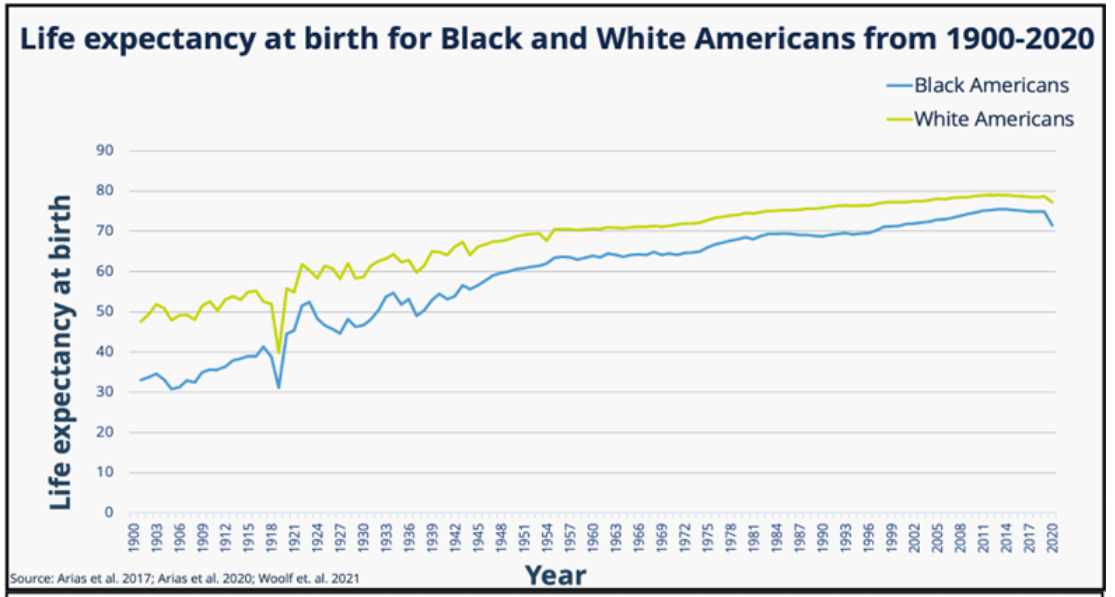
Skin Tone and the Health Returns to Higher Status

Reed DeAngelis, Taylor Hargrove, Robert Hummer

Background

Persistent Black-White health disparities across time and levels of SES



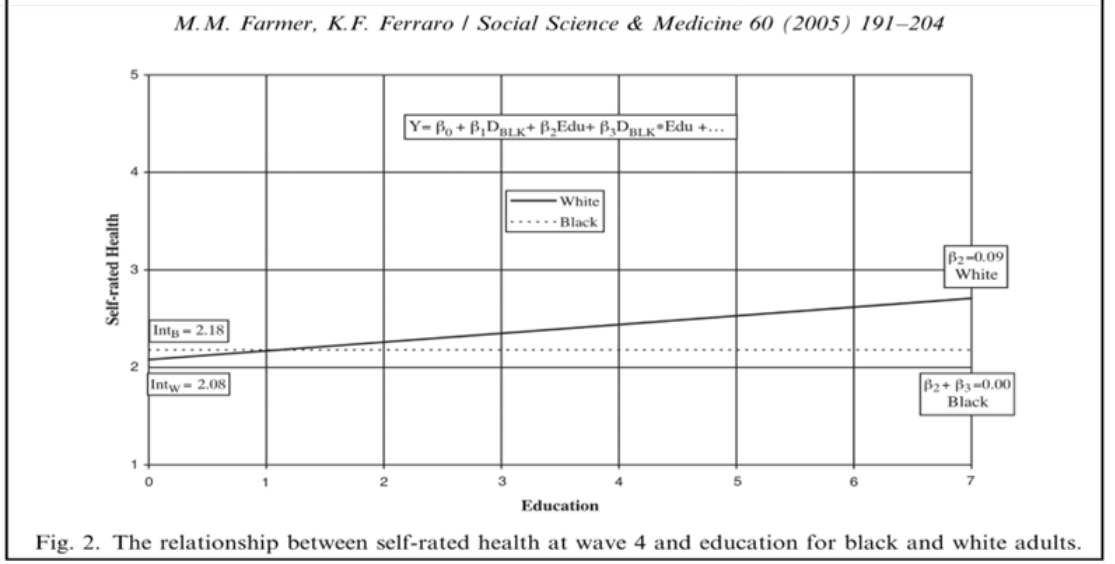


Fig. 2. The relationship between self-rated health at wave 4 and education for black and white adults.

Research Question

Why do Black Americans (BAs) show patterns of diminished health returns from higher SES?

Health Disparities due to Diminished Return among Black Americans: Public Policy Solutions

Shervin Assari*
University of Michigan

There are persistent and pervasive disparities in the health of Black people compared to non-Hispanic Whites in the United States. There are many reasons for this gap; this article explores the role of "Blacks' diminished gain" as a mechanism behind racial health disparities. Diminished gain is a phenomenon wherein the health effects of certain socioeconomic resources and psychological assets are systematically smaller for Blacks compared to Whites. These patterns are robust, with similar findings across different resources, assets, outcomes, settings, cohorts, and age groups. However, the role of diminished gain as a main contributing mechanism to racial health disparities has been historically overlooked. This article reviews the research literature on diminished gain and discusses possible causes for it, such as the societal barriers created by structural racism. Policy solutions that may reduce Blacks' diminished gain are discussed.

healthcare MDPI

Article

The Benefits of Higher Income in Protecting against Chronic Medical Conditions Are Smaller for African Americans than Whites

Shervin Assari [1,2]

