Purpose in Life, Work, and Health: In the Context of an Aging Society

National Academy of Sciences – Washington D.C. September 5th, 2019

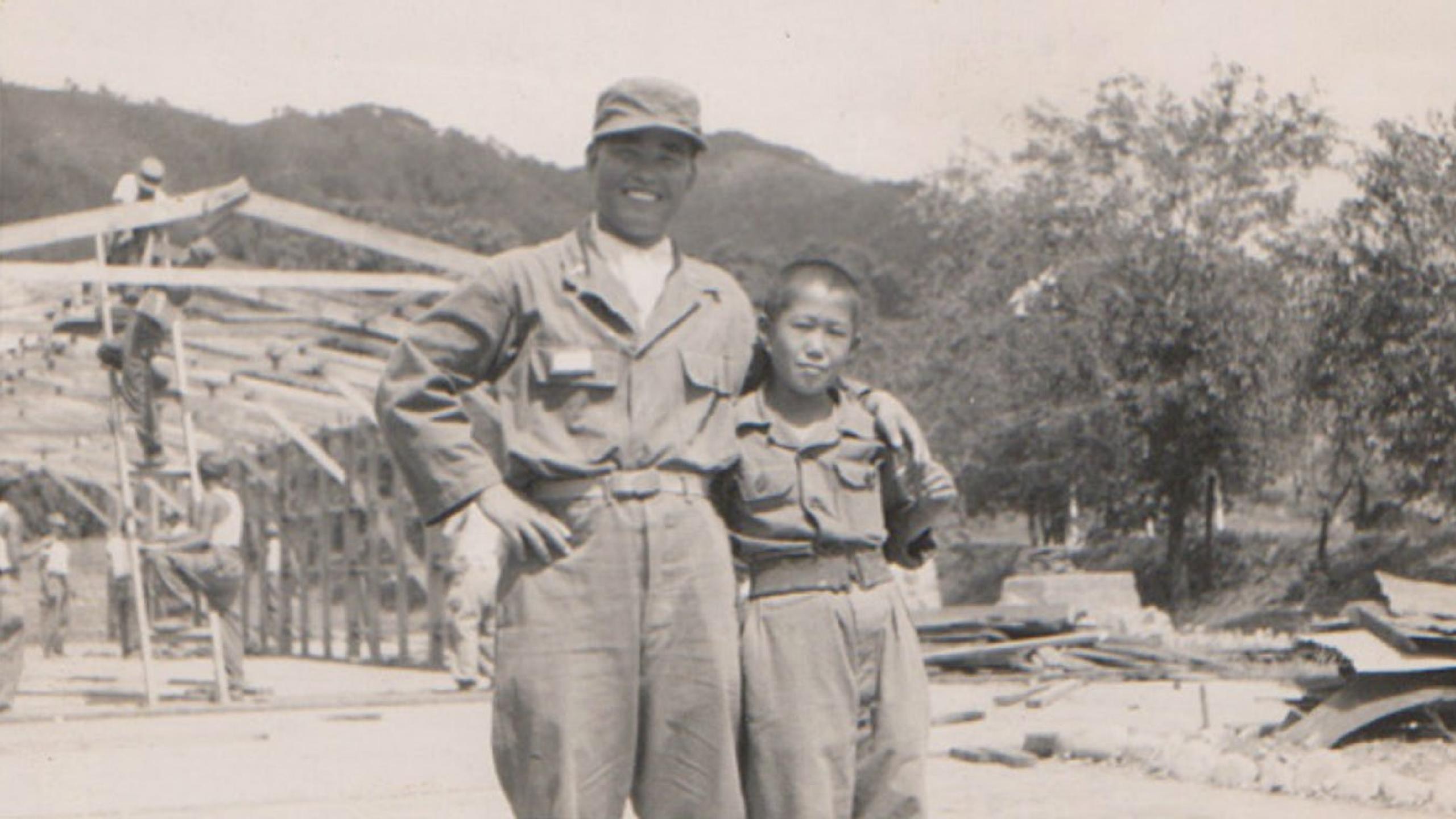
Eric S. Kim, Ph.D.

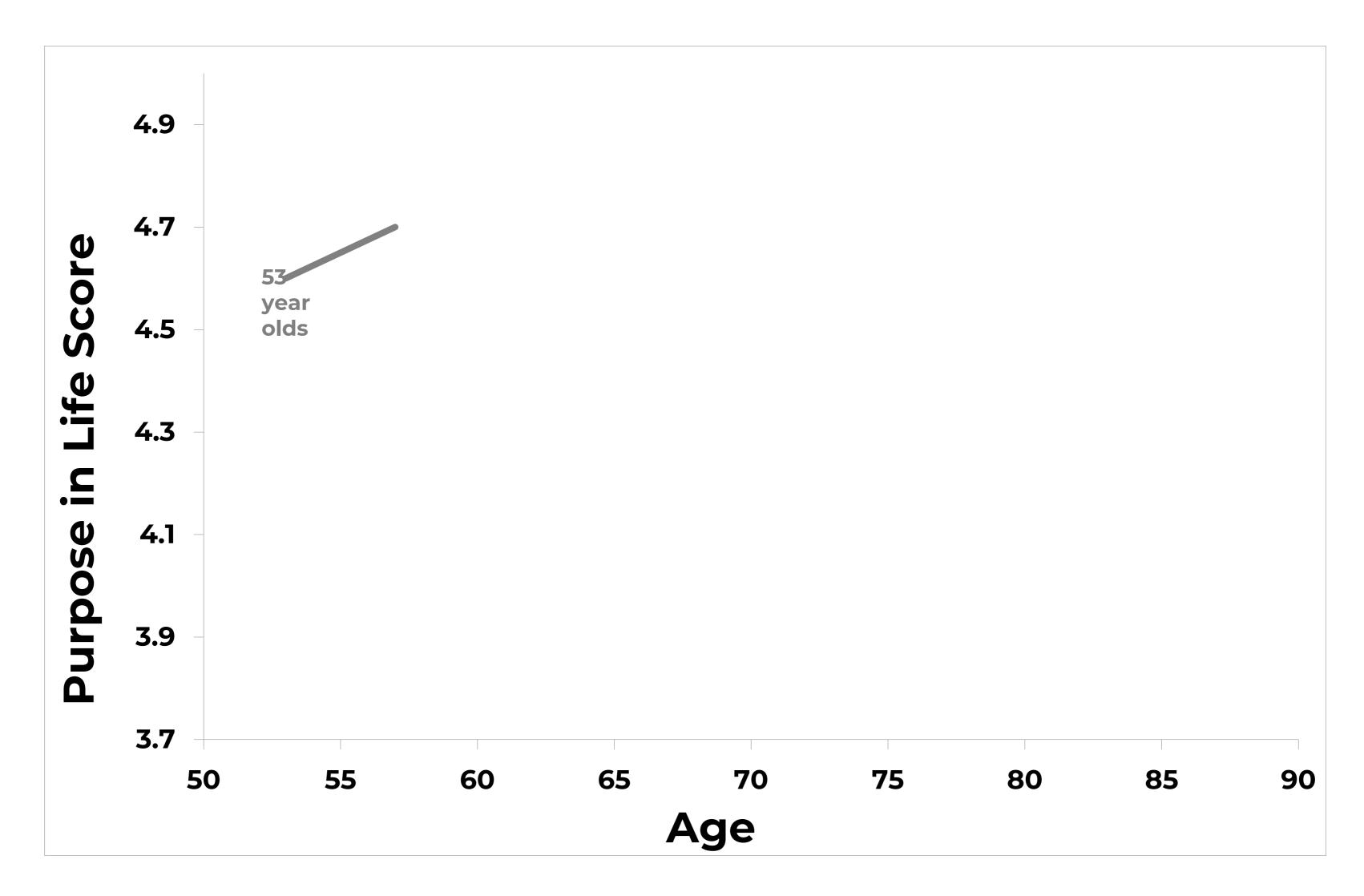


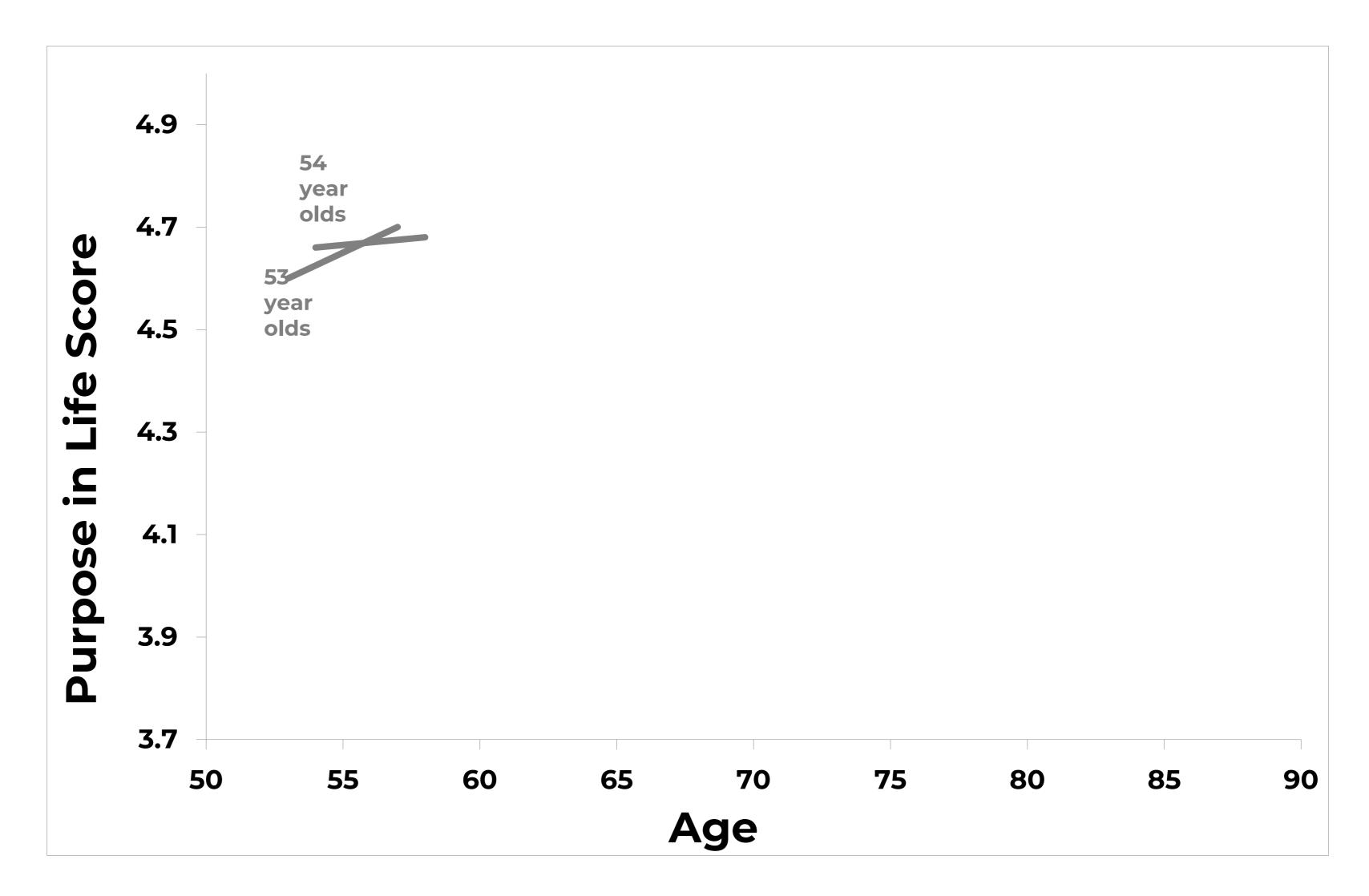
Harvard T.H. Chan School of Public Health
Department of Social & Behavioral Sciences Lee Kum Sheung Center for Happiness and Health

