

Trust in the Work Environment and Cardiovascular Disease Risk Factors: Data from the U.S. Gallup-Sharecare Well-Being Index

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INTRODUCTION

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- CVD is common and costly
- Psychosocial and work stress risk factors for cardiovascular disease (CVD) have received a great deal of attention in scientific literature
- With more than **158 million (2019)*** US workers, the workplace is an ideal setting to promote cardiovascular health

*U.S. Bureau of Labor Statistics Economic News Release www.bls.gov/news.release/empsit.a.htm

Psychosocial Theories and Factors Associated with Cardiovascular Disease (CVD) or its Risk Factors

- Job demands and control
- Job demands-resources
- Social support
- Effort–reward imbalance
- Social capital

Social Capital and Health Behaviors

- Social capital – has many definitions
- Relational or social cohesion approach suggested by Berkman and Kawachi (2000)
 - Social capital ‘as those features of social structures such as levels of interpersonal trust and norms of reciprocity and mutual aid—which act as resources for individuals and facilitate collective actions’
- Social capital can be measured by examining elements of a relationship, relational networks, levels of trust, and levels of collaborative activity

Social Capital and Trust

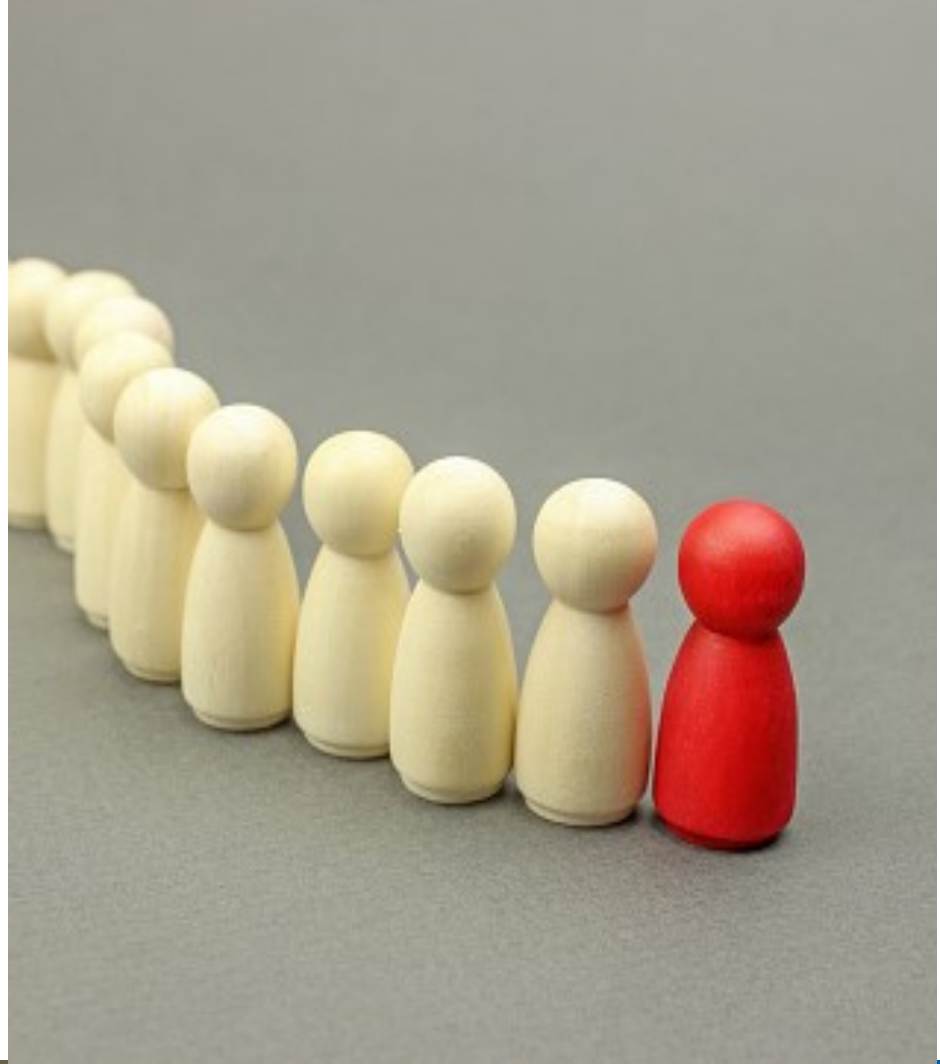
- The construct of social capital may help
 - understand relationships in the workplace
 - promote well-being and health by providing positive norms and attitudes that influence health behaviors
- Trust is a key principle in the supervisor–employee relationship, especially related to:
 - Distributing rewards
 - Sanctions
 - Promotions, pay raises, and job security