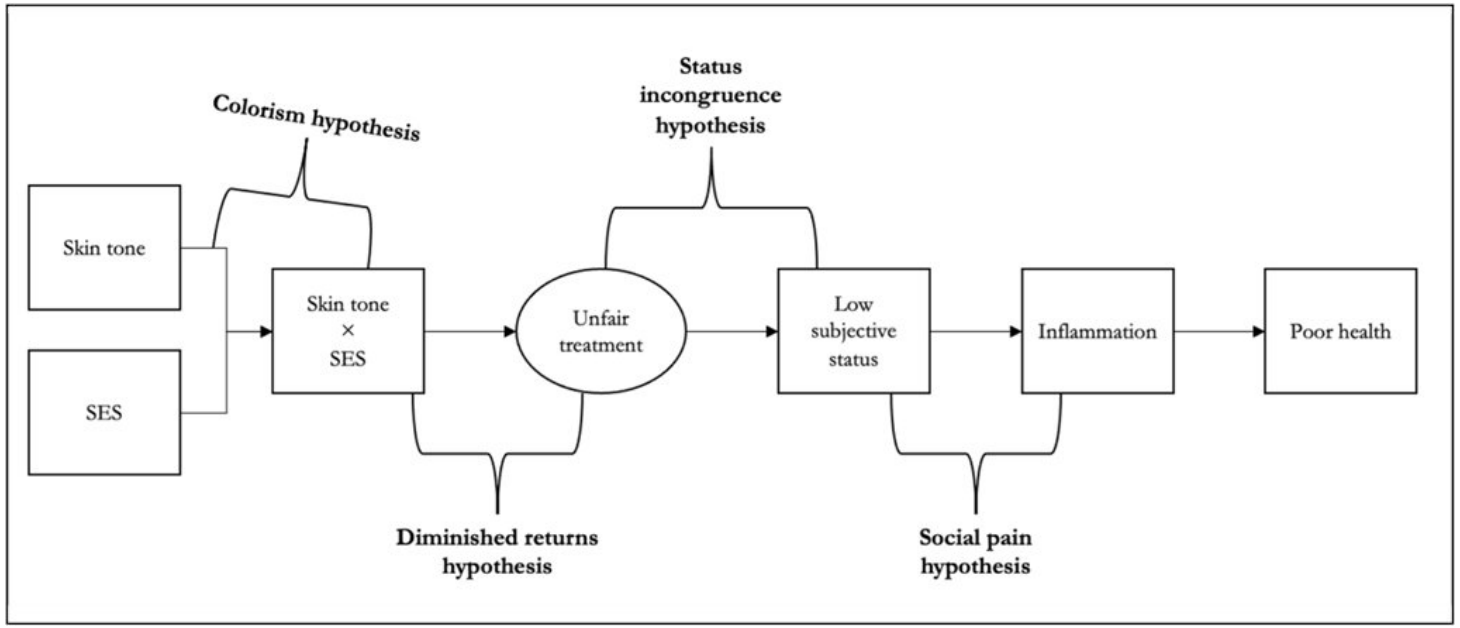
[1] Center for Research on Ethnicity, Culture, and Health (CRECH), School of Public Health, University of Michigan, Ann Arbor, MI 48104, USA; assari@umich.edu; Tel.: +1-734-363-2678
[2] Department of Psychiatry, University of Michigan, 4250 Plymouth Rd., Ann Arbor, MI 48109-2700, USA

Received: 15 November 2017; Accepted: 2 January 2018; Published: 9 January 2018

Abstract: Background: Blacks' diminished return is defined as smaller protective effects of socioeconomic status (SES) on health of African Americans compared to Whites. Aim: Using a nationally representative sample, the current study aimed to examine if the protective effect of income on chronic medical conditions (CMC) differs for African Americans compared to Whites. **Methods:** With a cross-sectional design, the National Survey of American Life (NSAL), 2003, included 3570 non-Hispanic African Americans and 891 non-Hispanic Whites. The dependent variable was CMC, treated as a continuous measure. The independent variable was income. Race was the focal moderator. Age, education, and marital status were covariates. Linear regressions were used to test if the protective effect of income against CMC varies by race. **Results:** High income was associated with a lower number of CMC in the pooled sample. We found a significant interaction between race and income, suggesting that income has a smaller protective effect against CMC for African Americans than it does for Whites. **Conclusion:** Blacks' diminished return also holds for the effects of income on CMC. Blacks' diminished return is a contributing mechanism to the racial disparities in health in the United States that is often overlooked. More research is needed on the role of diminished health return of SES resources among other minority groups.

