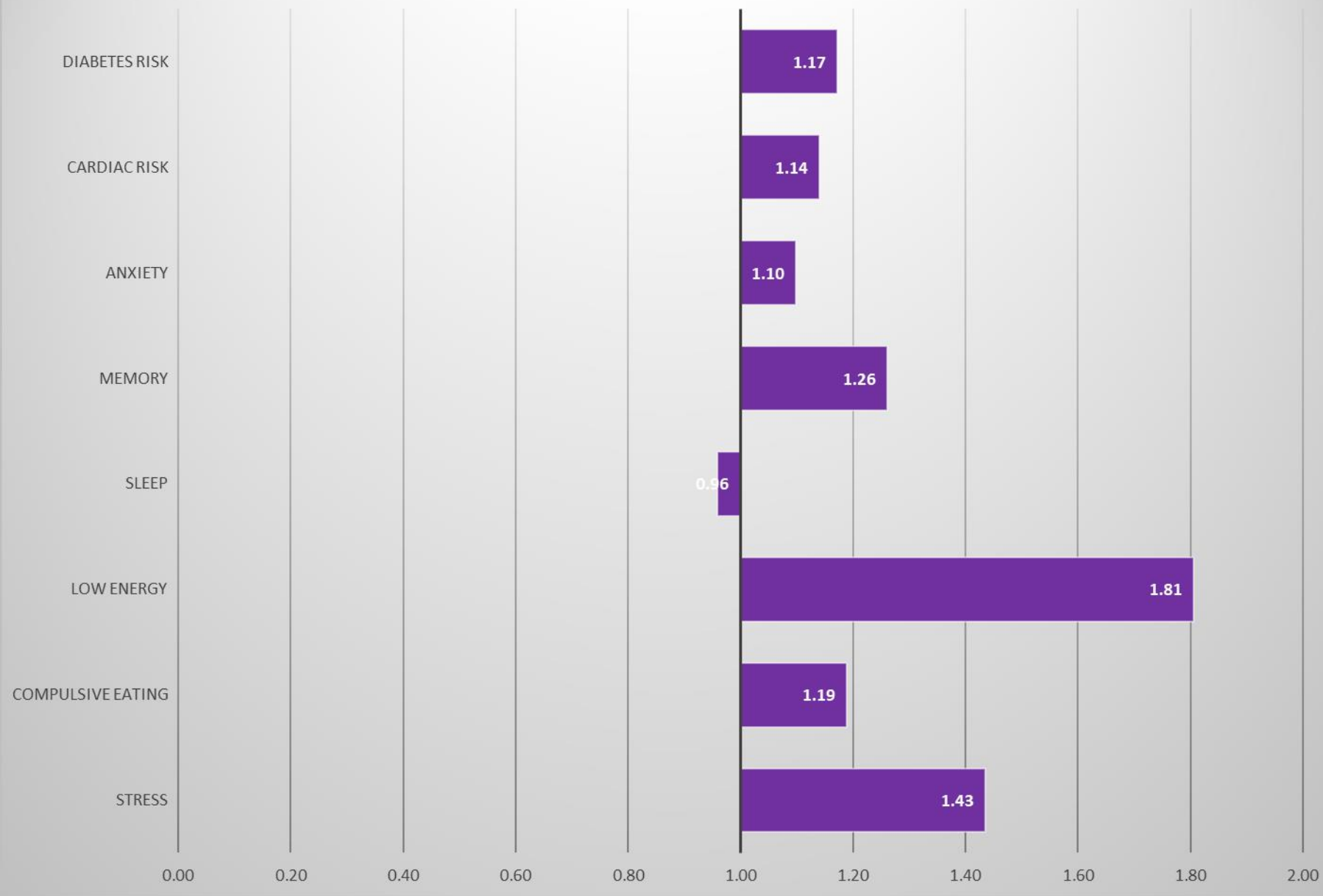
- This team responds best to strategies that include the following:
  - Very accepting of other people
  - Prefer clarity of vision and direction
  - Strategies must include "people impact"
- Tend to be individualists
- Effect communicators, in general
- Stress is having a major impact on health
- Stress is having a major impact on performance