Social Capital

- There is some support that social capital is linked to:
 - Mental health
 - Diet
 - Alcohol use
 - Physical activity
 - Hypertension
 - Smoking

Trust

- Large literature on trust looking at:
 - Organizational commitment
 - Performance
 - Job stress
 - Burnout
 - Retirement intentions
- Few studies on leader/manager trust and health



METHODS

Data Source

- Gallup-Sharecare Well-Being Index (WBI)
 - Telephone survey
 - 1,000 randomly selected US adults contacted daily
- Survey participants interviewed 2010 - 2012
- Currently employed for ≥ 30 hours/week

Gallup-Sharecare Well-Being Index

- Gallup interviews
 - Ongoing since 2008
 - Over 175,000 respondents interviewed each year; over 2 million interviews since 2008
 - U.S. adults aged 18 and older living in all 50 states and D.C.
 - Includes both landline and cellphone numbers
 - Spanish interviews available

Gallup-Sharecare Well-Being Index: Samples

- Purchased from Survey Sampling International (SSI).
- Landline respondents chosen based on the most recent birthday within each household
- Respondents are at least 50% cellphone and 50% landline
- Weighted to correct unequal selection, nonresponse, and double coverage
- Weighted to match the U.S. population demographics and phone status
 - U.S. and state demographic weighting based on the most recent Current Population Survey
 - Metropolitan areas and congressional districts weighting based on Nielsen Claritas statistics

Self-Reported Physician Diagnosed American Heart Association (AHA) Life's Simple 7 CVD Risk Factors Based on Gallup Questions

- High blood pressure
- High cholesterol
- Diabetes
- Smoking
- Obesity (high BMI)
- Poor diet
- Low physical activity



Gallup Survey Questions Mapped to AHA'S Life's Simple 7 Risk Factors

Life's Simple 7 Risk Factors

Gallup Questions

Study Definitions

Blood pressure >120/80 mm Hg	➔	Have you ever been told by a physician or nurse that you have high blood pressure?	Yes High blood pressure
Total cholesterol >200 mg/dL	➔	Have you ever been told by a physician or nurse that you have high cholesterol?	Yes High cholesterol
Diet <4-5 components of healthy diet score	➔	In the last seven days, on how many days did you have five or more servings of fruits and vegetables ?	Five servings of fruits and vegetables < 7 days/week Poor diet
Physical Activity <150 minutes/week moderate intensity or <75 minutes/week vigorous intensity or Combination	➔	In the last seven days, on how many days did you exercise for 30 or more minutes?	Exercise 30 minutes < 5 days/week Insufficient exercise
Smoking Current Smoker or quit <12 months ago	➔	Do you smoke?	Yes Current smoker
Diabetes Fasting plasma glucose >100 mg/dL	➔	Have you ever been told by a physician or nurse that you have diabetes?	Yes Diabetes
Body Mass Index ≥25 kg/m ²	➔	Self-reported height and weight -- Body Mass Index ≥30 kg/m ²	Body Mass Index ≥30 kg/m ² Obese

Well-Being Index Work Environment Question on Trust

Does your supervisor always create an environment that is trusting and open, or not?