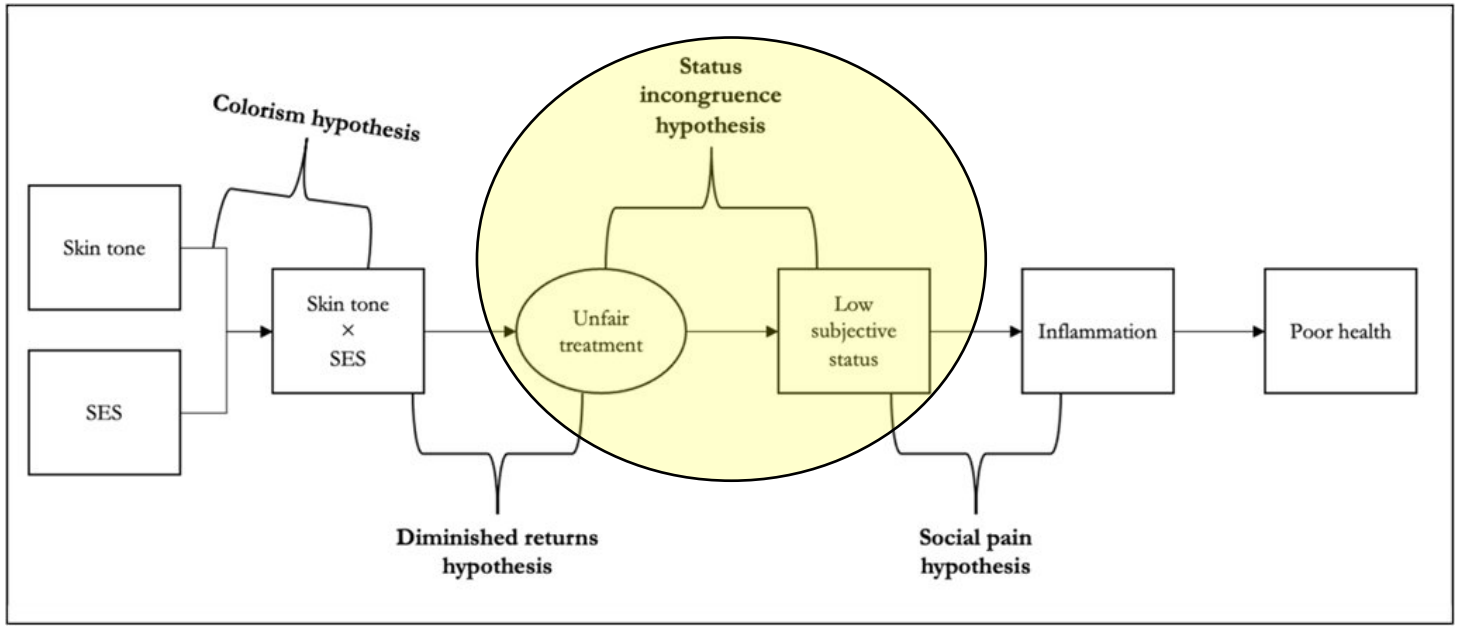
Research Goal

Account for biopsychosocial processes generating diminished health returns among BAs



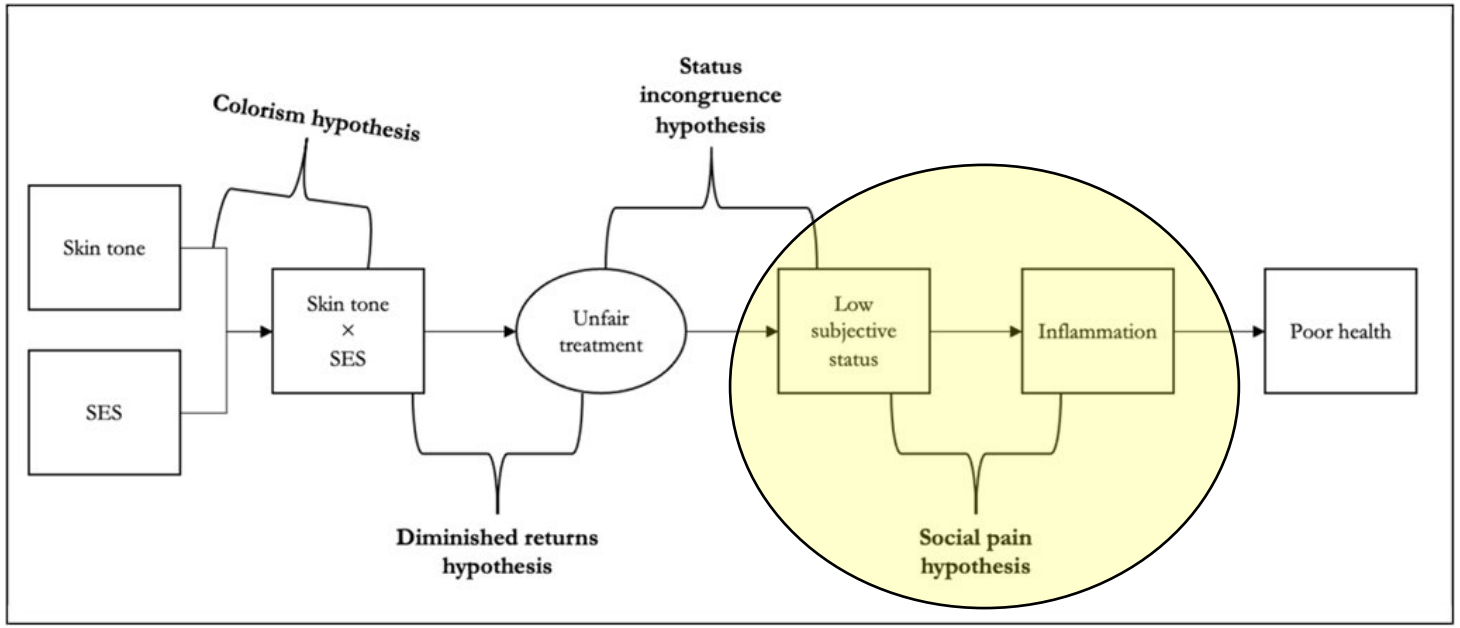
Status Incongruence Hypothesis

Ongoing discrimination in high-status spaces can spark perceptions of low status + blocked opportunity