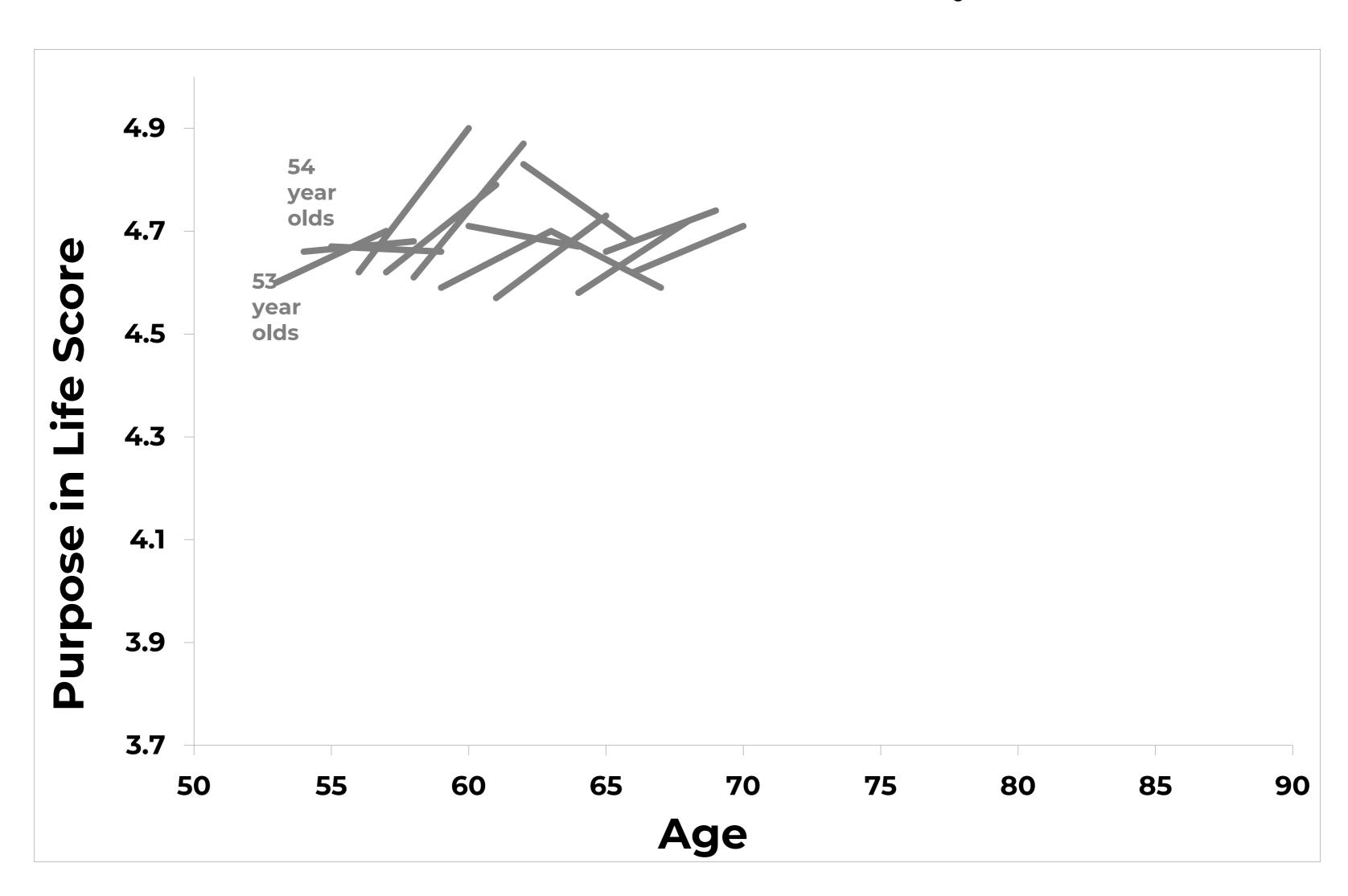


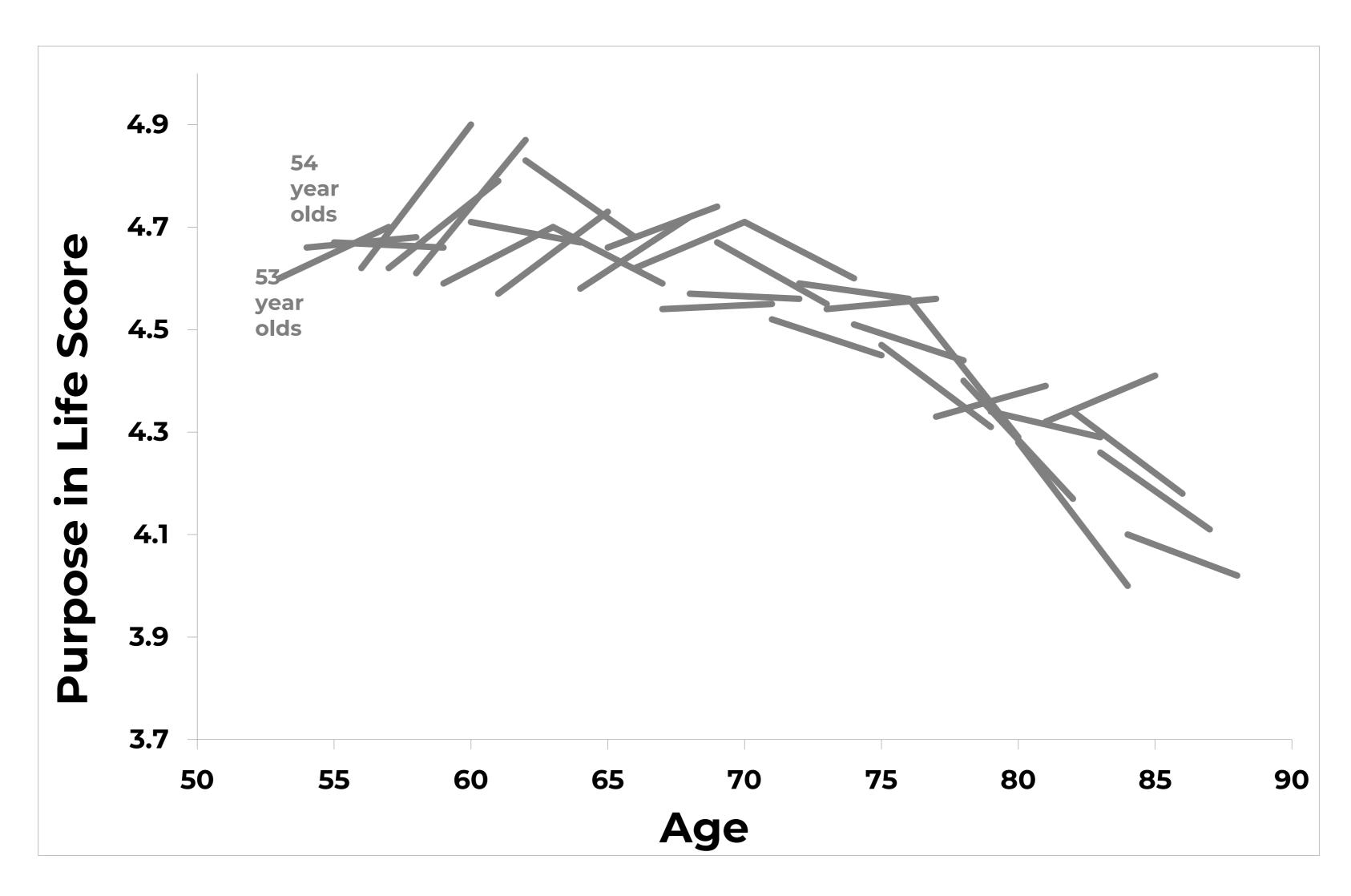
Harvard University Institute for Quantitative Social Science Human Flourishing Program





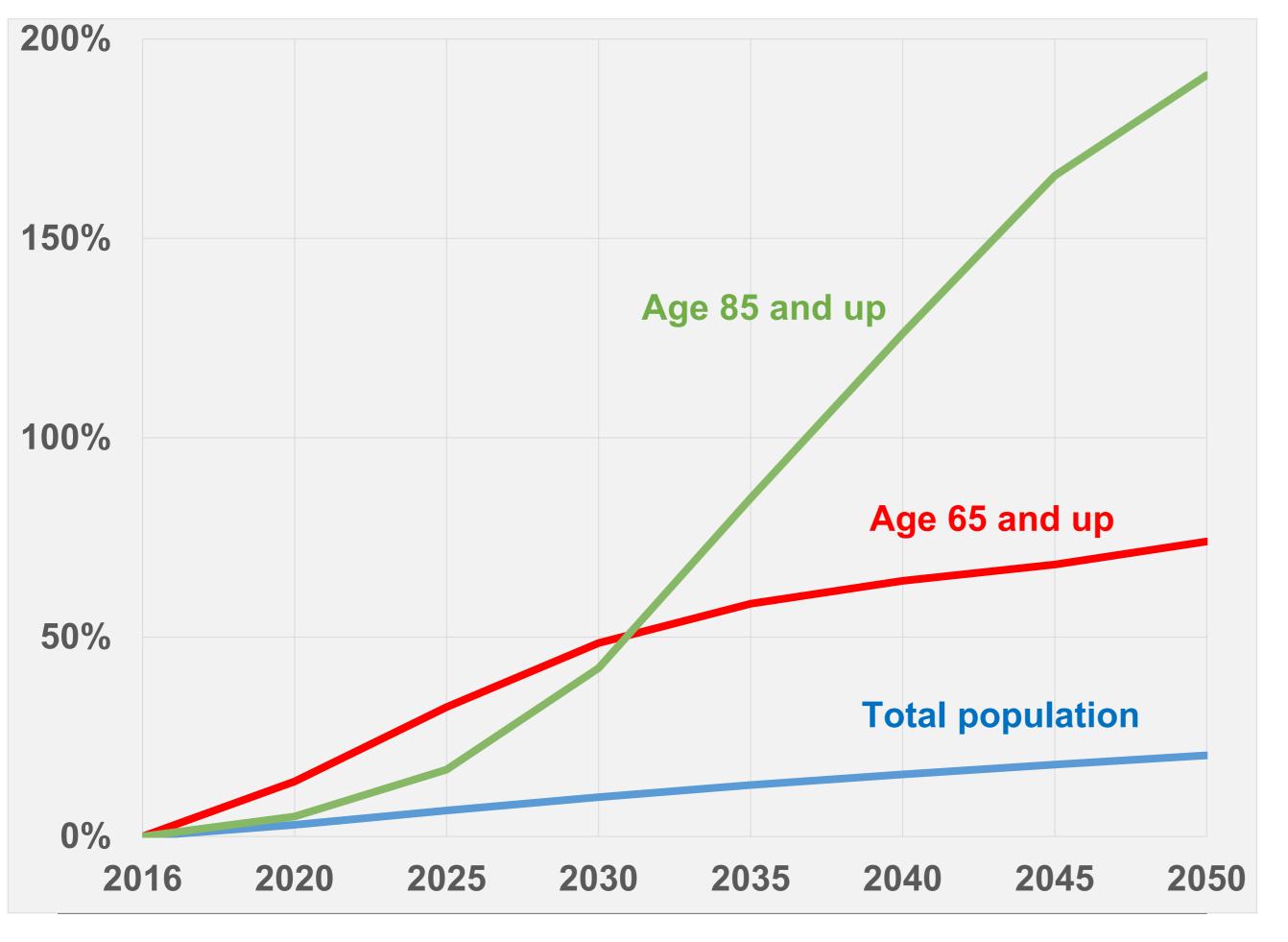






Rapidly Aging Population

DATA: U.S. CENSUS



Age 85+

In the next 35 years 200% increase

Age 65+

In the next 15 years 50% increase

When thinking about: Purpose in life Trends in population aging Overarching goal of our meeting

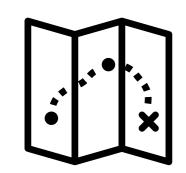
#1: When evaluating the effect of <u>work</u> on <u>health</u>, is sense of <u>purpose</u> a <u>mediator</u> (or <u>effect modifier</u>)?

#2: Would implementing policies that cultivate sense of purpose extend work life & health span?

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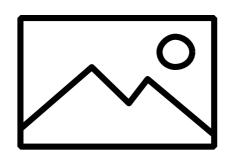
#2: Would implementing policies that cultivate sense of purpose <u>extend work life & health span</u>?

Agenda



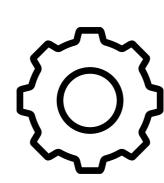
Theoretical Model

Purpose & Health Research

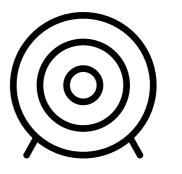


Does Work Foster Purpose in Life?

Does Purpose Foster Delayed Retirement?

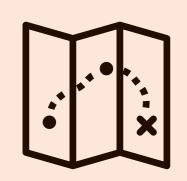


Interventions



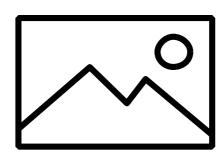
Future Directions

Agenda



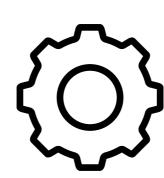
Theoretical Model /

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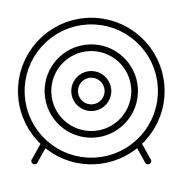


Does Work Foster Purpose in Life?

Does Purpose Foster Delayed Retirement?



Interventions



Future Directions

DEFINITIONS

MEANING IN LIFE

PURPOSE

COHERENCE

SIGNIFICANCE

Degree to which:

people are directed and

motivated by valued goals

Degree to which:

people perceive their lives

as making sense

Degree to which:

people feel their existence is

of significance, importance,

and value in the world

DEFINITIONS

MEANINGFUL WORK

PURPOSEFUL WORK

COHERENT WORK SIGNIFICANT WORK

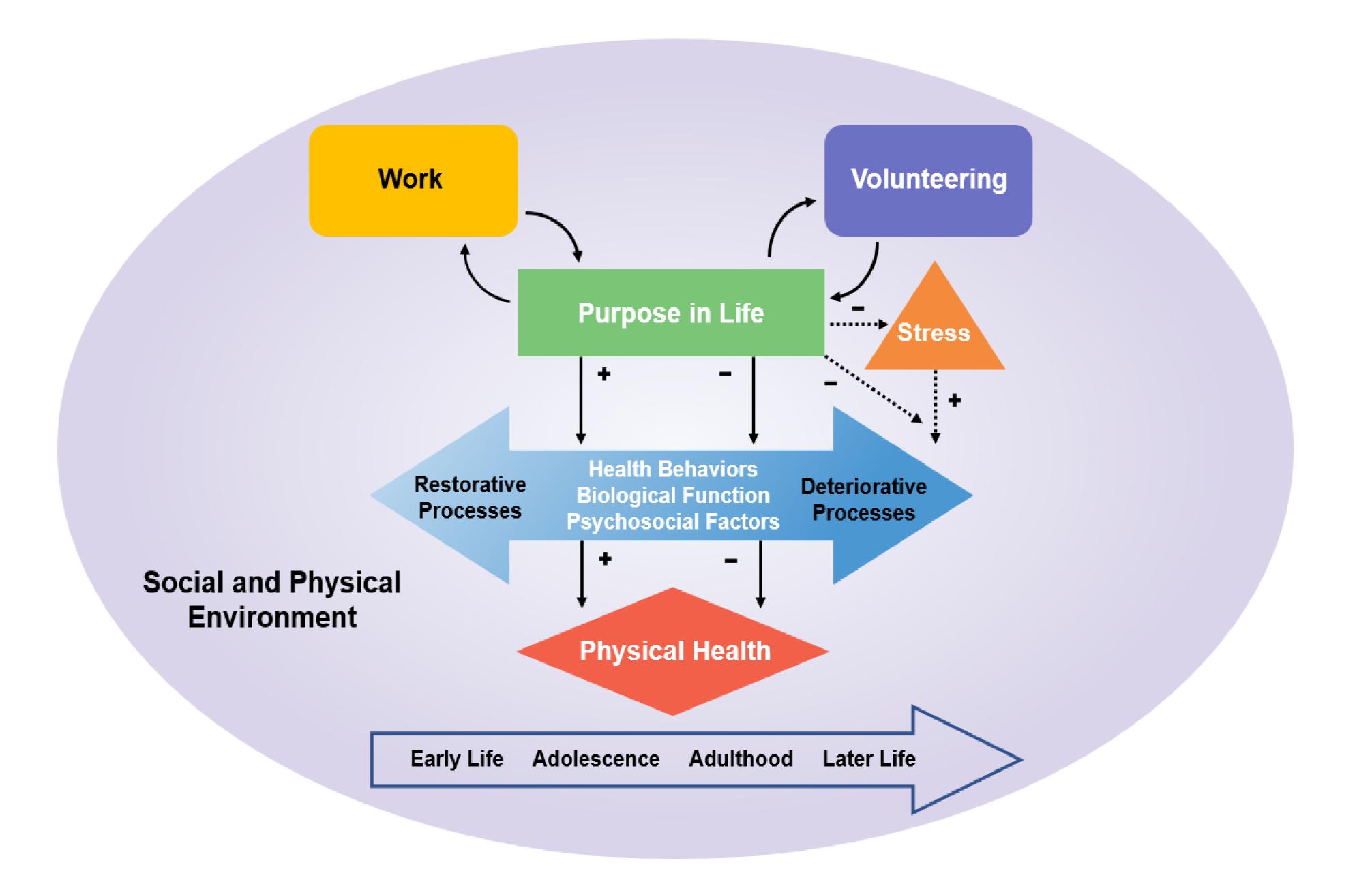
Career that contributes to one's life purpose

Work contributes to
personal growth and one's
understanding of the
world

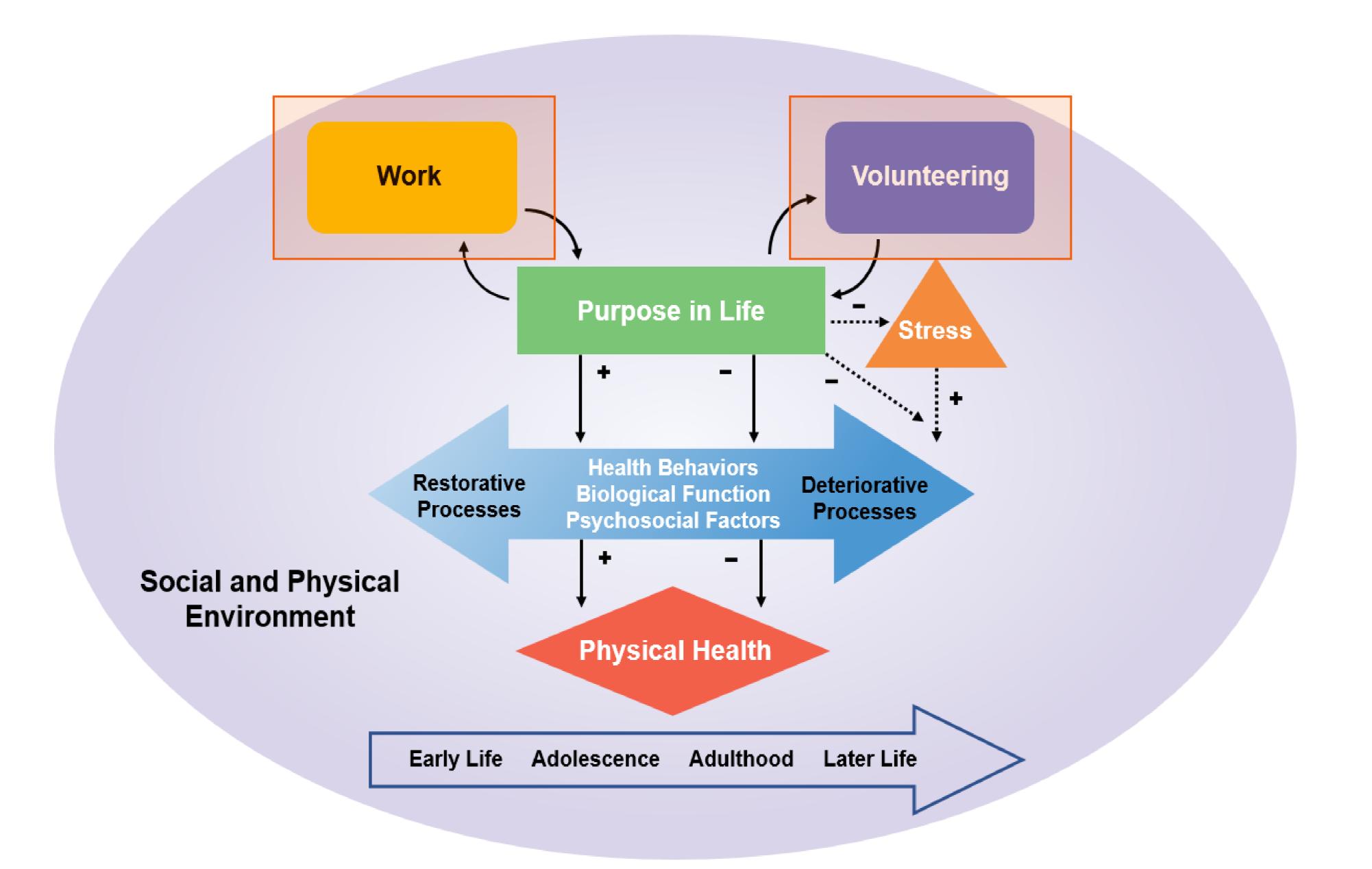
Work serves a greater, selftranscending purpose