CPV Comparisons with Aggregates
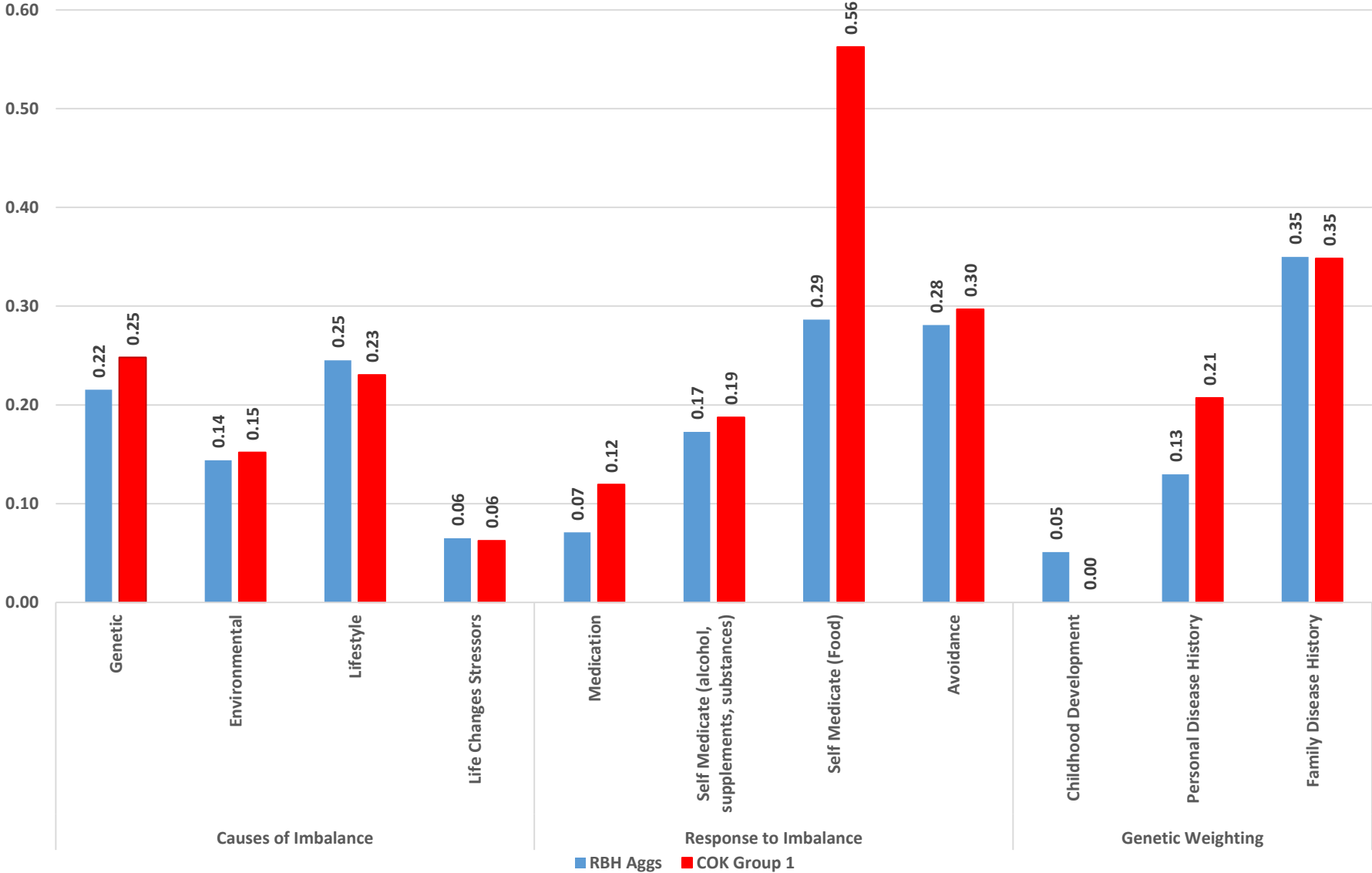
1. Stress is having a significant impact on health (Predictor slide showing 143% higher)

2. What is causing Stress? (Inference logic)
   1. CPV Genetics for C.O.K. is 0.25 compared to aggs of 0.22 (more of a factor)
   2. CPV Environment (both pre-12 and present environment when combined are more) (.15 versus 0.14)