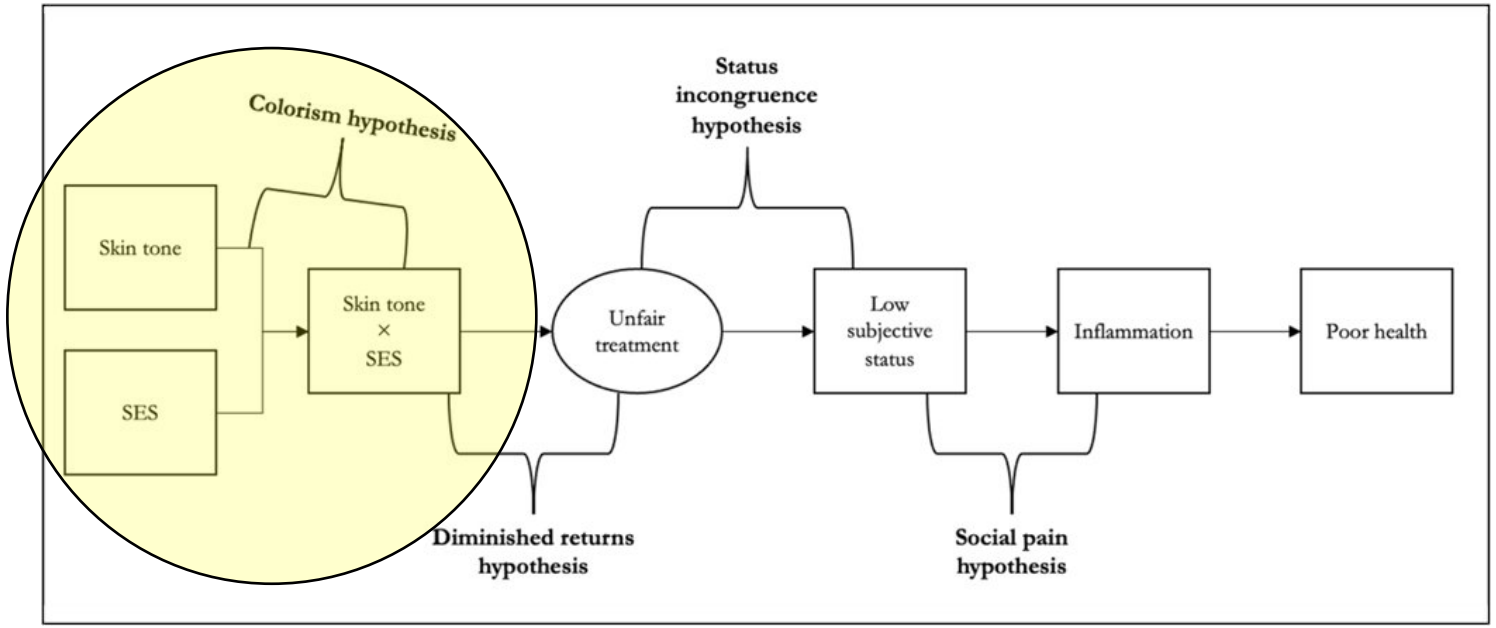
Social Pain Hypothesis

Experiences + perceptions of social rejection can trigger chronic inflammatory pain responses



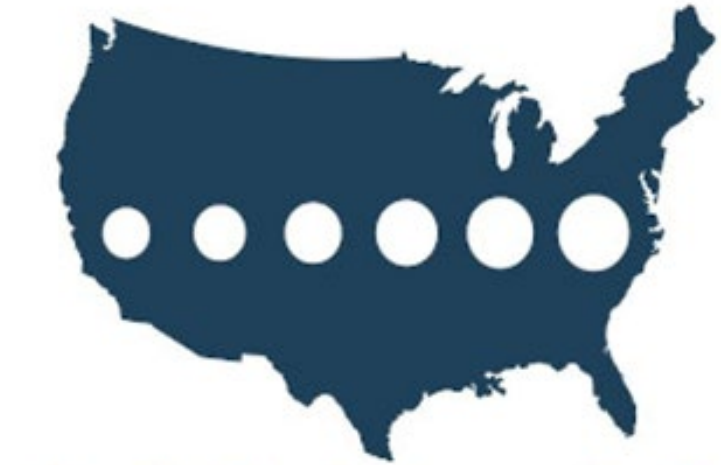
Colorism Hypothesis

Unfair treatment will be targeted mostly at darker-skin BAs, especially in prestigious + historically White contexts



Data

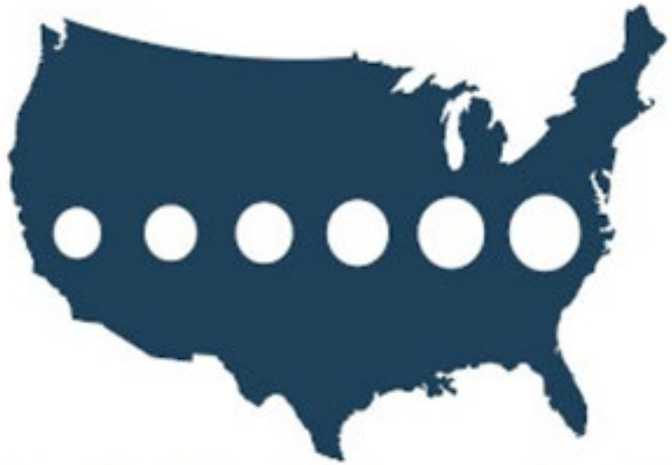
- Non-Hispanic Black and White (N = 7,371)
- Waves I, III, IV, V
- Survey + biomarker



Skin tone

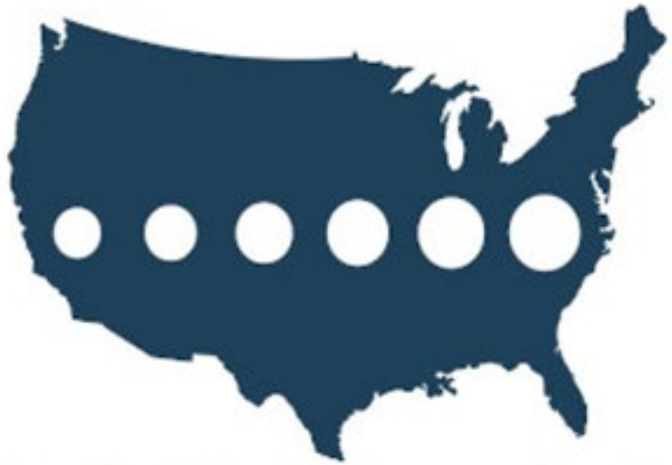
W3 interviewer rating

- ❑ White w/ white skin (ref.)
- ❑ Light-skin Black
- ❑ Medium-skin Black
- ❑ Dark-skin Black



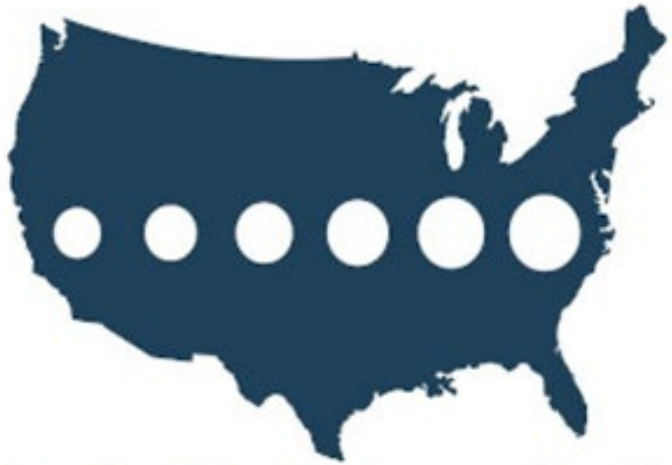
Socio-economic status (SES)

- Educational attainment (W3-W5)
- Personal income (W3-W5)
- Occupational prestige (W4)



Unfair treatment

- W4 self-report
  - ❑ Treated with less respect or courtesy
- W5 self-report
  - ❑ Treated with less respect or courtesy
  - ❑ Receive poor service
  - ❑ Act as if they are not smart
  - ❑ Act afraid
  - ❑ Threatened or harassed



Subjective social status

- W4 self-report
  - ❑ 1 = lowest status
  - ❑ …
  - ❑ 10 = highest status

Think of this ladder as representing where people stand in the United States.