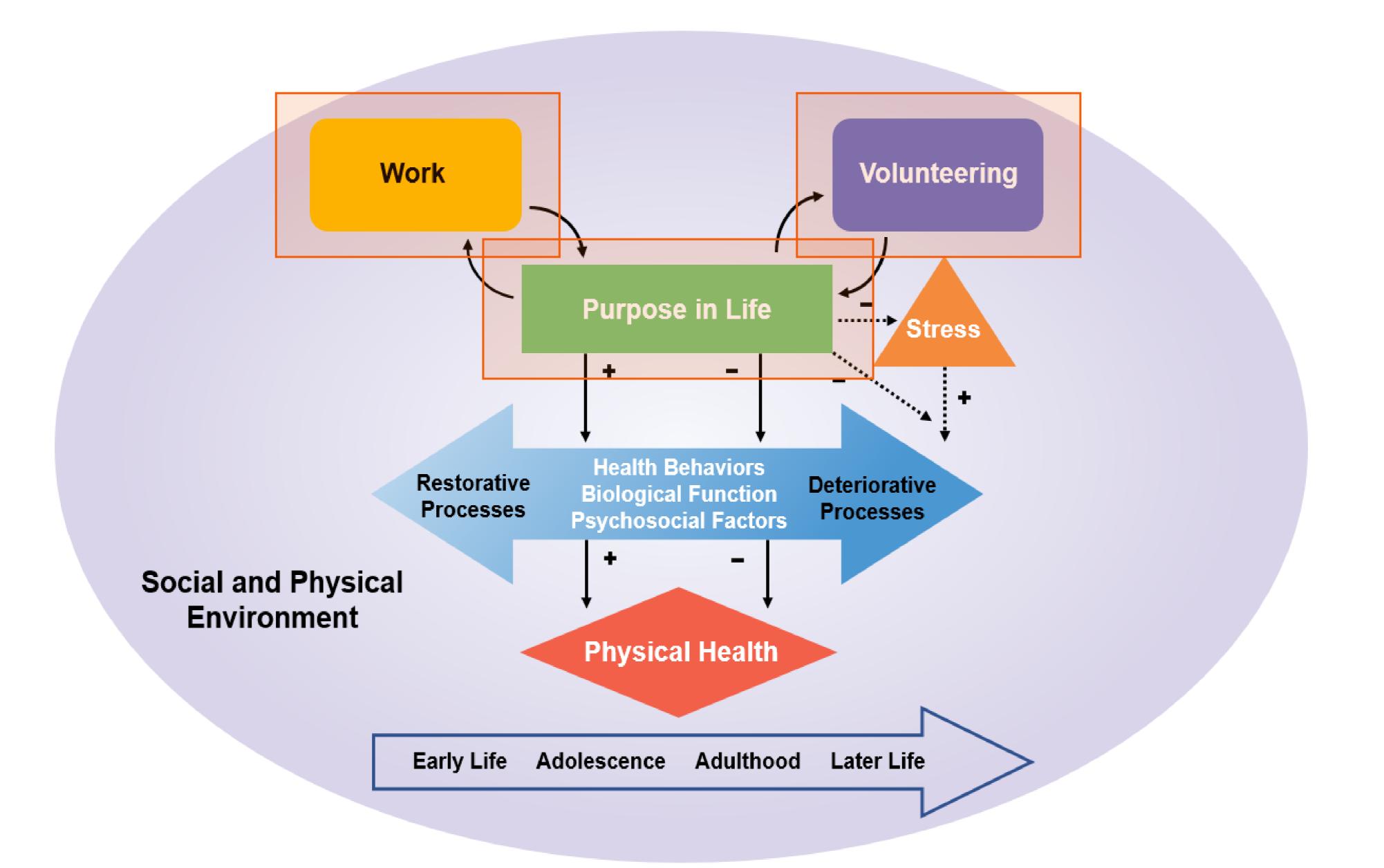
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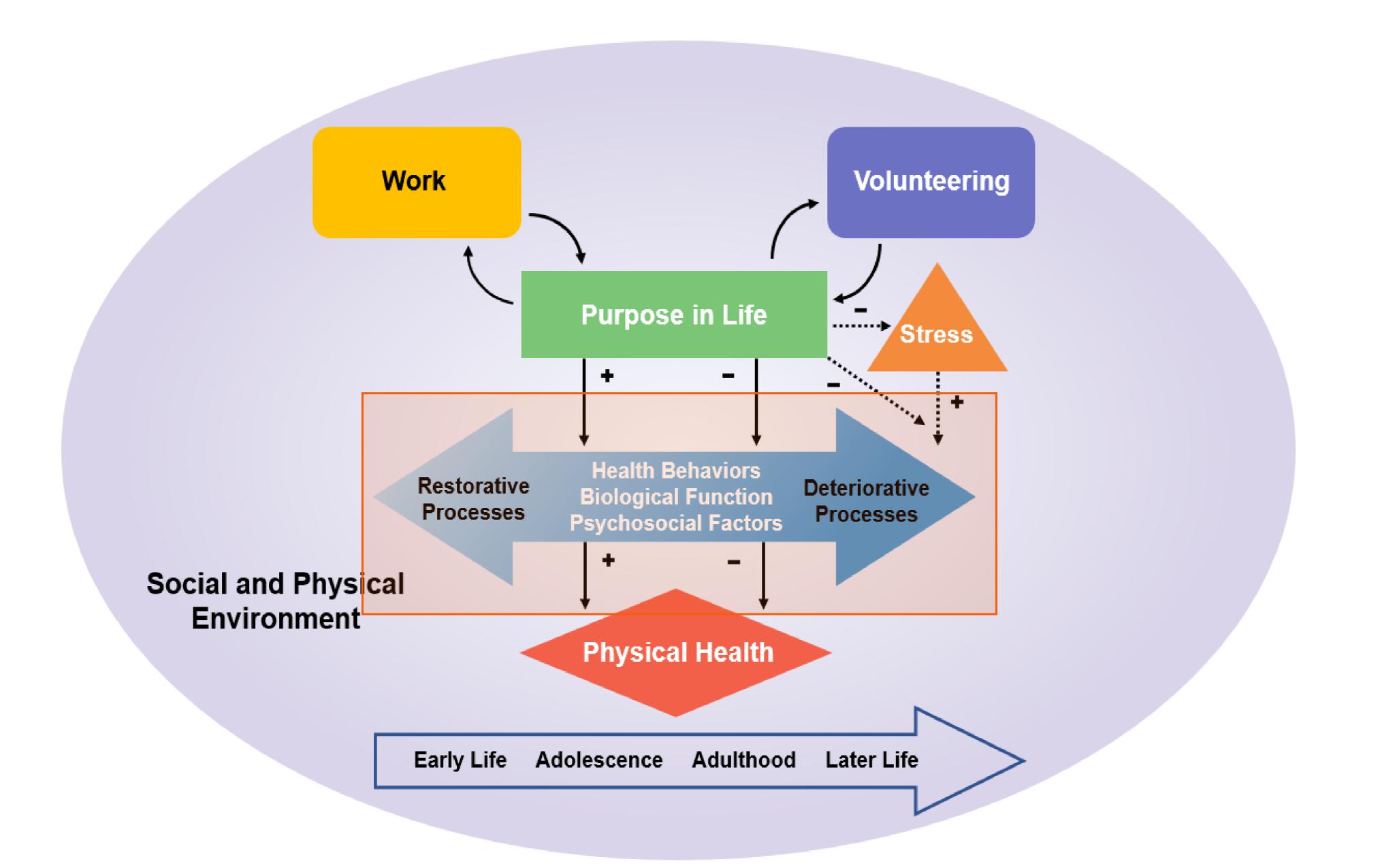
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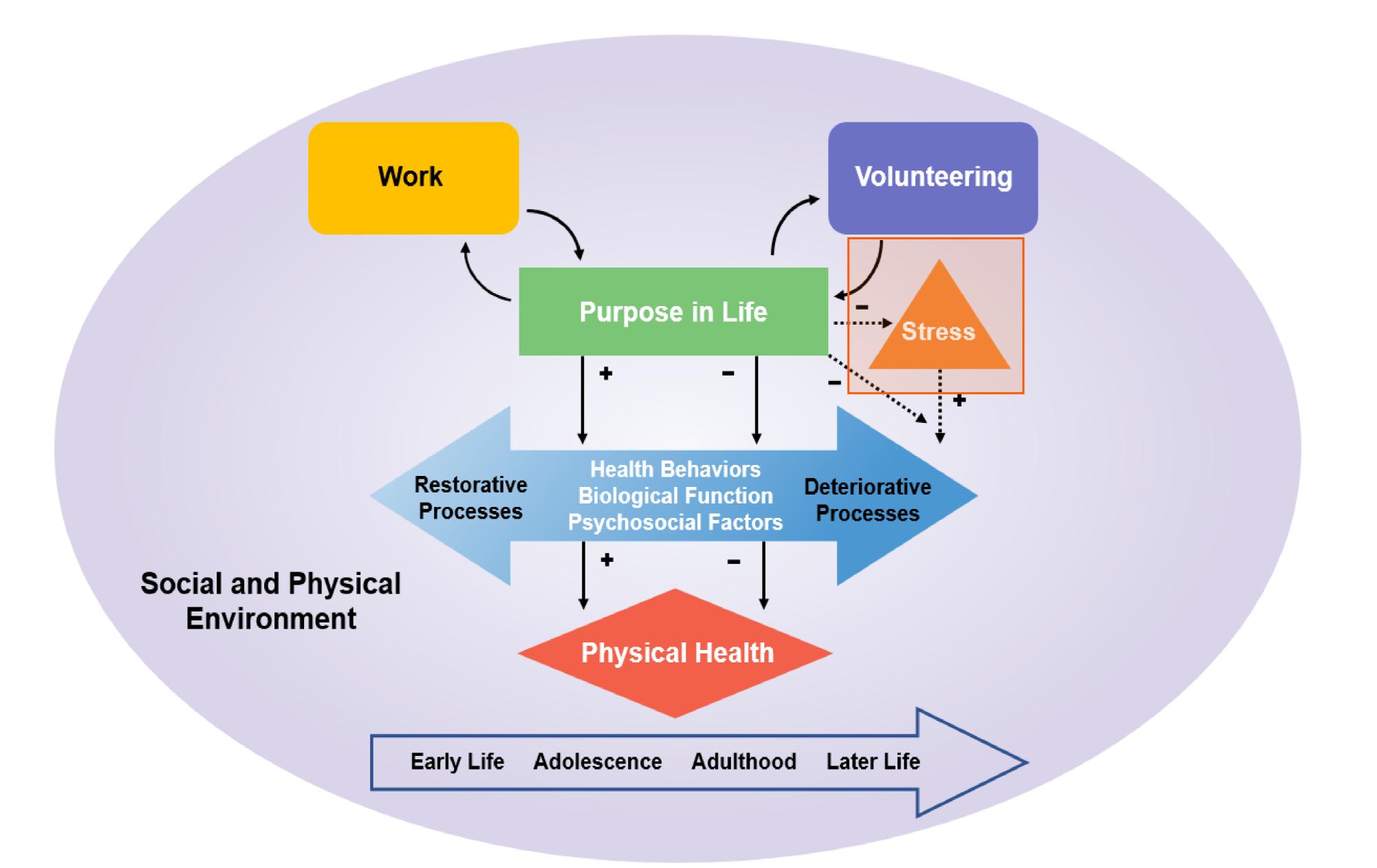