      Therefore must evaluate pre-12 to determine if it is the major contributor

            Pre-12 for C.O.K. was 0 and 0.05 for RBH Aggs

      Environment CPV - Childhood CPV = Present Environment CPV

            RBH aggs= .09   COK=0.15

   3. CPV Lifestyle is less (0.23 versus 0.25)

      CONCLUSION:
            Present Environment is the most significant contributing factor to stress
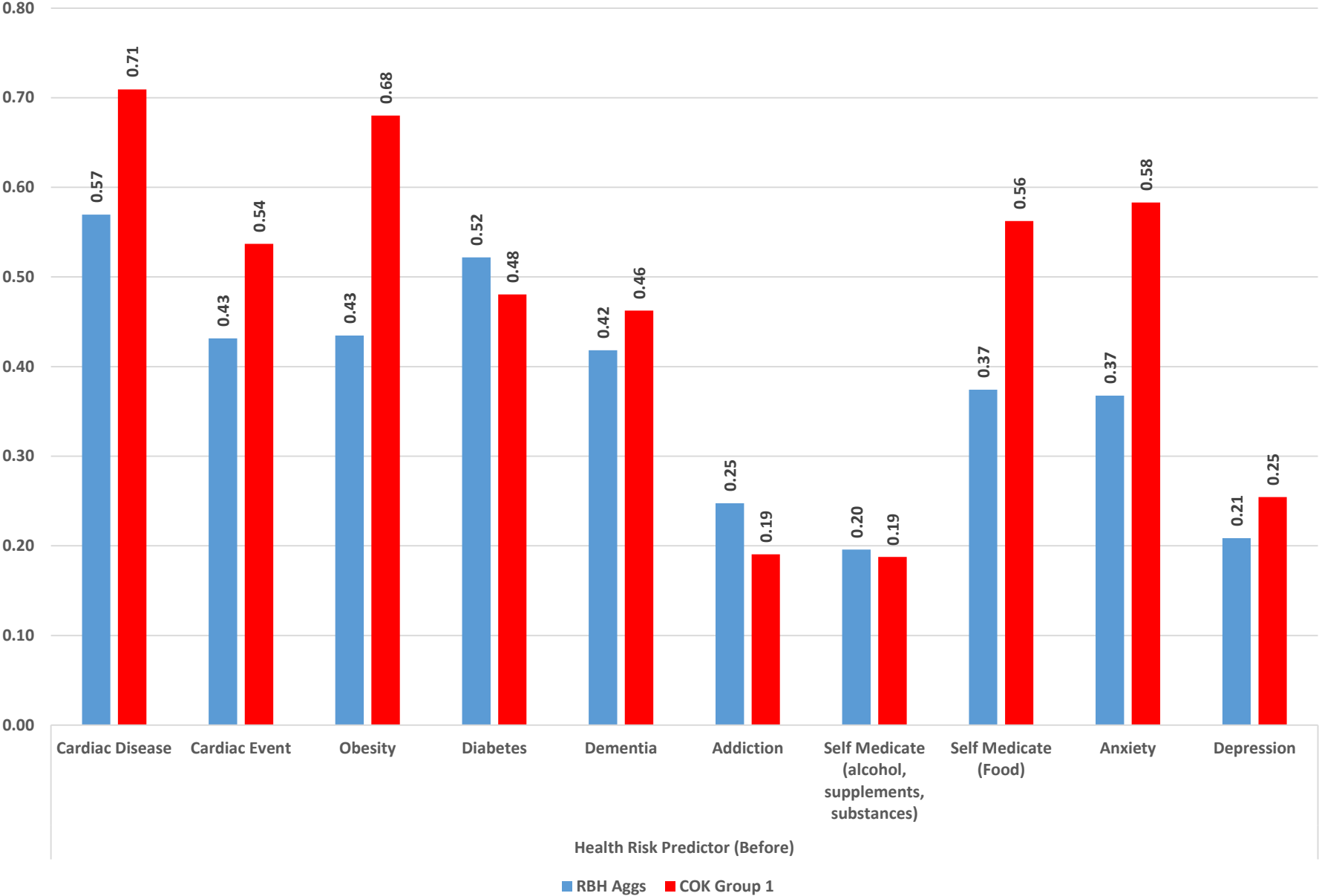   Genetics or "hard wired" is a secondary factor