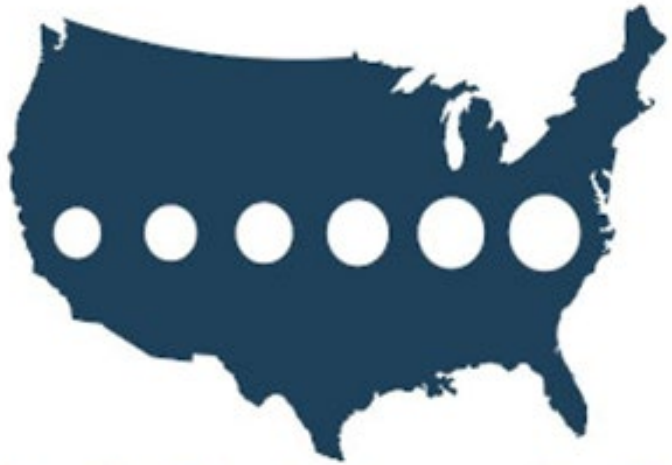
At the **top** of the ladder are the people who are the best off – those who have the most money, the most education and the most respected jobs. At the **bottom** are the people who are the worst off – who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please place a large **"X"** on the rung where you think you stand at this time in your life, relative to other people in the United States.

C-reactive protein

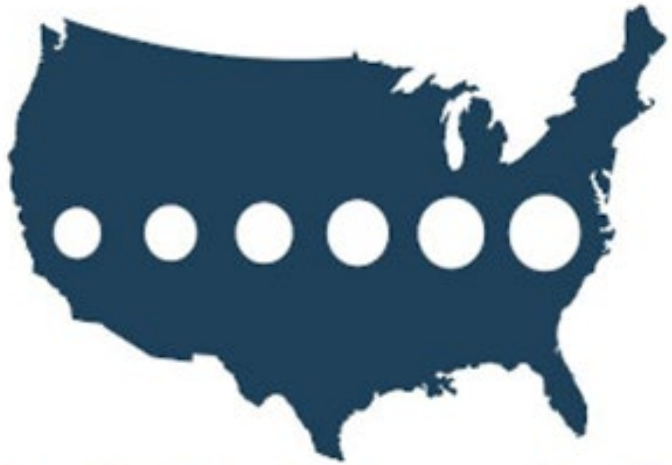
- W4 biomarker
  - ❑ Stable protein produced by liver during inflammatory response



Self-rated health

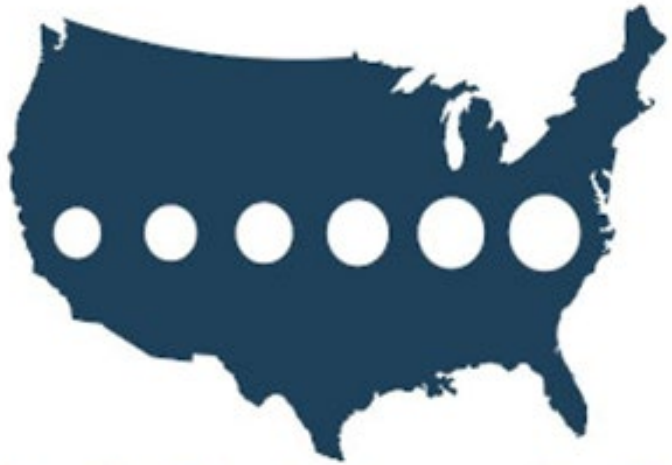
"In general, how is your health?"

- ❑ 1 = poor
- ❑ 2 = fair
- ❑ 3 = good
- ❑ 4 = very good
- ❑ 5 = excellent



Covariates

- Age (W3–W5)
- Sex assigned at birth (W1)
- Adolescent self-rated health (W1)
- Preexisting conditions (W4)