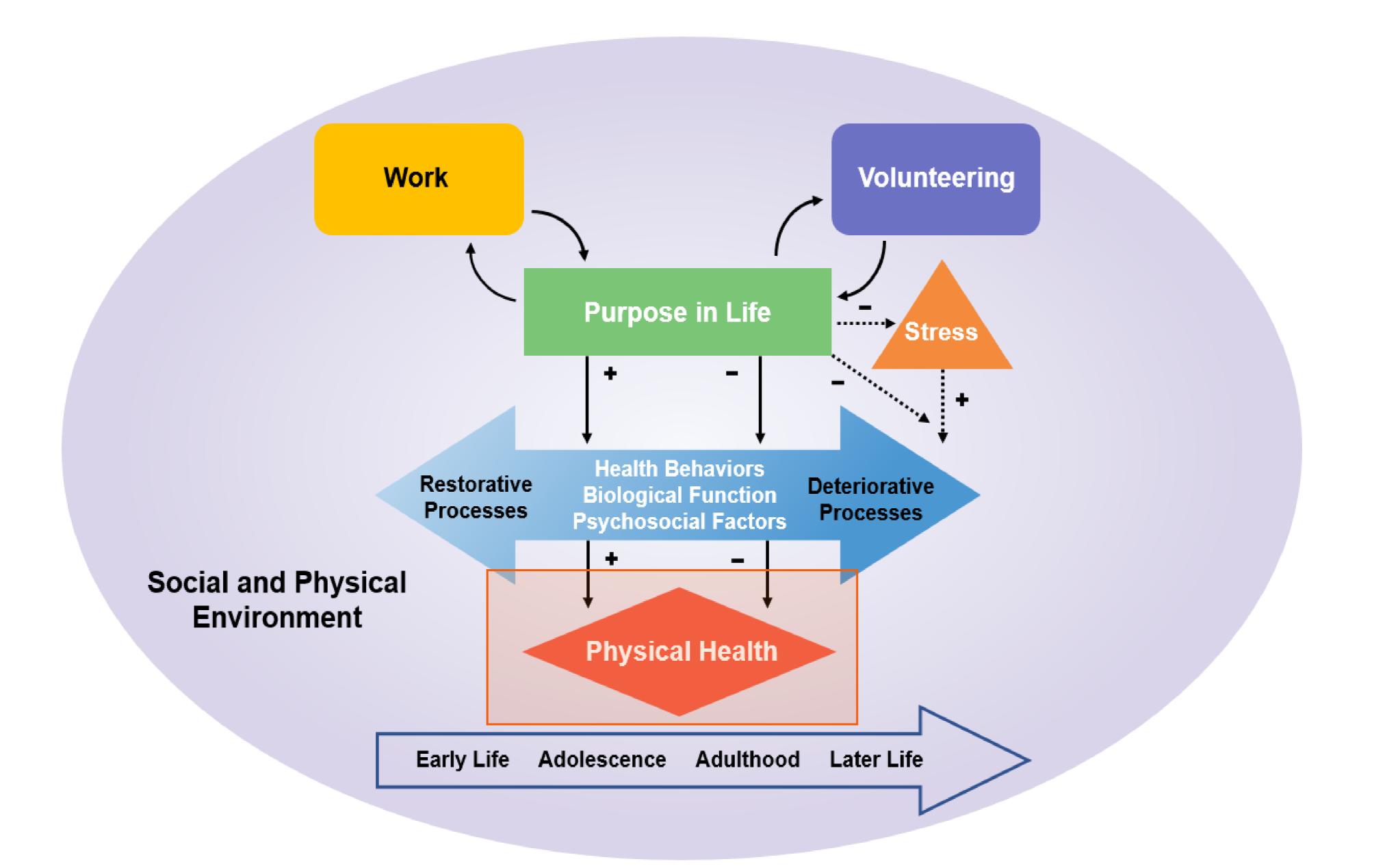


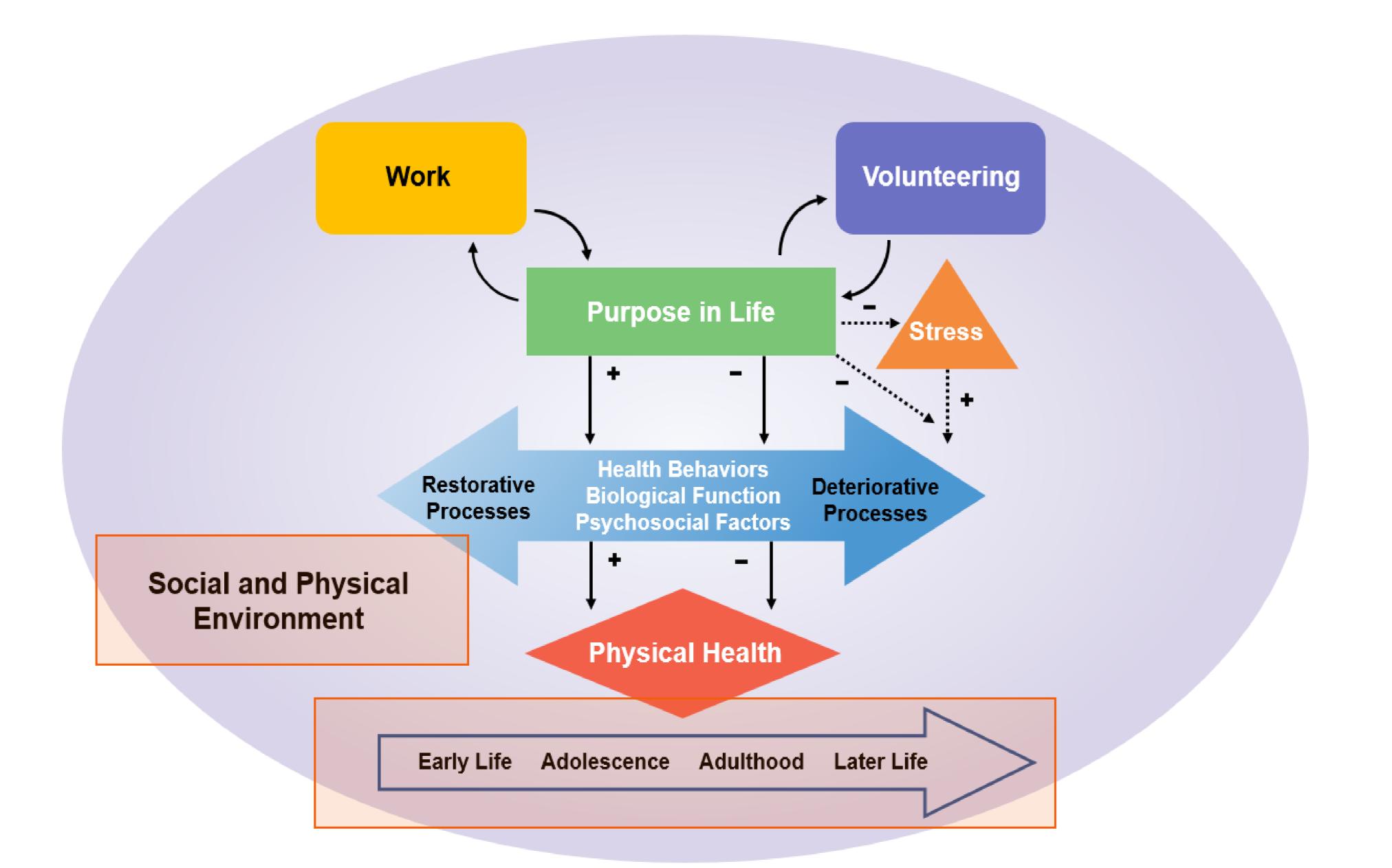


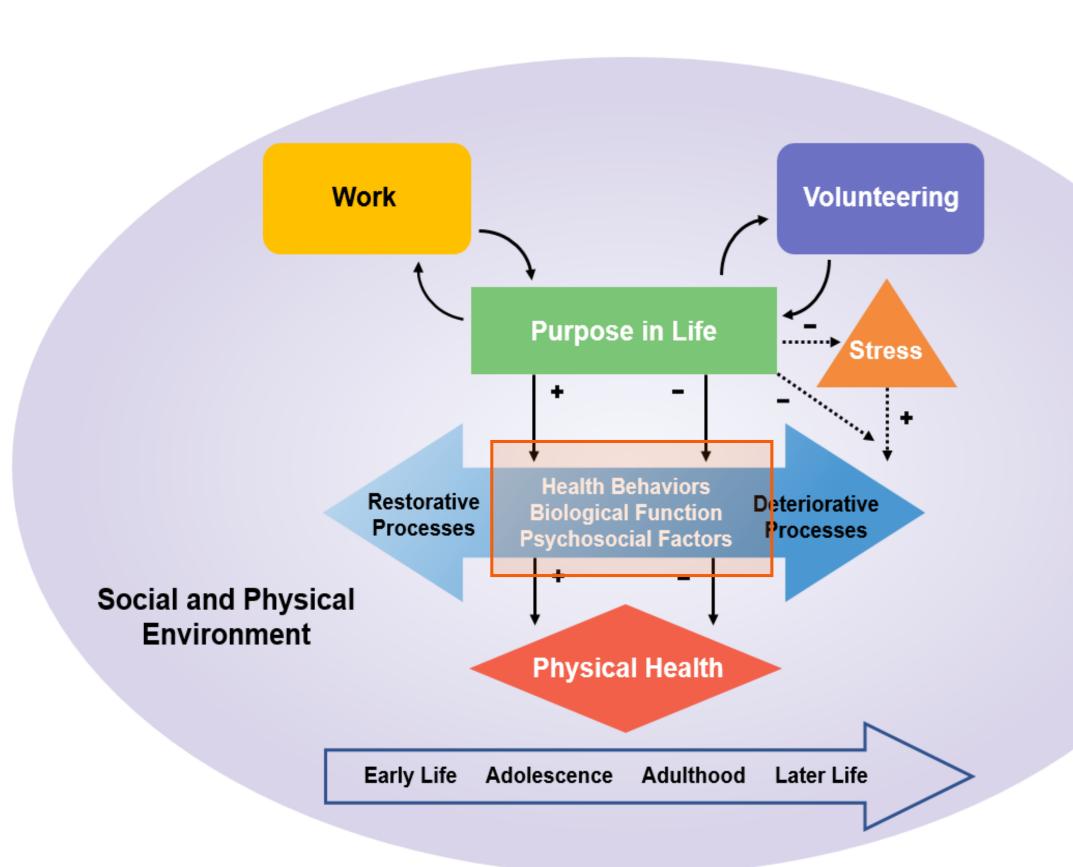












Sense of Purpose in Life & Biobehavioral Mechanisms

Preventive Healthcare Use

Kim, Strecher, & Ryff (2015), Proceedings of the National Academy of Sciences

Physical Activity

Steptoe & Fancourt (2019), Proceedings of the National Academy of Sciences

≠ Smoking / Alcohol

Lappan, Thorne, Long, Hendricks (2018), Nicotine Tob Res

Drug Misuse

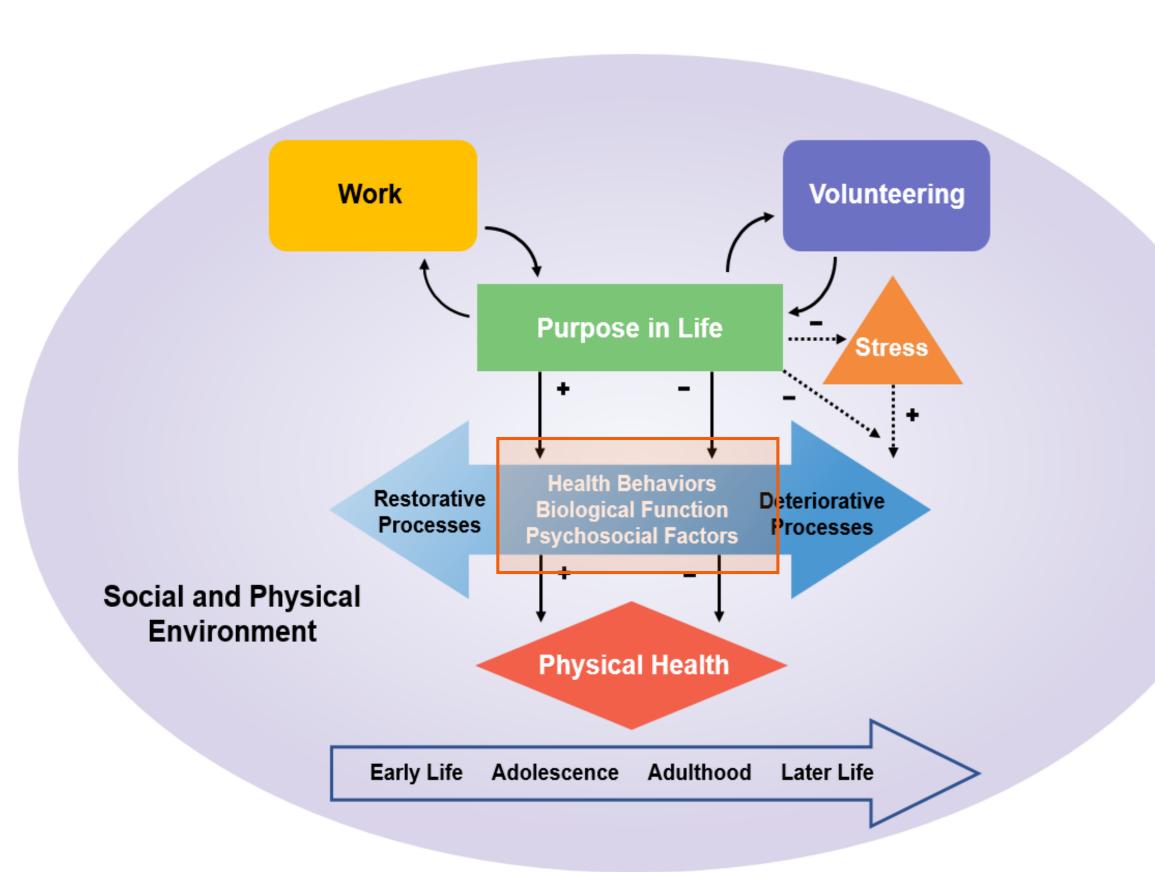
Kim, Ryff, Brummett, Hassett, Yeh, Strecher, (R&R)

Diet

Steptoe & Fancourt (2019), Proceedings of the National Academy of Sciences

Sleep?

Kim, Hershner, Strecher (2015), J. Behavioral Medicine



Sense of Purpose in Life & Biobehavioral Mechanisms

Inflammation (Moderator)

Friedman & Ryff (2012), J. Gerontol B Psychol Sci Soc Sci

Glucose Regulation

Hafez, Heisler, Choi, Ankuda, Winkelman & Kullgren (2018), Ann Behav Med

Lower Allostatic Load

Zilioli, Slatcher, Ong & Gruenewald (2015), J. Psychosom Res

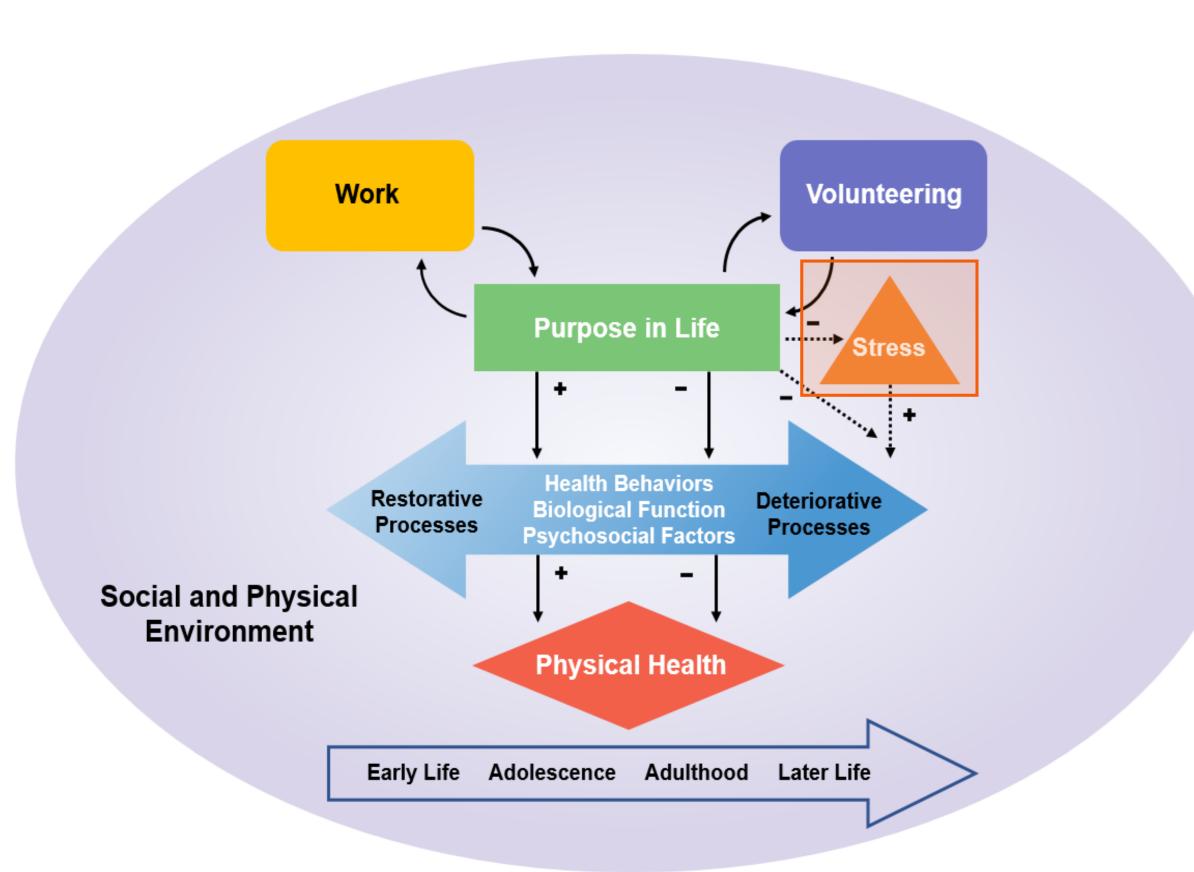
Higher HDL

Radler, Rigott, & Ryff (2018), Lipids Health Dis

≠ Heart Rate Variability
Sloan et al (2017), Health Psychol

≠ Atherosclerosis / CAC

Low et al. (2011), Psychosom Med Shahabi et al., (2016) Psychosom Med



Sense of Purpose in Life & Stress

Slower eye-blink startle reflect (lower stress reactivity)

Schaeer et al (2013), PLoS One

Less blood flow to amygdala & more to ventral anterior cingulate cortex (in fMRI)