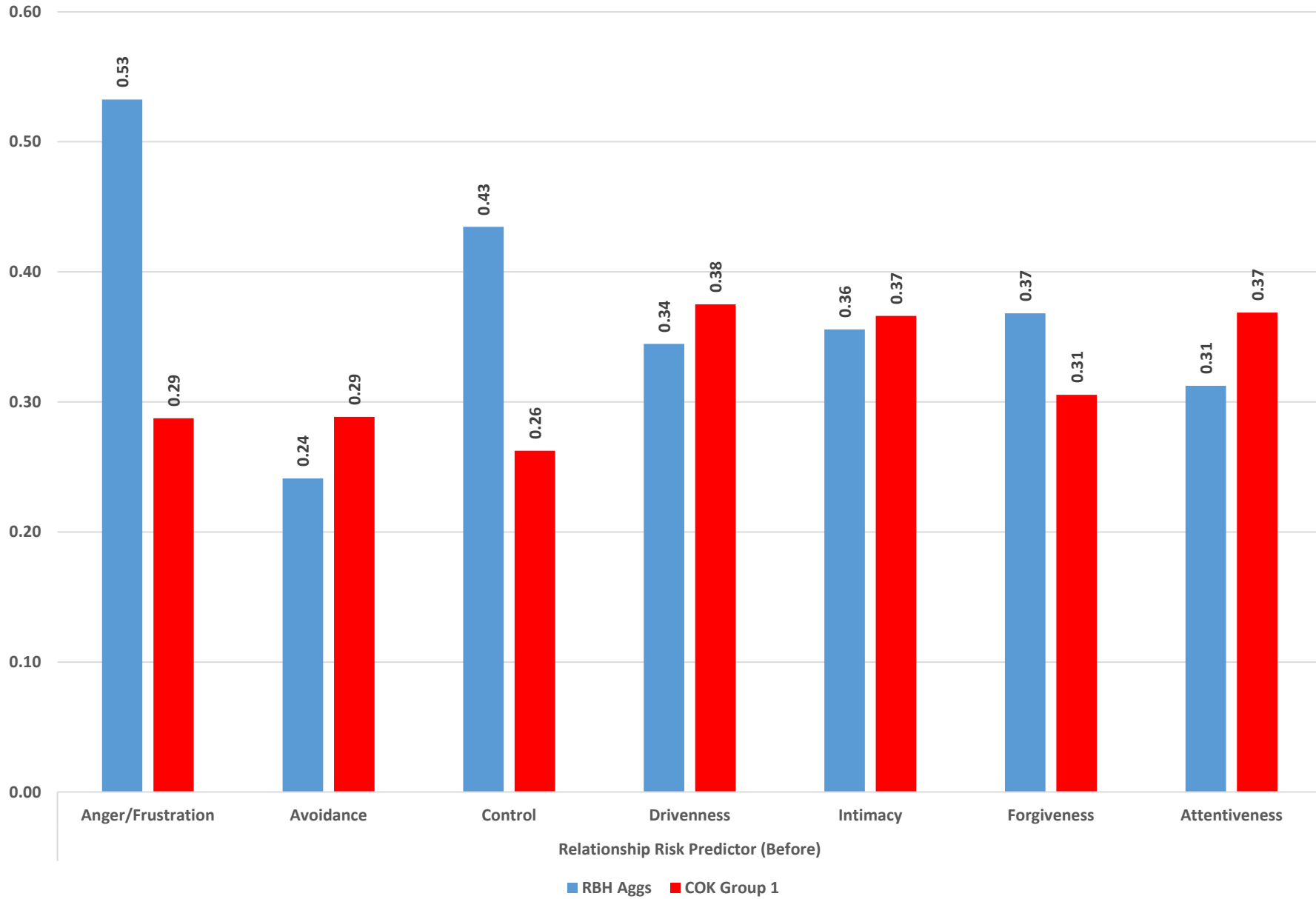Present Environmental factors are generally one of four major areas:

1. Health stressors
2. Relationship stressors
3. Financial stressors
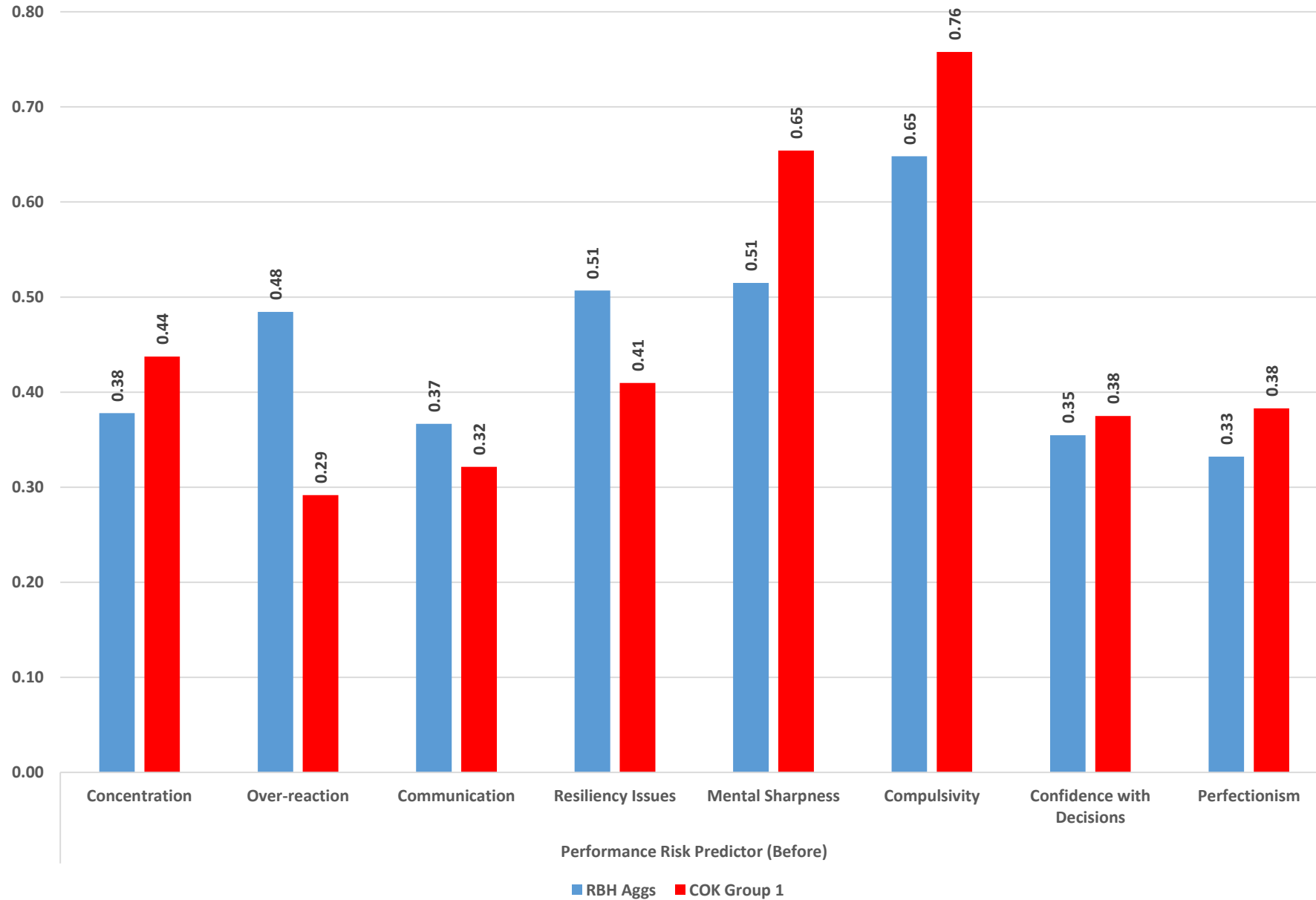4. Job stressors
   - Internal
   - External

Disease Risk Predictor Comparison

Relationship Risk Predictor Comparison

Performance Risk Predictor Comparison

- NIH Factors
  - Genetics:
    - Greater
  - Environment:
    - Pre-12 years:
      - Less
    - Present:
      - Significantly Greater
  - Lifestyle:
    - Less

- Environment Details
  - Health Stressors:
    - Greater
  - Relationship Stressors:
    - Less
  - Performance Stressors:
    - Slightly Greater
  - Financial Stressors:
    - Unknown

City of Kalamazoo Executive team has a greater impact of stress on health and performance than the average team due in part to genetic factors contributing to disease, which may be impacted by job stressors.

Job stress is the major impact on health and performance issues.