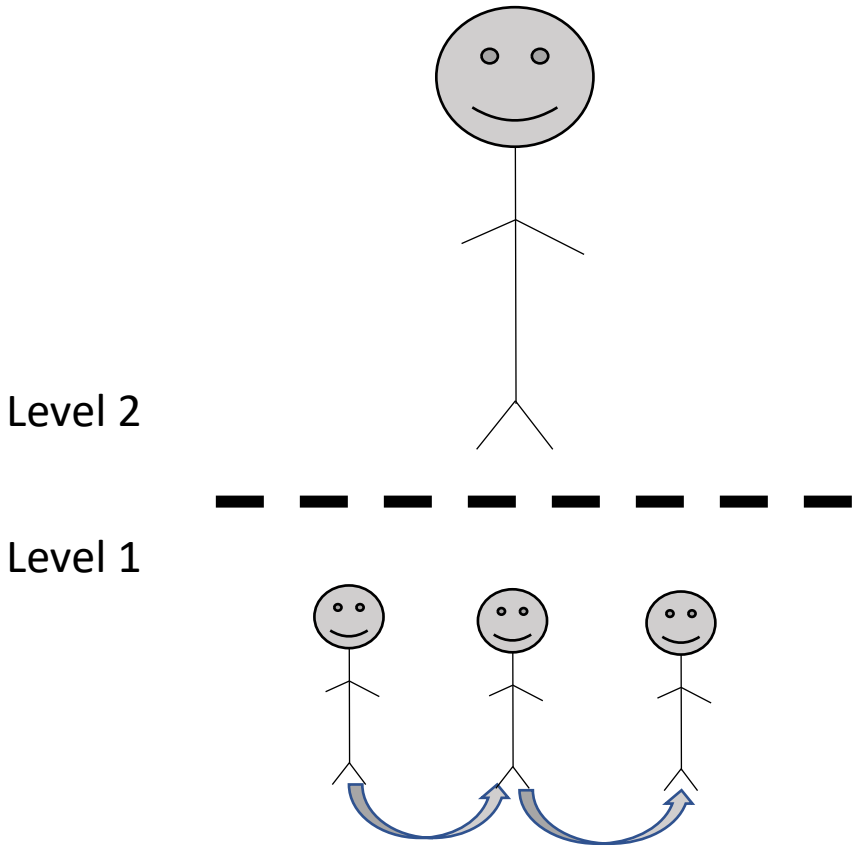
Analysis: Phase I

$$Y_{it} = \beta_0 + \beta_{1\text{-}3}(\text{Skin tone}_i) + \beta_4(\overline{\text{SES}_i}) + \beta_5(\text{SES}_{it} - \overline{\text{SES}_i})$$

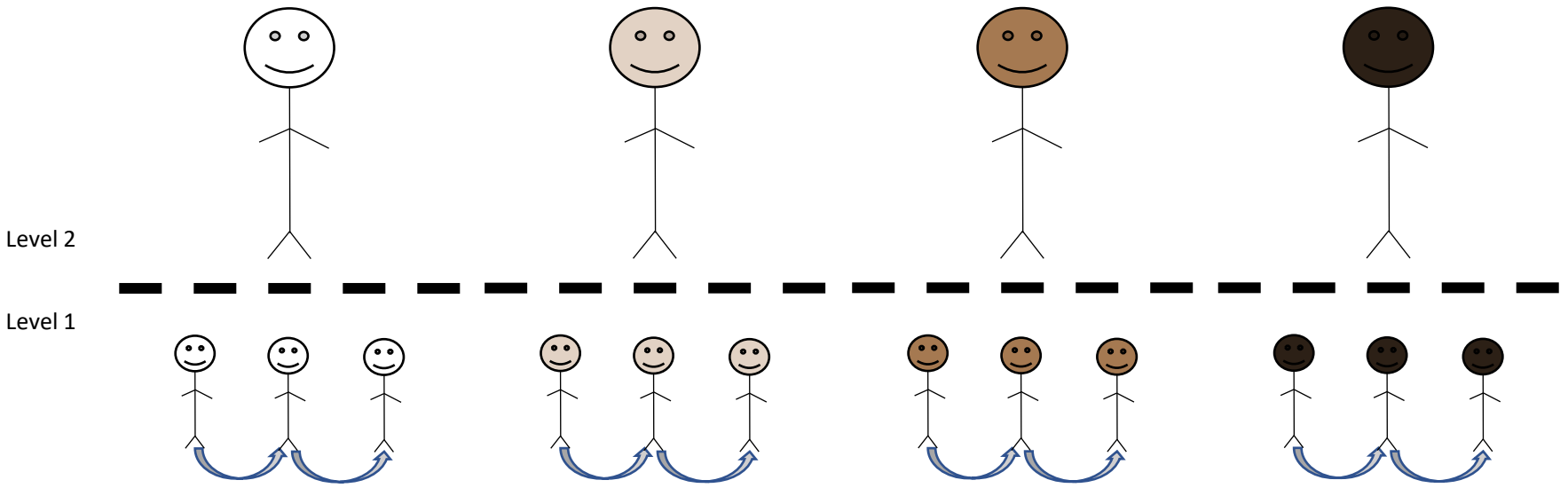
$$+ \beta_{6\text{-}8}[\text{Skin tone}_i \times (\text{SES}_{it} - \overline{\text{SES}_i})] + \beta'(\text{Covariates}_{it}) + \beta''(\text{Covariates}_i)$$