DATA ANALYSIS

DATA ANALYSIS

Logistic regression models using weights provided by Gallup stratified by gender:

- CVD risk factors as dependent variables
- Open and trusting environment as independent variable
- Adjusted for
 - Age
 - Race/ethnicity
 - Education
 - Marital status
 - Family income

RESULTS

Sample

- 1,059,894 individuals surveyed between 2010 and 2012
 - These years were selected to avoid key variables changes in the survey
- 412,884 were full-time employees (working 30 or more hours per week)
- 'Don't know' or 'refused' responses were set to missing
- 6% were not asked the open and trusting environment question due to a skip pattern
- ~14% were missing income data
- ~5% or fewer were missing data for Life's Simple 7 risk factors

About the Respondents

- 42% were women
- For both women and men, 72.0% and 72.2% (respectively) were White, Non-Hispanic
- Average age was 42
- >50% were married
- >50% had either technical training or some college
- ~22% of women and 20% of men indicated their supervisor did not always create an open and trusting environment

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust and Gender

Mistrustful Environment	High Blood Pressure				High Cholesterol			
	Women		Men		Women		Men	
	%	SE	%	SE	%	SE	%	SE
Yes	21.9	0.3	25.7	0.3	19.7	0.2	24.6	0.2
No	18.7	0.1	21.2	0.1	16.6	0.1	20.2	0.1

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust and Gender

Mistrustful Environment	Diabetes				Current Smoker			
	Women		Men		Women		Men	
	%	SE	%	SE	%	SE	%	SE
Yes	6.9	0.2	7.0	0.1	18.7	0.3	23.5	0.3
No	5.9	0.1	5.8	0.1	17.2	0.1	21.6	0.1

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust and Gender

Mistrustful Environment	Poor Diet				Insufficient Exercise			
	Women		Men		Women		Men	
	%	SE	%	SE	%	SE	%	SE
Yes	69.3	0.3	76.6	0.2	77.7	0.3	73.2	0.3
No	67.6	0.2	75.1	0.1	76.1	0.1	71.4	0.1

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust and Gender

Mistrustful Environment	BMI $\geq$ 30*		BMI $\geq$ 30*	
	Women		Men	
	%	SE	%	SE
Yes	26.2	0.3	31.0	0.3
No	22.8	0.2	26.9	0.1

*BMI – Body Mass Index

Multivariate Results

- Confidence intervals excluding 1.0, indicate statistical significance at $p < 0.05$ for each outcome
- Trust was associated with the LS7 CVD risk factors in both men and women after adjustment for covariates
- Due to the large sample size, we report effect sizes with a focus on those $\geq 10\%$

Multivariate Associations Between Life's Simple 7 CVD Risk Factors and Mistrustful Work Environments Stratified by Gender (2010-2012)

CVD Risk Factors (Dependent variables)	Models	
	Mistrustful Environment	
	OR (95% CI)	
	Women	Men
High blood pressure	1.15 (1.11, 1.20)	1.20 (1.16, 1.24)
High cholesterol	1.18 (1.13, 1.22)	1.22 (1.18, 1.26)
Diabetes	1.15 (1.09, 1.23)	1.18 (1.12, 1.25)
Current smoker	1.15 (1.10, 1.20)	1.15 (1.11, 1.19)
Poor diet	1.10 (1.07, 1.14)	1.11 (1.07, 1.15)
Insufficient physical activity	1.10 (1.06, 1.14)	1.08 (1.05, 1.11)
Obese	1.18 (1.14, 1.23)	1.18 (1.15, 1.22)
Four or more risk factors	1.22 (1.16, 1.27)	1.29 (1.25, 1.34)

DISCUSSION

Discussion

- Findings suggest that lower workplace social capital, as measured by the Gallup Sharecare Well-Being Index (WBI) question on trust is associated with higher odds of having one or more of the Life's Simple 7 (LS7) CVD risk factors
- Health behaviors are often interrelated and can affect the presence or absence of other health behaviors
- Because of the potential co-occurrence, we conducted sensitivity analyses to see whether the odds ratios increased if we selected having four or more of the LS7 risk factors instead of only one
- We used this as the dependent variable in our regression models. Both women (22%) and men (29%) showed an increase in odds for having four or more LS7 risk factors if they indicated that their supervisor did not create an open and trusting environment

Strengths

- This study has several strengths.
 - The Gallup Sharecare Well-Being Index (WBI) is a large, nationally representative survey
 - Found similar results on important health-related measures when compared to established national surveys, such as the National Health Interview Survey (NHIS) and the Behavioral Risk Factor Surveillance System (BFRSS)
 - Work environment question included in this study allows us to examine an important workplace psychosocial factor that is often difficult or expensive to study.