Since job stress is significant, is it caused by individual internal factors or external factors?
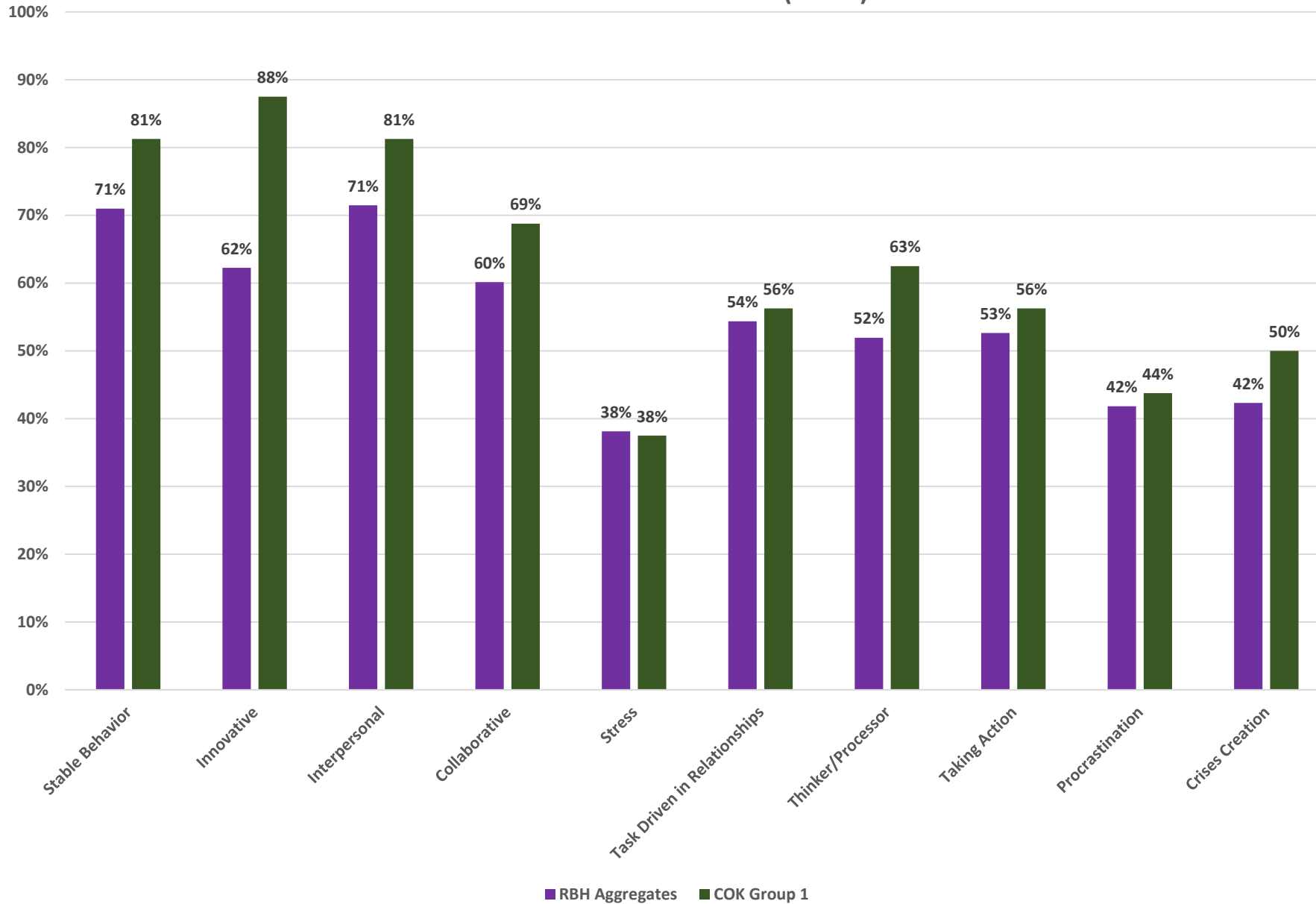
Internal Predictors