Van Reekum et al (2007), J Cogn Neurosci

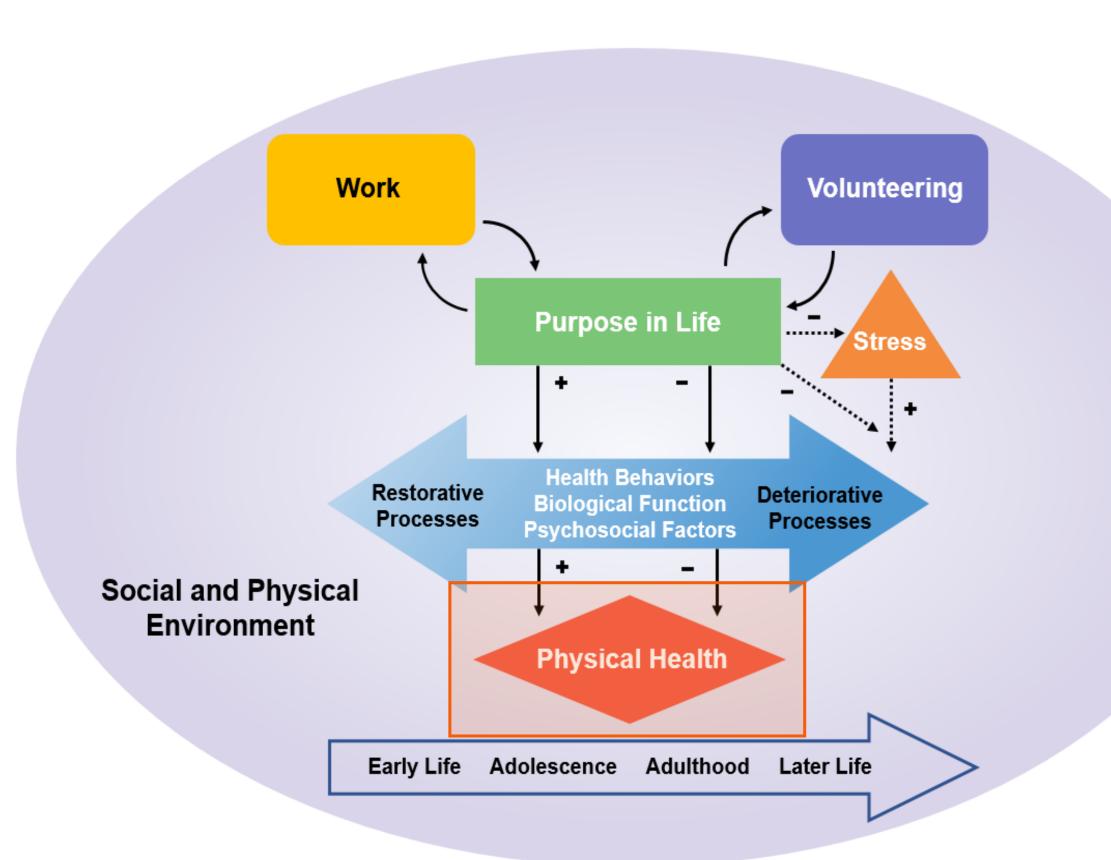
Daily diary for 8 days; less NA affect spike on days with stressors Hill, Sin, Turiano, Burrow, Almeida (2018), Ann Behav Med

Coping (active problem-focused + proactive coping)

Miao & Gan (2019), J Pers

Peter et al (2015), Rehabil Psychol

Reduced decisional conflict Kang, Strecher, Kim, Falk (2019), Health Psychol



Sense of Purpose in Life & Physical Health Outcomes

Cardiovascular Disease

Cohen, Bavishi, & Rozanski (2016), Psychom Med

Stroke

Yu, Boyle, Wilson, Schnieder, & Bennett (2015), Stroke Kim, Sun, Park, & Peterson (2013), J. Psychom Research

Alzheimer's Disease/ Cognitive Impairment

Boyle, Buchman, Wilson, Yu, Schneider, & mBennett (2012), Arch Gen Psychiatry

Physical Function

Kim, Kawachi, Chen, Kubzansky (2017), JAMA Internal Medicine

Mortality

Alimujiang et al (2019), JAMA Network Open Hill, Turiano, Spiro, & Mroczek (2015), Psychol Aging

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Deeper Dive Into 1 Study: Illustrative Example

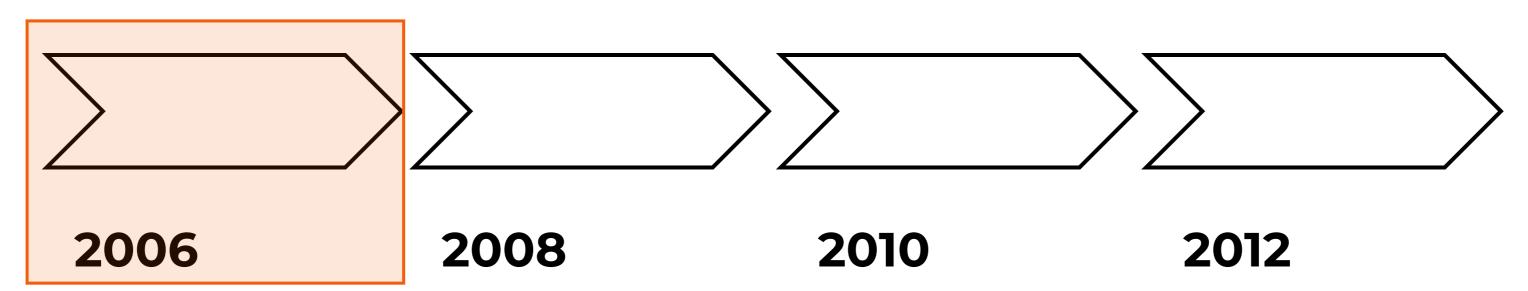
US DEPARTMENT OF HEALTH AND HUMAN SERVICES

Less than 50% of adults aged 65+ are up-to-date with core preventive services

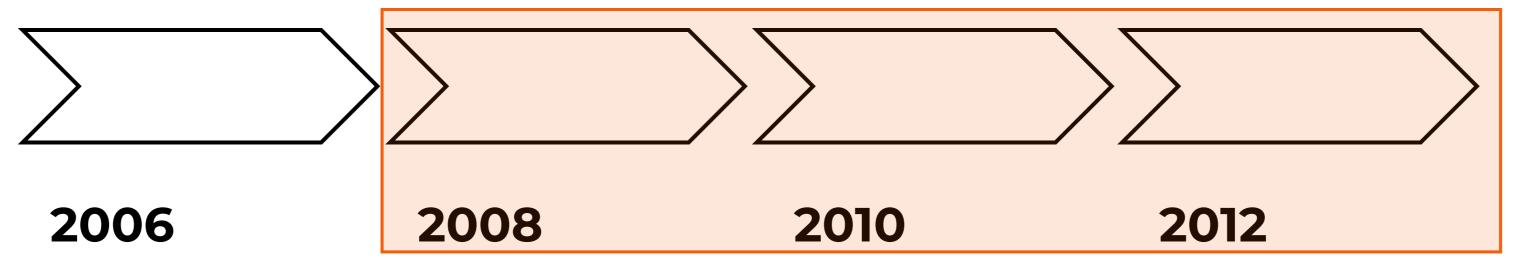
- Study Objectives: Test if a stronger sense of purpose in life is associated with:
 - More preventive dr. visits
 - Fewer illness-based visits (e.g., hospitalizations)
 - Over 6-year follow-up period

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- **Exposure:** Purpose in life (Ryff Purpose Subscale)



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 - More preventive dr. visits
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 - Over 6-year follow-up period
- Study Population: Health and Retirement Study (N=7,168)
- Exposure: Purpose in life (Ryff Purpose Subscale)
- Outcomes:
 - Preventive (flu shots, colonoscopy, cholesterol test, mammogram, pap smear, prostate exam)
 - Ilness-based (# of nights hospitalized)



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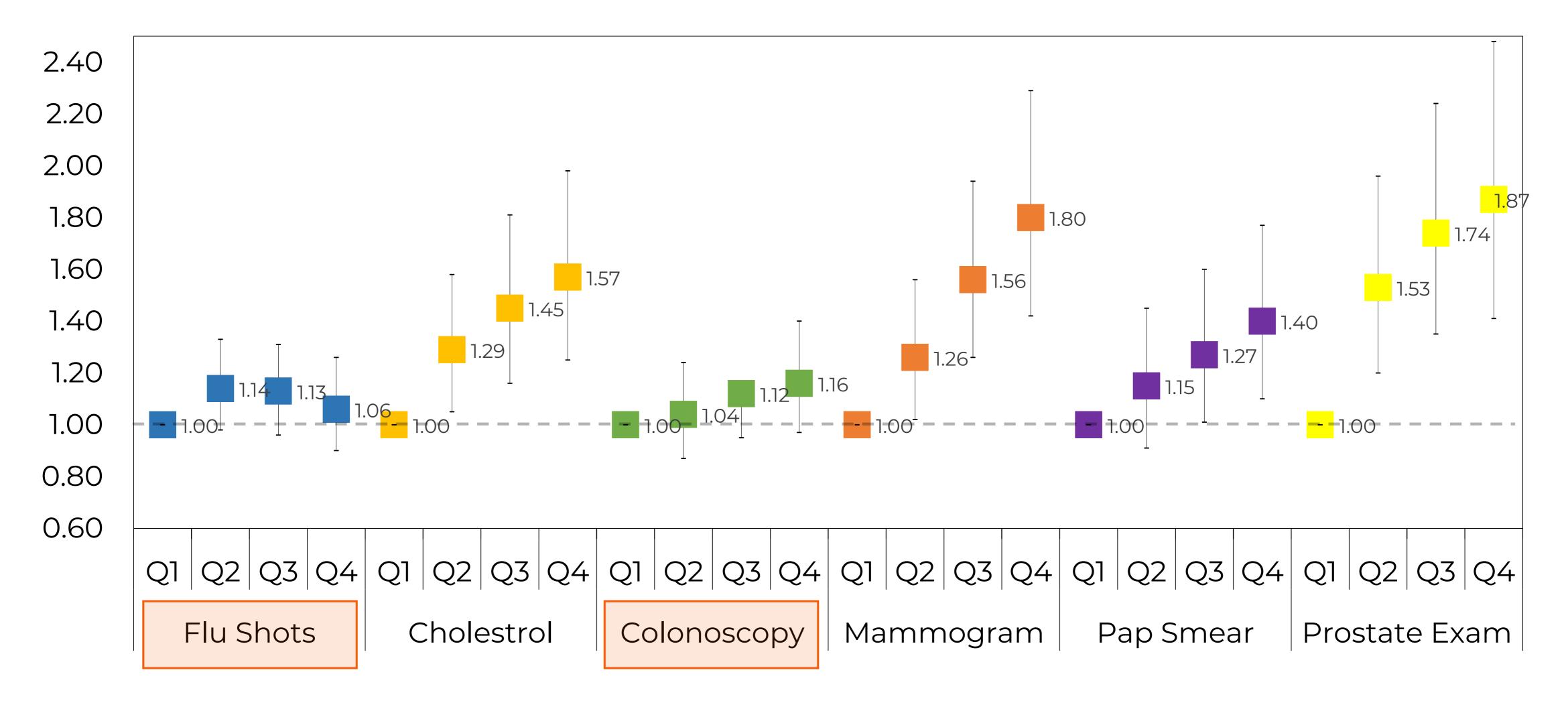
Methods: Statistical Analysis

- Statistical analysis:
 - Preventive Dr. Visits: Logistic Regression
 - Illness-based Dr. Visits: GLM (negative binomial / log link)
 - Missing Data: Multiple Imputation

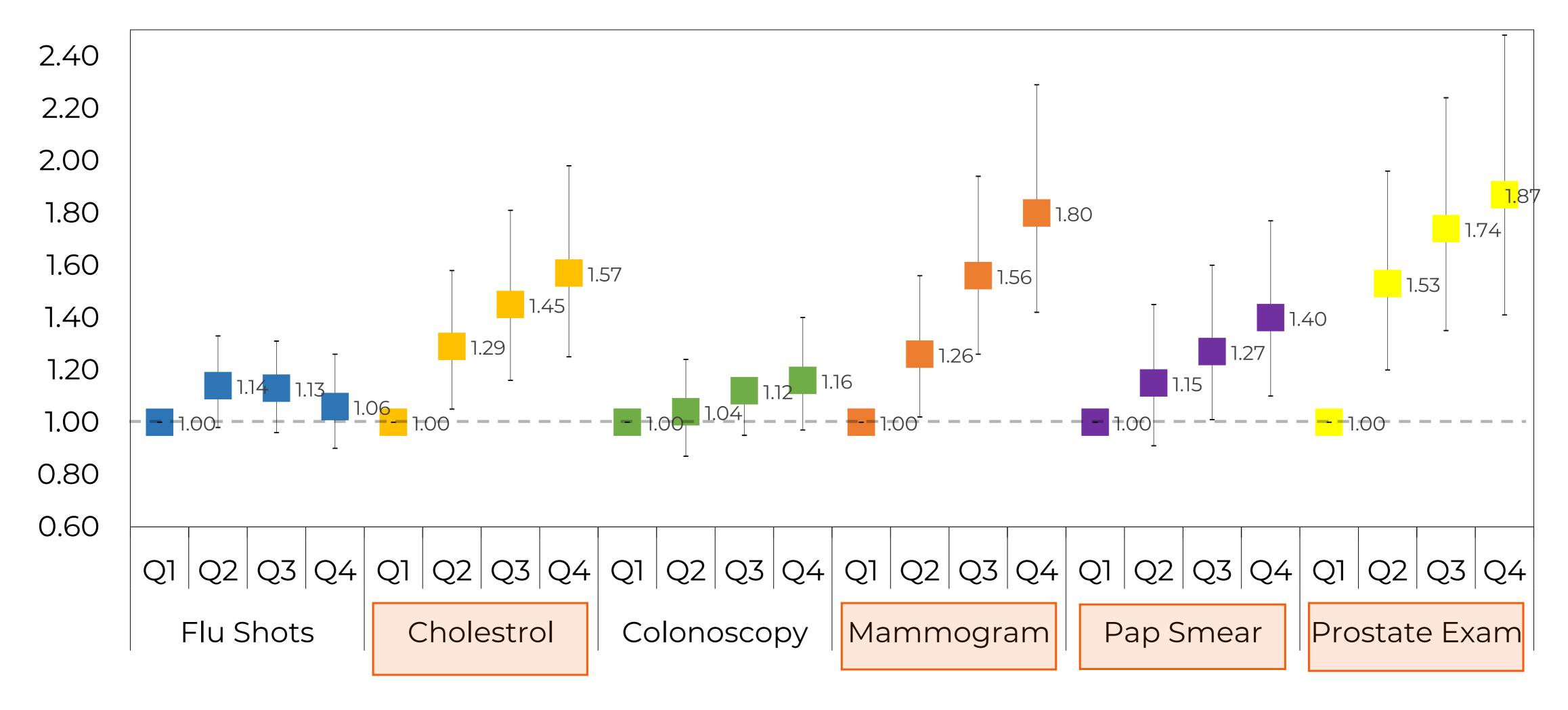
Models:

- •Model 1 age, race/ethnicity, marital status, education, total wealth, insurance status
- •Model 2 Sociodemographics + baseline health (hypertension, diabetes, cancer, lung disease, heart disease (heart attack, angina, congestive heart failure, or other heart problems), arthritis or rheumatism, stroke
- •Model 3 Sociodemographics + baseline health + psychological distress (depression, anxiety, hostility, negative affect)