Limitations

- The survey is cross-sectional -- no conclusions can be made regarding causality
- Data were collected via a telephone survey - low response rate, potentially affecting representativeness of findings
- All data were self-reported at one point in time and are subject to response biases, such as recall and social desirability
- Social desirability bias has been shown to affect the reporting of health behaviors, including underreporting negative behaviors and over reporting positive ones
- Although we adjusted for potential confounders in our models, other non-measured confounders may have influenced our results
- The WBI survey only touched upon a small number of components of an individual's work environment
- Stand-alone, single-item questions may not offer the precision needed to make an accurate assessment of supervisory style
- Lack of consensus on definition of social capital

CONCLUSIONS

Conclusions

- Our findings are consistent with others who have found associations between social capital and health and psychosocial distress
- Analyses were presented separately by gender, not only due to the differences in CVD risk between women and men, but also due to the importance of gender in the social capital and managerial psychology literature
- Results suggest that supervisor behavior can play an important role in improving worker health
- Workplace intervention programs for CVD and other chronic health conditions should consider addressing trust
- Improving supervisor competencies and behavior with proper training may improve worker health

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



Descriptive demographic characteristics

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust, Gender and Age (2010-2012)

Characteristics	Total Women	Mistrustful environment		Total Men	Mistrustful environment	
	%	%	SE	%	%	SE
Total		22.1	0.1		20.3	0.1
Age						
18-29	19.8	17.4	0.3	21.8	15.7	0.2
30-44	32.4	22.3	0.2	35.1	20.5	0.2
45-64	45.0	24.4	0.2	40.3	23.0	0.2
65+	2.8	17.2	0.5	2.9	15.9	0.5

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust, Gender and Race/Ethnicity (2010-2012)

Characteristics	Total Women	Mistrustful Environment		Total Men	Mistrustful environment	
Race/ethnicity	%	%	SE	%	%	SE
White	72.0	22.4	0.1	72.2	21.1	0.1
Black	12.9	23.2	0.4	8.8	20.6	0.4
Asian	2.4	17.7	0.8	2.7	17.1	0.6
Hispanic	9.9	18.7	0.4	12.8	16.3	0.3
Other	2.8	21.9	0.8	3.4	19.5	0.6

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust, Gender and Education (2010-2012)

Characteristics	Total Women	Mistrustful environment		Total Men	Mistrustful environment	
Education	%	%	SE	%	%	SE
< High school	4.4	19.3	0.7	7.1	17.3	0.5
High school graduate	21.9	20.0	0.3	26.0	19.8	0.2
Technical/some college or associate degree	53.5	22.0	0.2	53.4	20.9	0.1
4 year college or post graduate	20.3	25.2	0.3	16.6	20.4	0.2

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust, Gender and Marital Status (2010-2012)

Characteristics	Total Women	Mistrustful environment		Total Men	Mistrustful environment	
Marital Status	%	%	SE	%	%	SE
Single/ Never married	22.7	20.8	0.3	23.1	18.0	0.2
Married	54.2	21.4	0.2	61.8	20.7	0.1
Separated	2.6	23.3	0.8	1.9	21.9	0.9
Divorced	12.1	26.8	0.4	7.0	24.7	0.4
Widowed	2.9	22.8	0.7	0.8	20.8	1.1
Domestic partner	5.5	23.2	0.6	5.5	20.1	0.5

Weighted Prevalence and Standard Errors (SE) for Life's Simple 7 CVD Risk Factors by Trust, Gender and Income (2010-2012)

Characteristics	Total Women	Mistrustful environment		Total Men	Mistrustful environment	
Family Income per month	%	%	SE	%	%	SE
<\$1000	3.3	21.0	0.8	2.8	18.6	0.8
\$1,000 - \$,2999	27.0	22.5	0.3	22.9	20.1	0.3
\$3,000 - \$4,999	26.6	23.0	0.3	23.8	21.2	0.2
\$5,000 - \$7,499	21.4	22.5	0.3	21.5	21.7	0.2
≥ \$7,500	21.9	21.9	0.3	29.1	19.6	0.2