Innovative

Thinker Processor

Crises Creation

Detailing

Low Serotonin: Compulsive

Low Dopamine: Lack of Joy

External Predictors

Focus Group Discussion

Deeper dive into Internal/External Factors
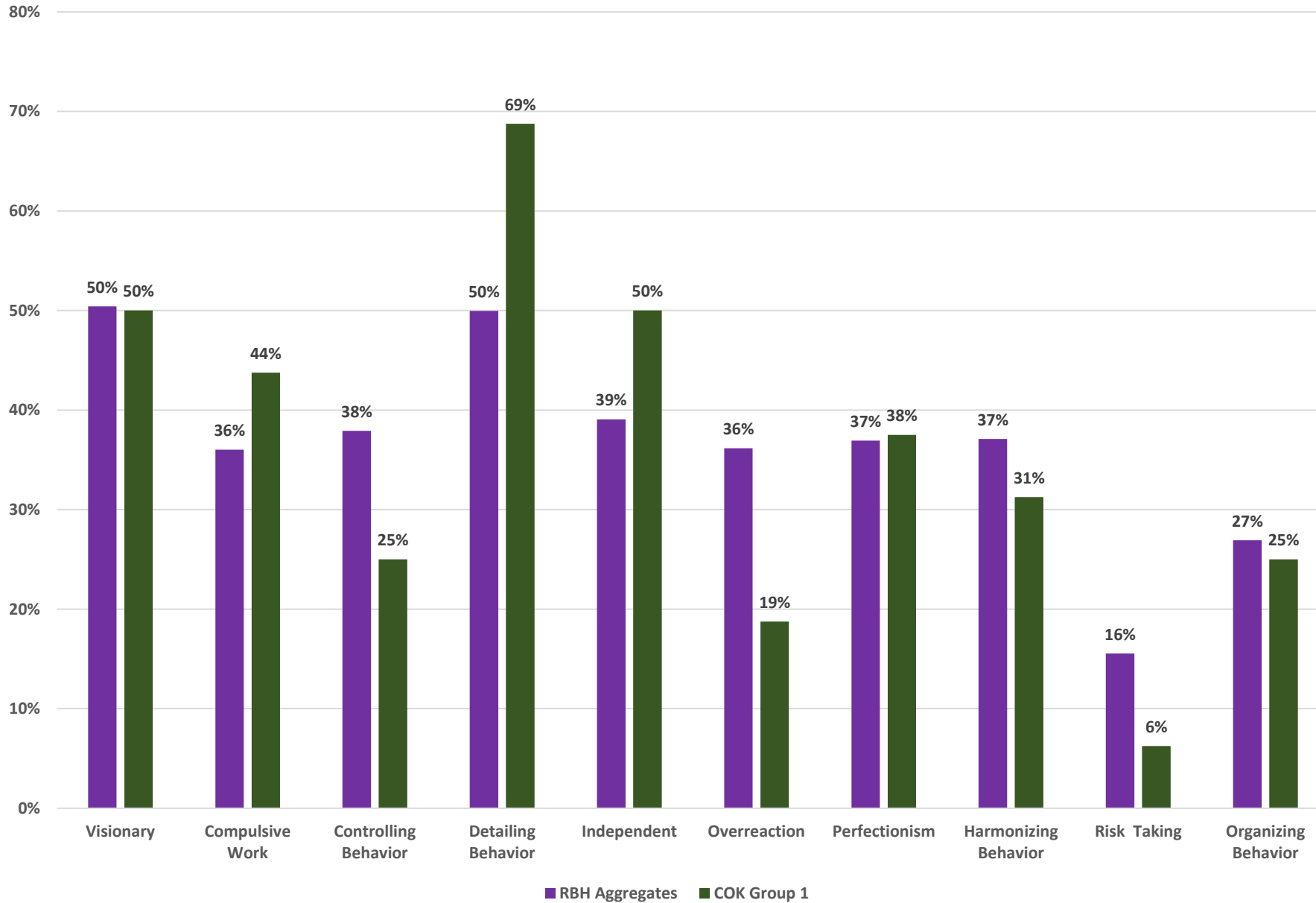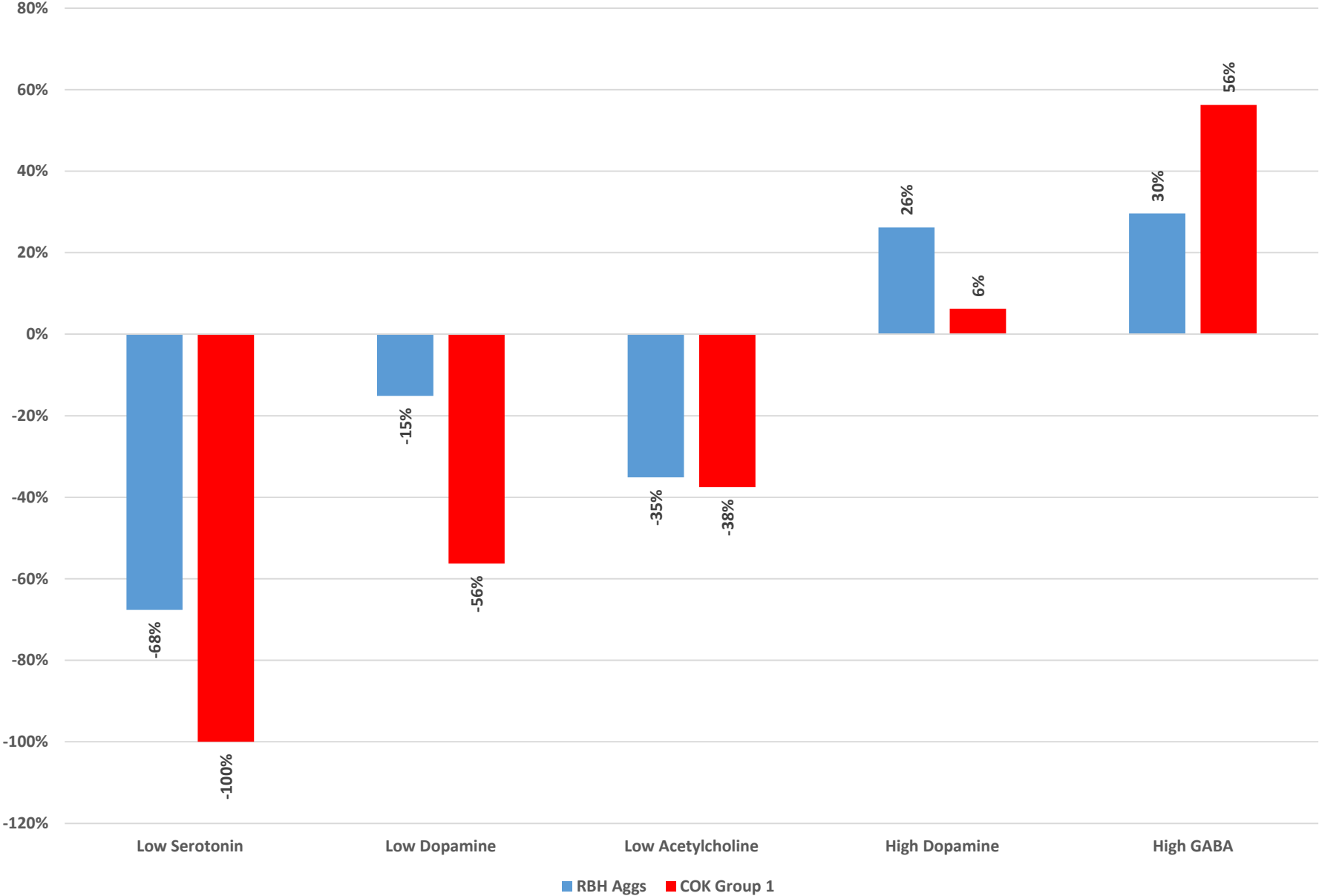
Natural Tendencies (Part 1)