Adjusted Odds Ratios: Sense of Purpose in Life and Preventive Dr. Visits

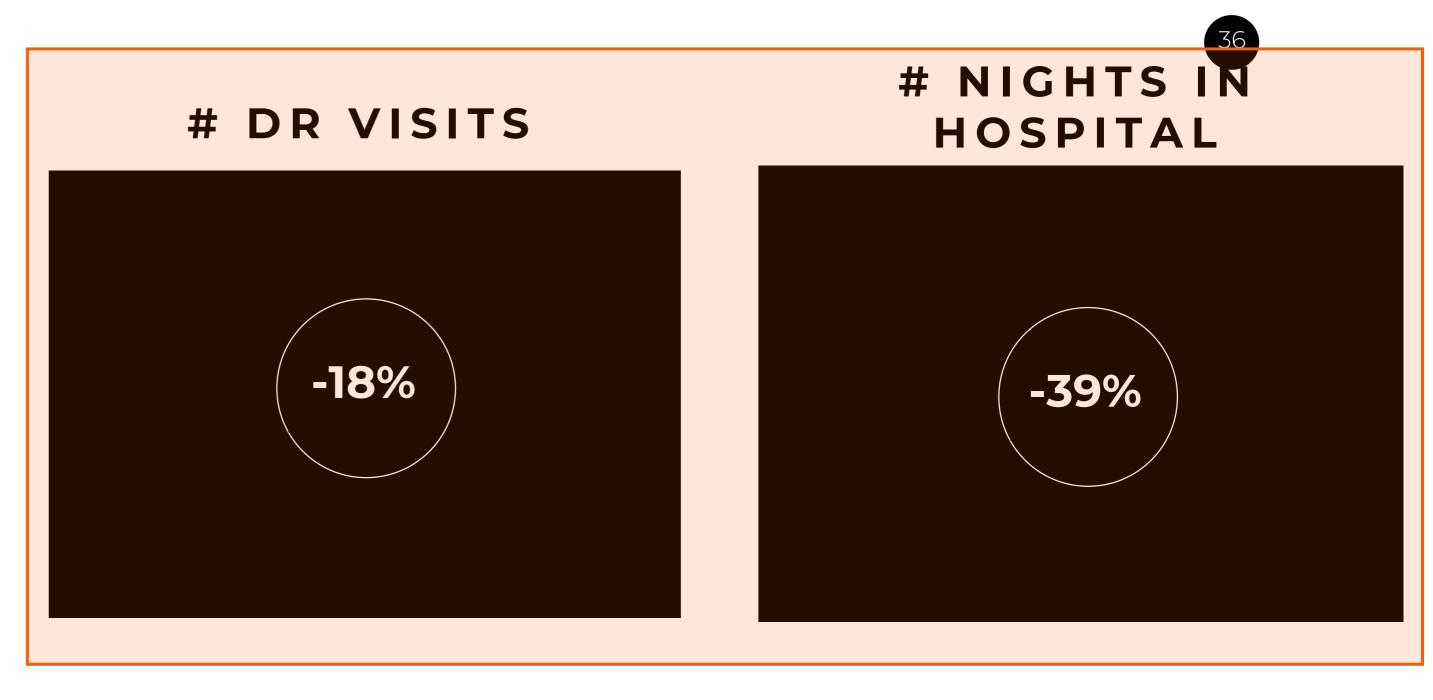


Adjusted Odds Ratios: Sense of Purpose in Life and Preventive Dr. Visits

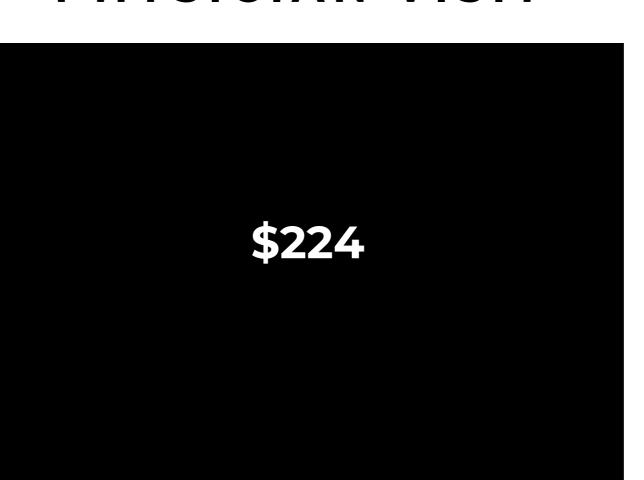


OVERALL & ILLNESS-BASED

Sense of Purpose in Life and Healthcare Use







COST PER OVERNIGHT HOSPITAL STAY



Kim, Strecher, & Ryff (2014) – Proceedings of the National Academy of Sciences



Purpose in Life and Positive Health Outcomes Among Older Adults

Shirley Musich, PhD, Shaohung S. Wang, PhD, Sandra Kraemer, MSW, Kevin Hawkins, PhD, and Ellen Wicker, MHA

Purpose in Life and Hospitalization for Ambulatory Care-Sensitive Conditions in Old Age

Robert S. Wilson, Ph.D., Ana W. Capuano, Ph.D., Bryan D. James, Ph.D., Priscilla Amofa, B.A., Zoe Arvanitakis, M.D., Raj Shah, M.D., David A. Bennett, M.D., Patricia A. Boyle, Ph.D.



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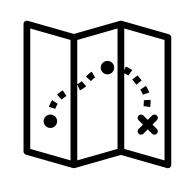
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Table 3. Health Outcomes Associated with Purpose in Life Levels

		PIL		P	
Regression-adjusted estimates	Low	Medium	High	Medium vs. low	High vs. low
Health care utilization					
Inpatient admissions (annual)	16.8%	13.5%	12.5%	< 0.0001	< 0.0001
Emergency room visits (annual)	32.8%	30.3%	28.7%	0.02	< 0.0001
Health care expenditures					
Medical (pmpm)	\$1288	\$1043	\$870	< 0.0001	< 0.0001
Drug (pmpm)	\$269	\$250	\$194	0.33	< 0.0001
Preventive services					
Care pattern (% compliant)	19.6	21.1	23.3	0.14	< 0.0001
Medication adherence (% compliant)	64.5	70.2	71.6	0.003	< 0.0001
QOL (VR-12)					
PCS	39.0	43.1	46.0	< 0.0001	< 0.0001
MCS	47.4	54.0	57.8	< 0.0001	< 0.0001

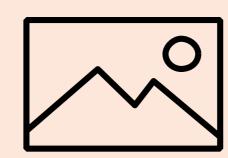
MCS, mental component score; PCS, physical component score; PIL, purpose in life; pmpm, per member per month; QOL, quality of life; VR-12, Veterans RAND 12-Item QOL scale.

Agenda



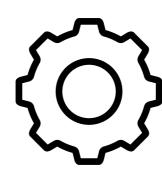
Theoretical Model /

Purpose & Health Research

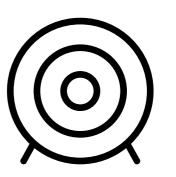


Does Work Foster Purpose in Life?

Does Purpose Foster Delayed Retirement?



Interventions



Future Directions

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#1 – Does <u>work</u> (or volunteering) foster a sense of purpose in life?

#2 – Does sense of purpose in life (or meaningful work) extend work life?

Does Work Foster Sense of Purpose Life?

Correlates of	Purpose ii	n Life in	Middle-8	iged and	Older A	auits
					_	
 						~ .

Measure	k	N	r		terval of the correlation	Homoge- neity	Contrasts
Associations with A	ge						-
All studies	48	23,749	12***	13	11	210.02***	
Mean age < 60	15	5,519	065	09	04	93.19***	Weaker decline in samples with a mean age < 60 years than
Mean age 60-69.9 yrs.	14	11,350	14***	16	12	58.98***	in older samples
Mean age >	19	6,880	13***	15	11	36.18**	
Associations with P	hysical I	Health	_				
All studies	12	5,207	.12***	.09	.15	8.34	
Mean age < 70	3	1,607	.10***	.05	.15	0.26	
Mean age > 70	9	3,600	.13***	.10	.16	7.28	

Assoc	iations with M	arital St	atus (Being M	farried)			
	All studies	16	20,540	.16***	.14	.17	59.90***
	Mean age < 70	11	14,507	.16***	.15	.18	54.80***
	Mean age > 70	5	6,033	.14***	.12	.17	3.61
Assoc	iations with Re	etiremen	it a				
	All studies	8	2,858	11***	15	08	16.82*



Does Work Foster Sense of Purpose Life?

- Inconclusive evidence
 - Some cross-sectional and qualitative research
- Future research direction
 - Might be asking the wrong question:
 - Does work (yes/no) foster sense of purpose
 - Right question might be:
 - Do specific aspects of work foster sense of purpose

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Does Work Foster Sense of Purpose Life?

- Inconclusive evidence
 - Some cross-sectional and qualitative research
- Future research direction
 - Might be asking suboptimal question?
 - Does <u>working</u> vs. <u>not working</u> foster sense of purpose
 - Better question might be:
 - Do <u>specific attributes of work</u> foster sense of purpose



Features of Work Associated with Meaningful Work

- Individual Level
 - Job performance (+)
 - Positive affect (+)
 - Intrinsic motivation (+)
 - Shared experiences (+)
- Job Level
 - Safe-fair conditions (+)
 - Underemployment (-)
 - Limited developmental opportunities (-)



Features of Work Associated with Meaningful Work

- Organizational Level
 - Ethical leadership (+)
 - Empowering leadership (+)
 - Hierarchical (-)
 - Corporate social responsibility (+)
 - Good workplace relationships (+)
 - Access to healthcare (+)
 - Adequate compensation (+)
 - Match of organizational and family values (+)

#1 – Does work (or <u>volunteering</u>) foster a sense of purpose in life?

#2 – Does sense of purpose in life (or meaningful work) extend work life?



Does Volunteering Foster Sense of Purpose Life?

Volunteer Work and Hedonic, Eudemonic, and Social Well-Being

Joonmo Son¹ and John Wilson²

Prosocial behavior increases perceptions of meaning in life

Nadav Klein

Harris School of Public Policy, University of Chicago, Chicago, IL, USA

Meaningful commitment: finding meaning in volunteer work

Tatjana Schnell^a* and Matthias Hoof^b

^aInstitute of Psychology, University of Innsbruck, Innsbruck, Austria; ^bYouth Educational Centre, Hagen-Berchum, Germany

The impact of a civic service program on biopsychosocial outcomes of post 9/11 U.S. military veterans

Monica M. Matthieu^{a,*}, Karen A. Lawrence^{b,1}, Emma Robertson-Blackmore^c

a Saint Louis University, College for Public Health and Social Justice, School of Social Work, Saint Louis, MO, USA

^b University of Kentucky, School of Social Work, Lexington, KY, USA

^c Family Medicine Residency, Halifax Health, Daytona Beach, FL, USA

#1 – Does work (or volunteering) foster a sense of purpose in life?

#2 – Does sense of purpose in life (or meaningful work) extend work life?



Meaningful Work and Reduced Turnover Intentions

Abstract

Researchers and practitioners alike are increasingly interested in the potential benefits of perceiving work as meaningful. Nonetheless, the strengths of these effect sizes are unknown. The purpose of this paper is to provide a meta-analytical examination of the relationships between work meaningfulness and a variety of work- and life-related outcomes. We metaanalyzed these relationships across 146 independent samples, representing a total sample of N = 70,541. The results indicated that work meaningfulness was strongly associated with a variety of positive outcomes, including heightened motivation (ρ = .55), organizational commitment (ρ =.56), work engagement (ρ =.62), job satisfaction (ρ =.66), hope (ρ =.62), efficacy (ρ =.56), job performance (ρ =.31), positive affect (ρ =.55), work relationships (ρ =.35), citizenship behaviors (ρ = .45), life meaning (ρ = .45) and overall life satisfaction (ρ = .48). Increased perceptions of meaningful work were also strongly negatively related to turnover intentions (ρ =-.39), burnout (ρ =-.40), stress (ρ =-.29), and counterproductive behaviors (ρ =-.41). These results emphasize the strong correlations between the experienced meaningfulness of work and a diversity of positive work-related outcomes. Suggestions for future research in this area are discussed.

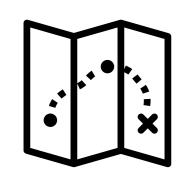
Meaningful Work and Increased Commitment & Reduced Withdrawal Intentions

Table I. Meta-analytic effect sizes

Outcome	k	\mathcal{N}	r ^{adj}	p-value	95% CI	Q	I^2
Engagement	18	6391	0.74*	0.00	0.69, 0.78	275.93	93.84
Commitment	11	10,537	0.75*	0.00	0.69, 0.80	283.10	96.47
Withdrawal	10	11,108	-0.49*	0.00	-0.65, -0.30	1059.74	99.15
OCBs	3	1927	0.33*	0.00	0.20, 0.46	15.362	86.98
Performance	5	1743	0.33*	0.00	0.23, 0.42	18.50	78.38
Job satisfaction	11	3962	0.74*	0.00	0.61, 0.83	571.57	98.25
Life satisfaction	5	2275	0.47*	0.00	0.42, 0.53	10.68	62.54
Life meaning	6	2966	0.53*	0.00	0.39, 0.65	127.54	96.08
General health	3	986	0.44*	0.00	0.24, 0.61	20.58	90.28
Negative affect	4	1085	-0.19*	0.02	-0.34, -0.03	20.63	85.46

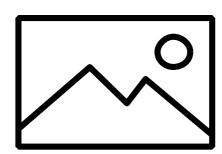
Notes: k = number of samples; N = sample size; $r^{adj} = meta-analytic effect size corrected for unreliability; 95% <math>CI = 95\%$ confidence interval; Q = chi-square test of heterogeneity; $I^2 = percent variance explained by true differences; p-value = significance test; * = significant at the .01 level; <math>OCBs = Organizational$ citizenship behaviours; Performance = Self-rated job performance.

Agenda



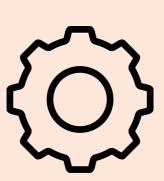
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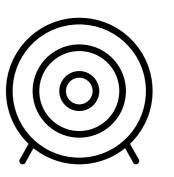


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Does Purpose Foster Delayed Retirement?



Interventions



Future Directions



#2 – Can sense of purpose in life / meaningful work be enhanced?

Disengagement at Work

Data: Gallup Poll (N= 73,752; 141 countries)

Regionally, Engaged Employees Most Common in the U.S. and Canada

More than one in three workers in the Middle East and North Africa region are actively disengaged

Region	Engaged	Not Engaged	Actively Disengaged
United States and Canada	29%	54%	18%
Australia and New Zealand	24%	60%	16%
Latin America	21%	60%	19%
Commonwealth of Independent States and nearby countries	18%	62%	21%
Western Europe	14%	66%	20%
Southeast Asia	12%	73%	14%
Central and Eastern Europe	11%	63%	26%
Middle East and North Africa	10%	55%	35%
South Asia	10%	61%	29%
Sub-Saharan Africa	10%	57%	33%
East Asia	6%	68%	26%

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Meaningful Work and Improved Outcomes on Key Business Metrics

Table I. Meta-analytic effect sizes

Outcome	k	\mathcal{N}	γ ^{adj}	p-value	95% CI	Q	I^2
Engagement	18	6391	0.74*	0.00	0.69, 0.78	275.93	93.84
Commitment	11	10,537	0.75*	0.00	0.69, 0.80	283.10	96.47
Withdrawal	10	11,108	-0.49*	0.00	-0.65, -0.30	1059.74	99.15
OCBs	3	1927	0.33*	0.00	0.20, 0.46	15.362	86.98
Performance	5	1743	0.33*	0.00	0.23, 0.42	18.50	78.38
Job satisfaction	11	3962	0.74*	0.00	0.61, 0.83	571.57	98.25
Life satisfaction	5	2275	0.47*	0.00	0.42, 0.53	10.68	62.54
Life meaning	6	2966	0.53*	0.00	0.39, 0.65	127.54	96.08
General health	3	986	0.44*	0.00	0.24, 0.61	20.58	90.28
Negative affect	4	1085	-0.19*	0.02	-0.34, -0.03	20.63	85.46

Notes: k = number of samples; N = sample size; $r^{adj} = meta-analytic effect size corrected for unreliability; 95% <math>CI = 95\%$ confidence interval; Q = chi-square test of heterogeneity; $I^2 = percent variance explained by true differences; <math>p$ -value = significance test; * = significant at the .01 level; OCBs = Organizational citizenship behaviours; P-erformance = S-elf-rated job performance.



Meaningful Work and Improved Outcomes on Key Business Metrics

Abstract

Researchers and practitioners alike are increasingly interested in the potential benefits of perceiving work as meaningful. Nonetheless, the strengths of these effect sizes are unknown. The purpose of this paper is to provide a meta-analytical examination of the relationships between work meaningfulness and a variety of work- and life-related outcomes. We metaanalyzed these relationships across 146 independent samples, representing a total sample of N = 70,541. The results indicated that work meaningfulness was strongly associated with a variety of positive outcomes, including heightened motivation (ρ = .55), organizational commitment (ρ =.56), work engagement (ρ =.62), job satisfaction (ρ =.66), hope (ρ =.62), efficacy (ρ =.56), job performance (ρ =.31), positive affect (ρ =.55), work relationships (ρ =.35), citizenship behaviors (ρ =.45), life meaning (ρ =.45) and overall life satisfaction (ρ =.48). Increased perceptions of meaningful work were also strongly negatively related to turnover intentions (ρ =-.39), burnout (ρ =-.40), stress (ρ =-.29), and counterproductive behaviors (ρ =-.41). These results emphasize the strong correlations between the experienced meaningfulness of work and a diversity of positive work-related outcomes. Suggestions for future research in this area are discussed.

Healthier Workers & Lower Healthcare Costs?

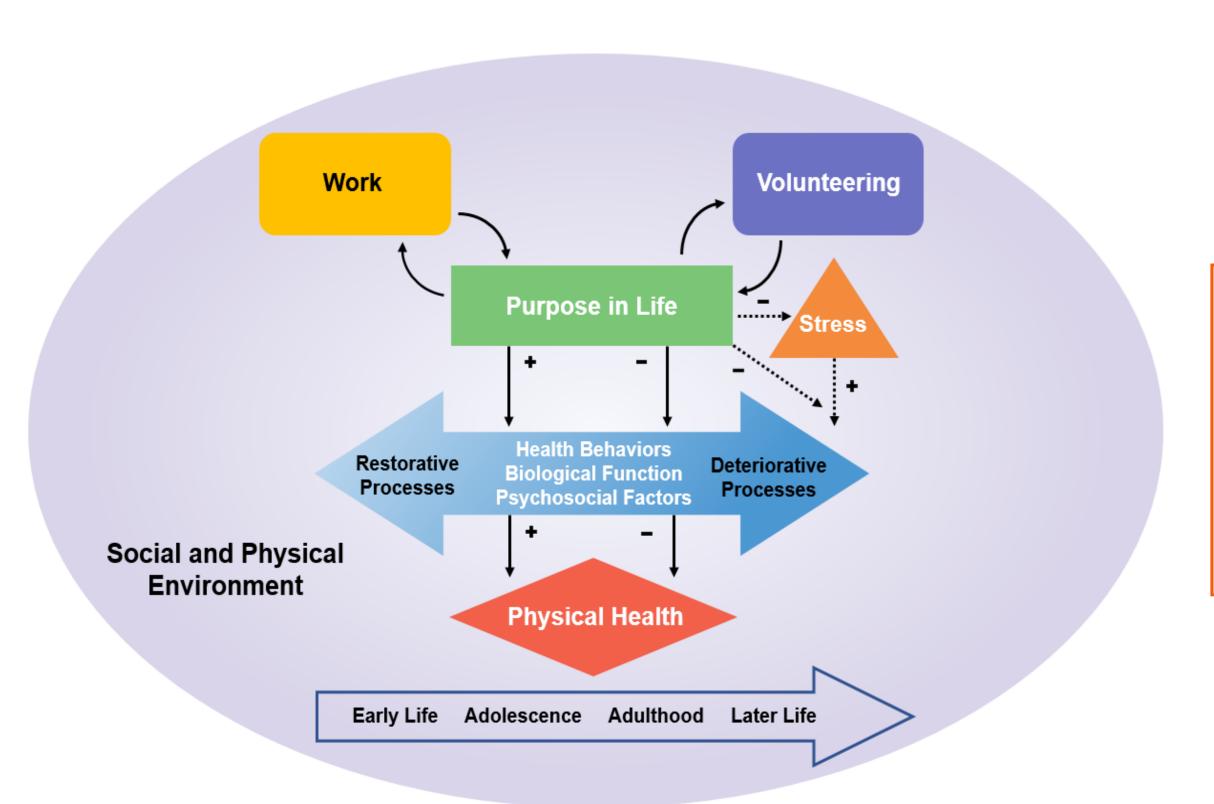


TABLE 3. HEALTH OUTCOMES ASSOCIATED WITH PURPOSE IN LIFE LEVELS

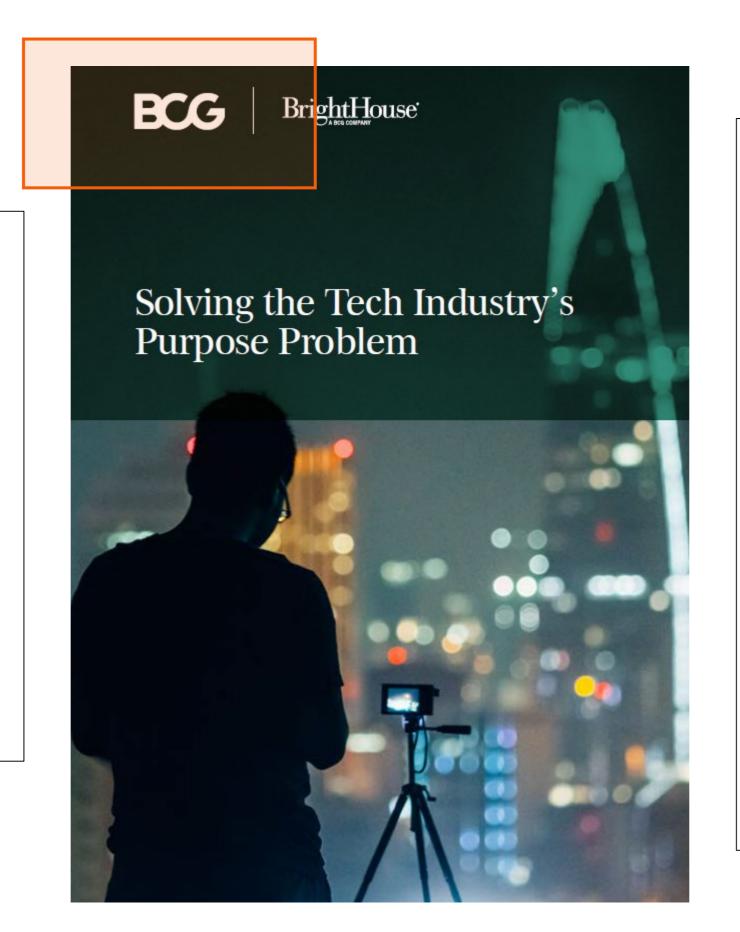
		PIL		P	
Regression-adjusted estimates	Low	Medium	High	Medium vs. low	High vs. low
Health care utilization					
Inpatient admissions (annual)	16.8%	13.5%	12.5%	< 0.0001	< 0.0001
Emergency room visits (annual)	32.8%	30.3%	28.7%	0.02	< 0.0001
Health care expenditures					
Medical (pmpm)	\$1288	\$1043	\$870	< 0.0001	< 0.0001
Drug (pmpm)	\$269	\$250	\$194	0.33	< 0.0001
Preventive services					
Care pattern (% compliant)	19.6	21.1	23.3	0.14	< 0.0001
Medication adherence (% compliant)	64.5	70.2	71.6	0.003	< 0.0001
QOL (VR-12)					
PCS	39.0	43.1	46.0	< 0.0001	< 0.0001
MCS	47.4	54.0	57.8	< 0.0001	< 0.0001

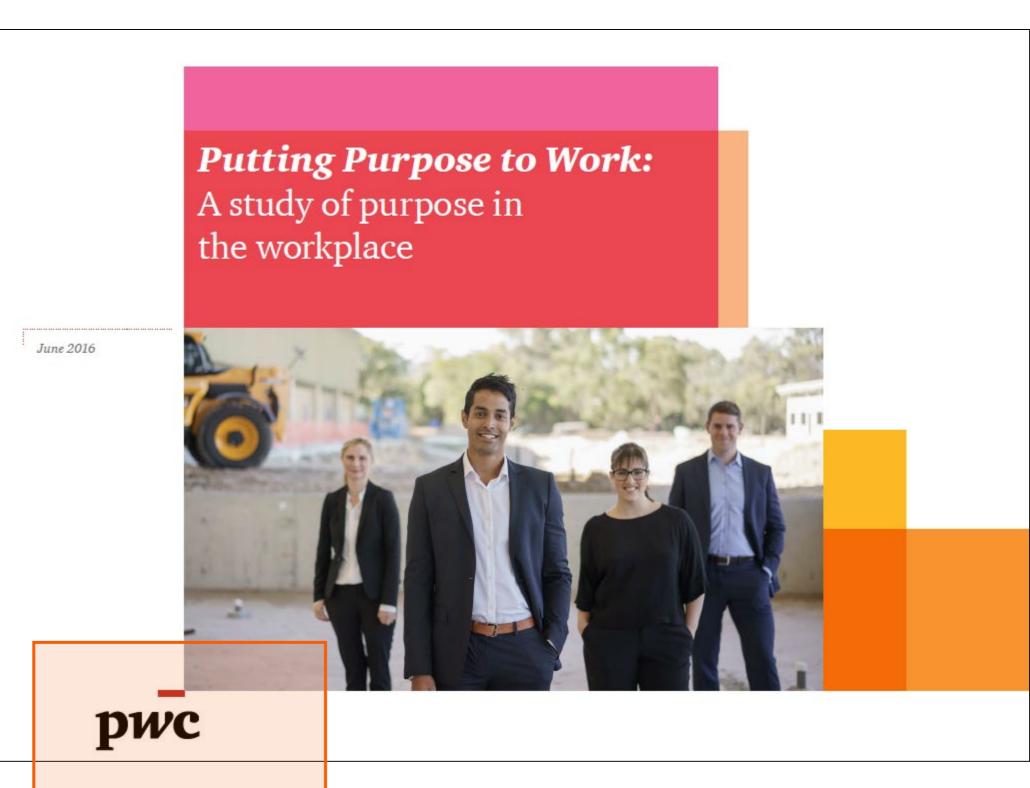
MCS, mental component score; PCS, physical component score; PIL, purpose in life; pmpm, per member per month; QOL, quality of life; VR-12, Veterans RAND 12-Item QOL scale.

Management Consulting Companies Already Discussing Sense of Purpose Widely

Deloitte.

Culture of Purpose — Building business confidence; driving growth 2014 core beliefs & culture survey





#1 – Why should employers care about fostering a sense of purpose in life / meaningful work among employees?

#2 – Can sense of purpose in life / meaningful work be enhanced?



Job Crafting

Employees proactively redesign their jobs to enhance the fit between

- 1) Employees skills with job requirements
- 2) Employees needs with work opportunities

Employees Proactively Change:

- 1) Tasks
- 2) Relations
- 3) Appraisal of Work





Job Crafting Increases Retirement Age?

Job crafting and motivation to continue working beyond retirement age

Philipp Wolfgang Lichtenthaler

Deutsche Hochschule der Polizei, Munster, Germany, and

Andrea Fischbach

Department of Social, Work, and Organizational Psychology, Deutsche Hochschule der Polizei, Munster, Germany Job crafting and the motivation to increase retirement age

Is job satisfaction an underlying mechanism?

Tobias Wille

Superordinate Framing

- Final results: Superordinate framing is an effective way to imbue seemingly unimportant tasks with meaning
- What is superordinate framing?
 - Thinking about how one's meaningless task at hand, and how it builds on other tasks (like a jigsaw puzzle) to achieve/unlock a higher purpose
- **Example:** A hospital administrator





Superordinate Framing

- 4 Experiments (N=3,502)
- **Prompt:** Participants asked to think of "meaningless task"
- Assigned to 1 condition:
 - 1st condition: Asked participants to consider broader purpose of a task
 - Result: Backfired many participants found it difficult to associate unimportant tasks with an important overarching purpose
 - Tasks rated as less: enjoyable, meaningful, and motivated
 - 2nd condition: Asked participants to think of "meaningless task" in relation to other tasks which fit together (like a puzzle) to achieve/unlock a larger purpose
 - Results: = more enjoyable, meaningful, motivated



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Can Purpose / Meaningful Work Be Enhanced?

Meaning-Centered Group Psychotherapy: An Effective Intervention for Improving Psychological Well-Being in Patients With Advanced Cancer

William Breitbart, Barry Rosenfeld, Hayley Pessin, Allison Applebaum, Julia Kulikowski, and Wendy G. Lichtenthal

Lighten UP! A community-based group intervention to promote psychological well-being in older adults

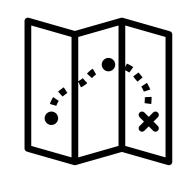
Elliot M. Friedman^a, Chiara Ruini^b*, Renee Foy^c, LaVerne Jaros^c, Hellen Sampson^c and Carol D. Ryff^d

^aDepartment of Human Development and Family Studies, Purdue University, West Lafayette, IN, USA; ^bDepartment of Psychology, University of Bologna, Bologna, Italy; ^cAging and Disability Resource Center of Kenosha County, WI, USA; ^dInstitute on Aging and Department of Psychology, University of Wisconsin-Madison, Madison, WI, USA

Living Legends: Effectiveness of a Program to Enhance Sense of Purpose and Meaning in Life Among Community-Dwelling Older Adults

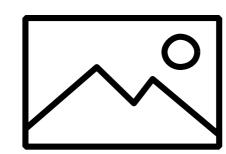


Agenda



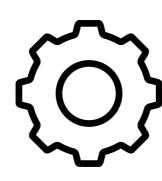
Theoretical Model /

Purpose & Health Research



Does Work Foster Purpose in Life?

Does Purpose Foster Delayed Retirement?



Interventions



Future Directions

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<u>Future Directions: Basic Science</u>

Research Infrastructure

- Centralized database of existing cohort studies that have data on work attributes AND health
- Add work attribute, meaningful work, purpose items to existing cohorts

Research Questions

- What impact is "gig economy" & automation having on meaningful work?
- Work stress > increased risk of CVD
 - Does meaningful work act as a buffer?
- Burnout from nurses
 - Is meaningful work a buffer?
- RCT: Does job crafting delay retirement?