Natural Tendencies (Part 2)

Brain Chemical Comparisons to Aggregates

City of Kalamazoo has a 143% greater impact of stress on health and performance due in part to genetic factors contributing to disease.

The MOST significant factor for stress as demonstrated by *high* GABA and *low* Dopamine is job stress.

Predictive analytics, artificial intelligence, clinically weighted prevalence, and clinically predictive values can tell a story about an agency.

The agency must tell us the story about their environment.

Together we can tailor a solution to solve the "real" issues

How is this approach perceived by participants?

Grand Rapids Police Department was among our early pilot partners.

Today they have offered the program to all Officers and Dispatch Operators.

After three years:

All officers are required to attend at least 2 block training sessions:

93% are actively participating in the program in individual brain health programs and/or spouse events **voluntarily**

Traditional wellness programs only retain 19% for one year

Chief Deputy Kevin Kelly
Kent County Sheriff Department

https://vimeo.com/347360278/7389b0ef9d

Chief Deputy Kevin Kelly was among the first participants in the Protect the Protector™ Program

Changing people can be challenging:
Alleviating the risks to achieve the highest results

High touch programs require strong communication between Robertson and Partner

- For Example:
  - Grand Rapids Police Department has 93% voluntary participation in individual brain health and/or spouse program at 3 years
    - Twice a year mandatory training (keeps up motivation)
    - Shift supervisors are champions and announce programs
    - Chief and Deputy Chief are advocates

Robertson has Partner Advocates that are employed by RBH yet represent the partner

- Early detection of communication issues
- Monitor participant attendance and scheduling difficulties

Robertson R&D Team have grand rounds at least three times annually for each Partner

- Initial findings (what type of group do we have, why are they here)
- Mid term (are we over or under the average expectation for this group)
- First year review (what are the future needs for the Partner based upon the Agency Profile)
- Start over again

The challenges of Law Enforcement as a profession

- Outside of Command Staff
    - Poor responders to email
    - Not schedule driven (daily task oriented)
    - Struggle with logistics – shift work makes scheduling challenging
- Mitigation of risk is the combination of Robertson Partner Advocate and Shift Champions

The challenges of Sheriff Departments

- Not always will block training work. May be best delivered in multiple locations

The challenges of Larger Agencies in a hub environment

- Can't deliver specifics about the agency and tailor content per agency

The challenges of small agencies

- Use a hub environment

Adapt to the crises that are part of the business

- ## The challenges of Government Agencies

  - ### Always a crisis
    - The mitigation is the ability to provide "catch up" videos and one on one's
  - Typically individuals who are used to meeting schedules, don't have significant crises, and are in consistent locations have high attendance and are easier to provide

- People can't be prodded into change; they can be enticed into change.

- WE must work together to find unique solutions for the unique people within a unique organization.

- Partners work together to find solutions

- The pay off is worth the energy

Take control of your brain or it will take control of you

Alan Vanderberg
County Administrator Ottawa County

Chief Karianne Thomas
Kalamazoo Department of Public Safety

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