Future Directions: Translational Science

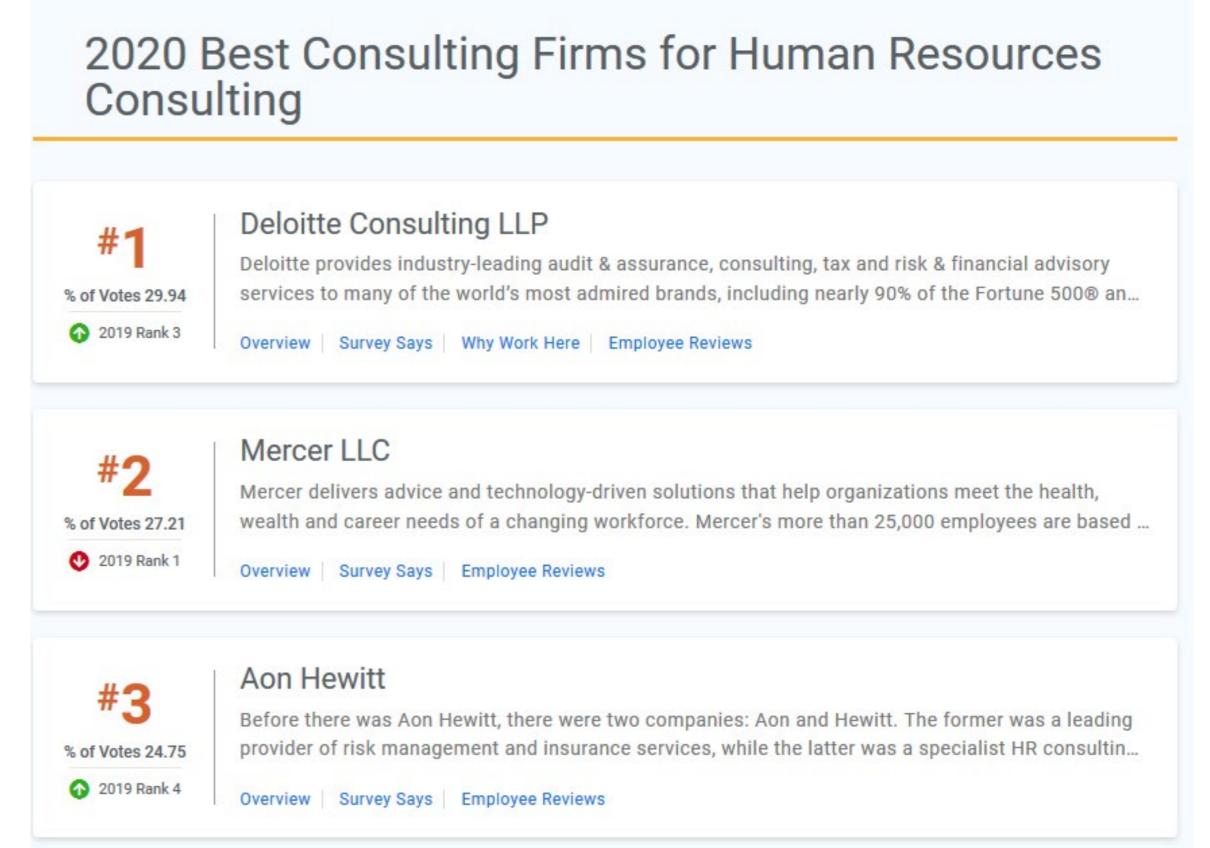
- Partner With Industry
 - "People analytics" teams
 - Unique datasets
 - Management consulting
 - They advise most of largest companies
 - Facilitates dissemination?
 - Directly with largest employers



Future Directions: Translational Science

Partner With Industry

- "People analytics" teams
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Future Directions: Translational Science

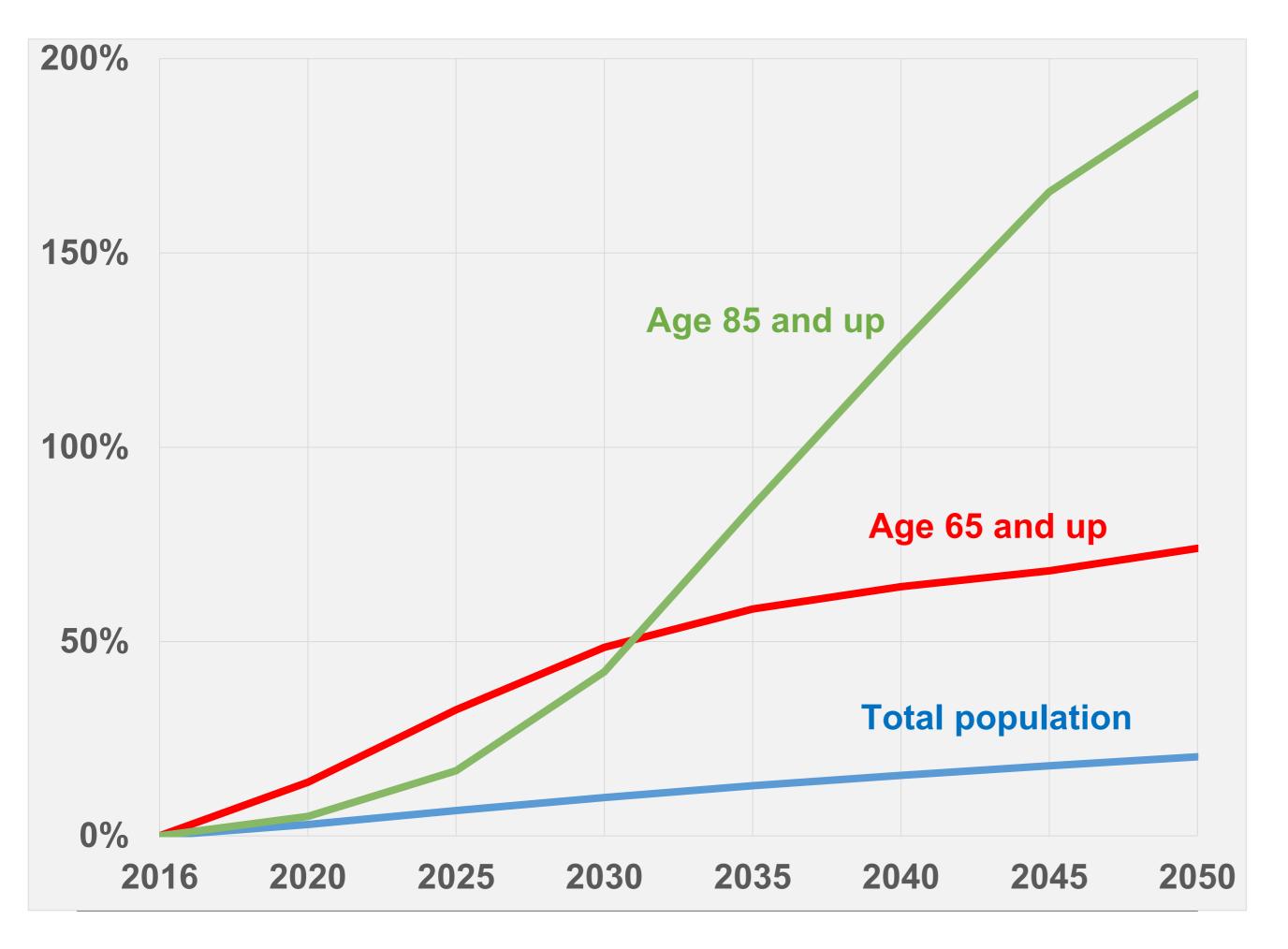
Partner With Industry

- "People analytics" teams
 - Unique datasets
- Management consulting
 - They advise most of largest companies
 - Facilitates dissemination?
- Directly with largest employers
 - Might spur innovations in given industry

United States Largest Private Employers (as of 2015)[1][2]							
Rank	Employer	Employees					
1	Federal Government	2,711,000					
2	Wal-Mart Stores	2,200,000					
3	McDonald's (franchise)	420,000					
4	Kroger	400,000					
5	International Business Machines	377,757					
6	The Home Depot	371,000					
7	Target	347,000					
8	United Parcel Service	336,150					
9	Berkshire Hathaway	316,000					
10	General Electric	305,000					
11	Yum! Brands	303,405					
12	Hewlett-Packard	302,000					
13	FedEx	298,099					
14	PepsiCo	271,000					
15	Lowe's	270,000					

Rapidly Aging Population

DATA: U.S. CENSUS



Age 85+

In the next 35 years 200% increase

Age 65+

In the next 15 years 50% increase

Not Just Numbers and Statistics



Acknowledgements

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Gratitude: I would like to thank the participants and staff of HRS, NHS, NAS, WHI, ELSA for their valuable contributions



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More Effective Teams: Google's Project Aristotle

Researchers measured team effectiveness in 4 ways:

- 1) Executive evaluation of the team
- 2) Team leader evaluation of the team
- 3) Team member evaluate of the team
- 4) Sales performance against quarterly quota



Psychological Safety

Team members feel safe to take risks and be vulnerable in front of each other.

2

Dependability

Team members get things done on time and meet Google's high bar for excellence.

3

Structure & Clarity

Team members have clear roles, plans, and goals.

4

Meaning

Work is personally important to team members.

5

Impact

Team members think their work matters and creates change.



Self-Transcendent Purpose Fosters Academic Self-Regulation

Boring but Important: A Self-Transcendent Purpose for Learning Fosters
Academic Self-Regulation

David S. Yeager and Marlone D. Henderson University of Texas at Austin David Paunesku and Gregory M. Walton Stanford University

Sidney D'Mello University of Notre Dame Brian J. Spitzer New York University

Angela Lee Duckworth University of Pennsylvania

Self-Transcendent Purpose Fosters Academic Self-Regulation

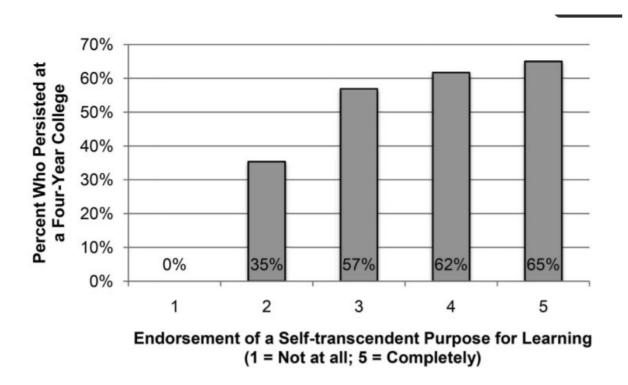


Figure 3. A self-transcendent purpose for learning predicts long-term persistence toward an academic goal (enrollment at a 4-year college 6–10 months postassessment, among college-going high school graduates) in Study 1. Predicted values that adjusted for cognitive ability, gender, racial minority status, and high school grade point average are depicted. All participants were high school graduates who stated that their goal was to

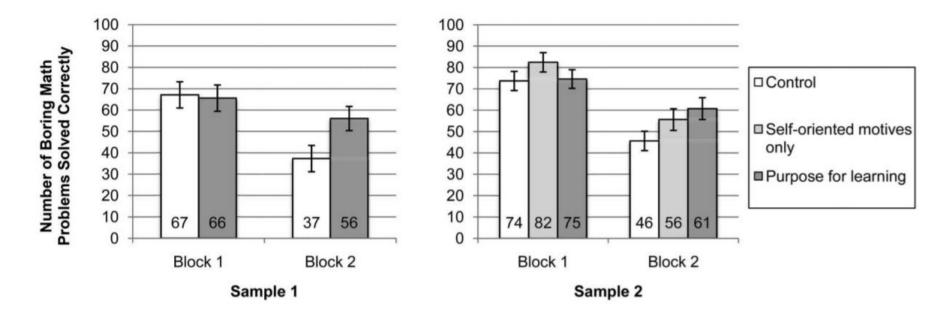


Figure 5. A self-transcendent purpose for learning intervention sustains self-regulation on the "diligence task" in Study 4. Error bars indicate 1 standard error.

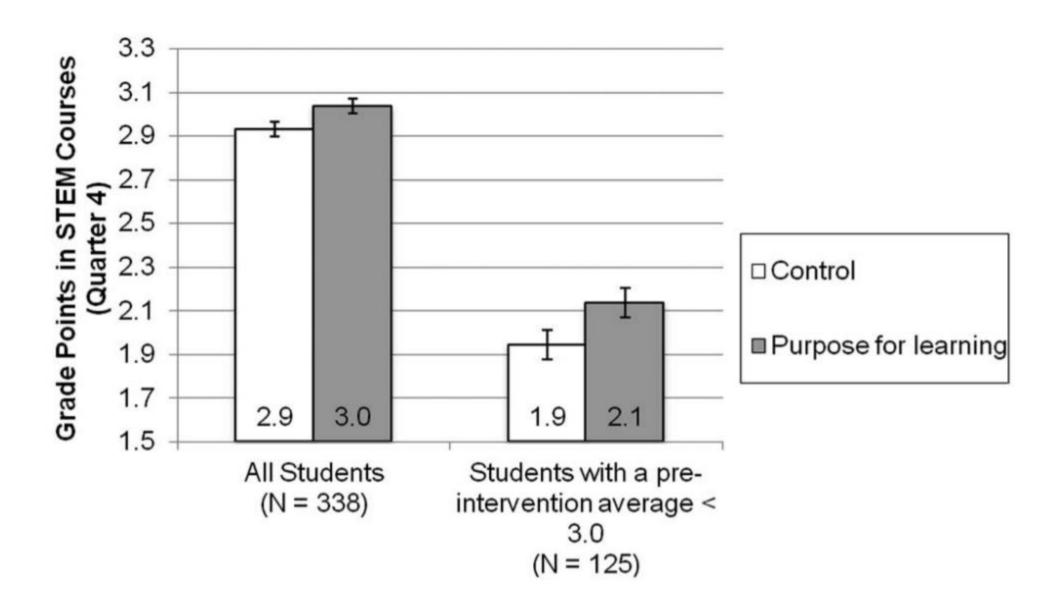
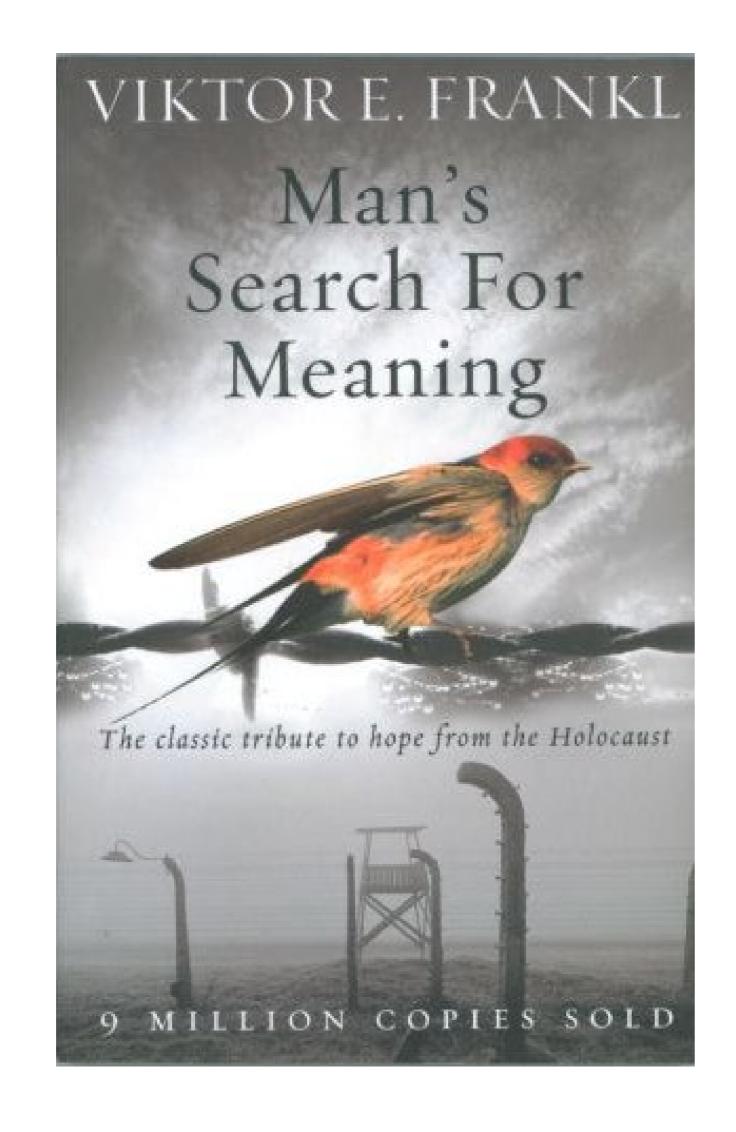


Figure 4. A self-transcendent purpose for learning intervention raises grades in math and science for all students but especially for poor performers in Study 2 (students with a GPA below 3.0 in the preintervention quarter). Error bars indicate 1 standard error. STEM = science, technology, engineering, and mathematics.







"Those who have a <u>why</u> to live, can bear almost any <u>how</u>"

Will to Live as Mechanism?

- 1. Does a stronger sense of purpose in life enhance people's will to live?
- 2. Does an elevated will to live motivate people to push past barriers?
 - -time consuming
 - -costly
 - -fear-inducing
 - -unpleasant or even painful