$$+ u_i + e_{it}$$

Analysis: Phase I

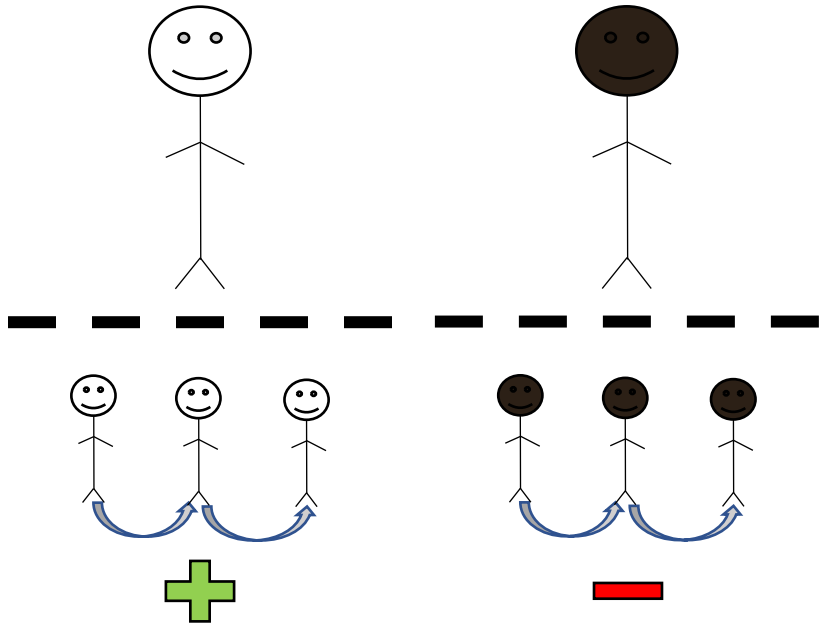


Analysis: Phase I



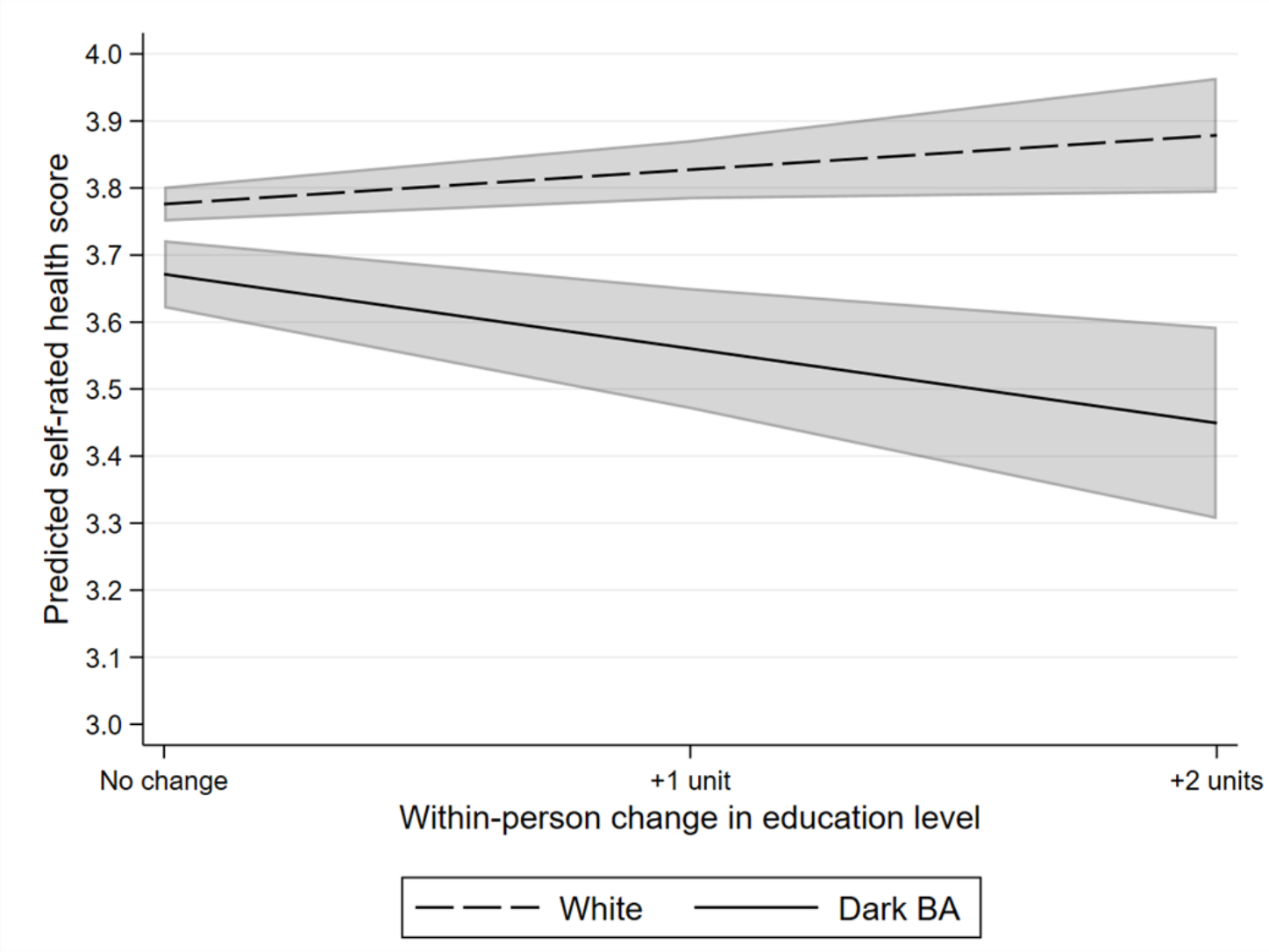
Findings: Phase I

- Diminished health returns for dark-skin Black (vs. White) respondents



Findings: Phase I

- Diminished health returns for dark-skin Black (vs. White) respondents



Analysis: Phase II

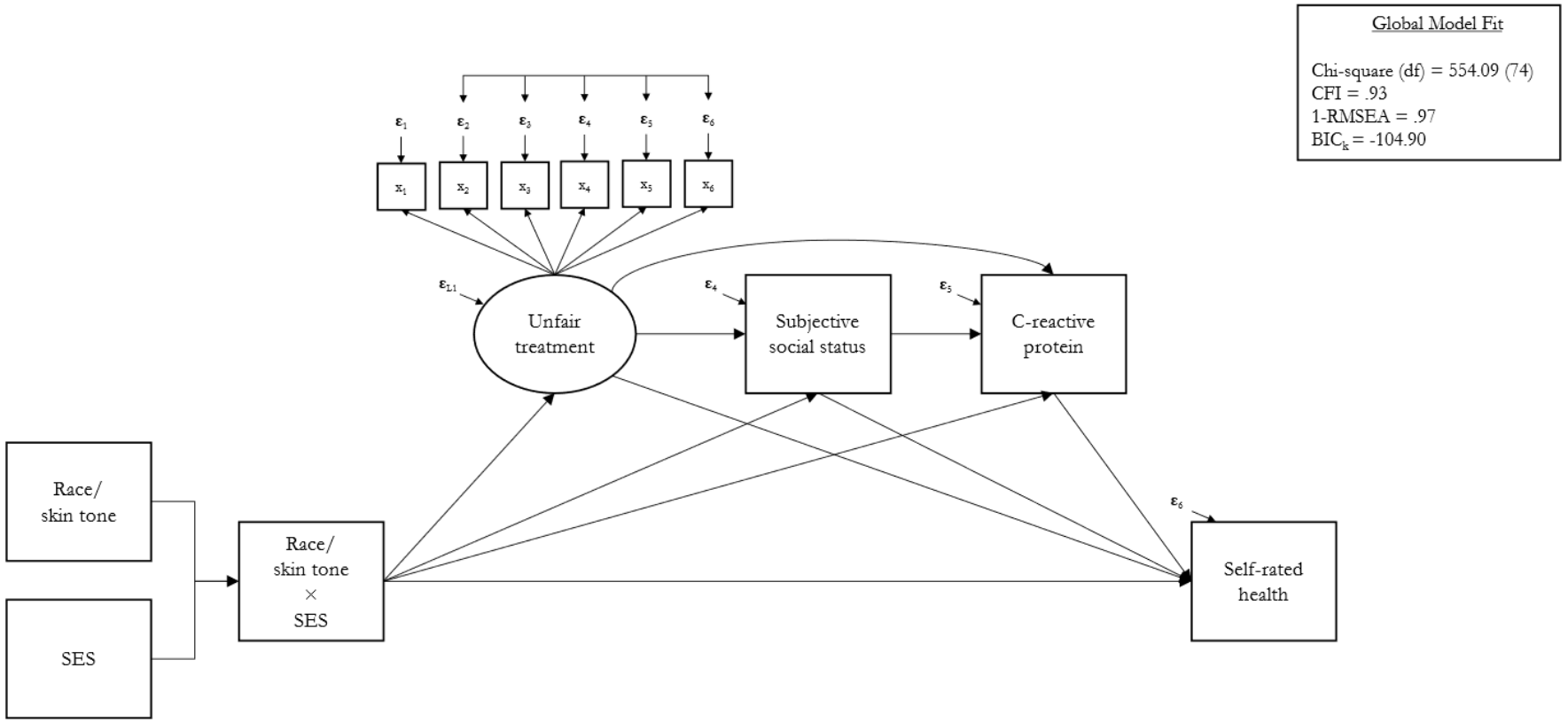


Figure 2. Structural equation model with latent variables: Add Health, Waves III-V (N = 7,371).

Notes: SES = socioeconomic status. Race/skin tone, SES, and covariates have direct paths to all endogenous variables (not shown).

Findings: Phase II

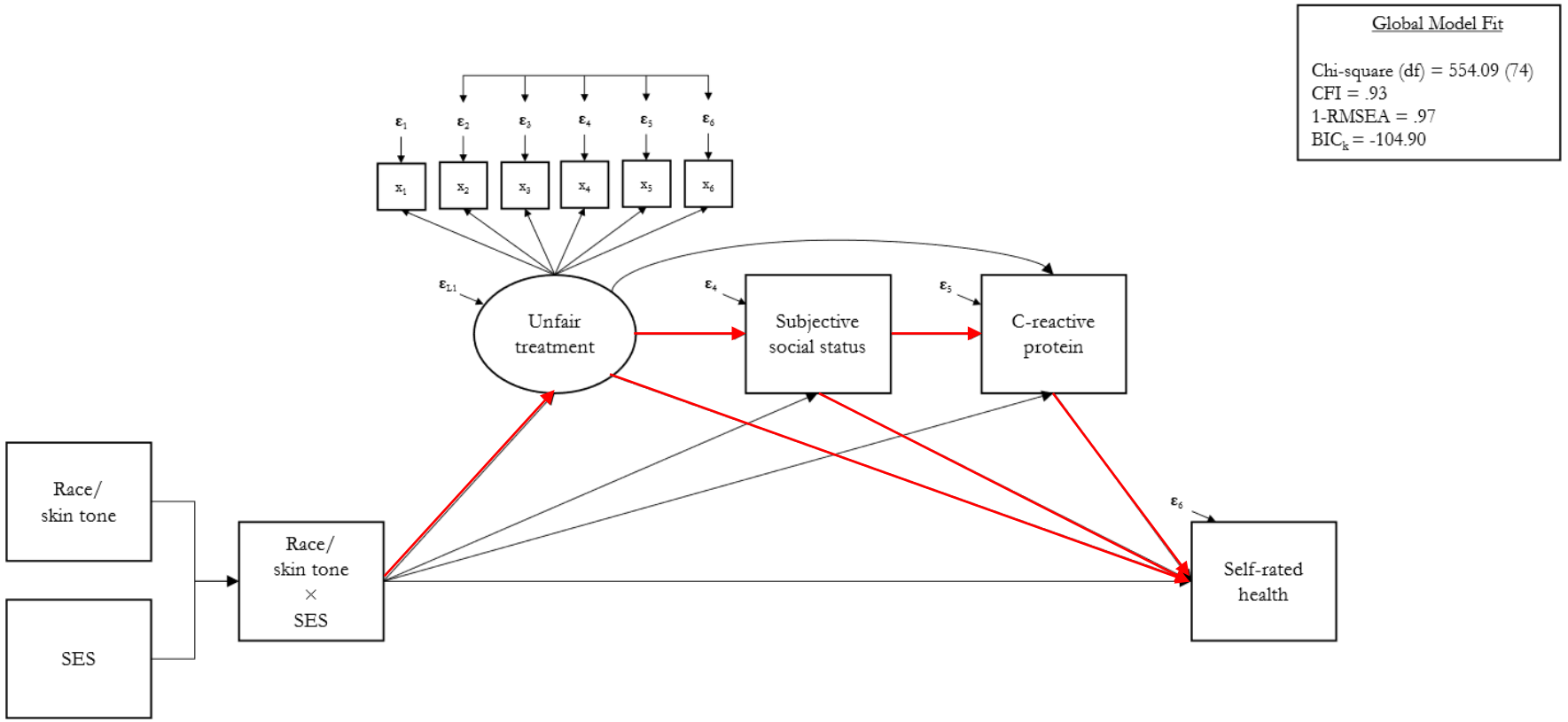


Figure 2. Structural equation model with latent variables: Add Health, Waves III-V (N = 7,371).
Notes: SES = socioeconomic status. Race/skin tone, SES, and covariates have direct paths to all endogenous variables (not shown).

Findings: Summary

1. Diminished health returns are concentrated primarily among **dark-skin** BAs
2. **Social pain processes** account for some – but not all – of diminished returns

Methodological Implications

1. Within-between models can uncover group disparities emerging from life course transitions + attainment processes
2. SEM can uncover mechanisms generating these disparities
3. Add Health data provide unusually rich array of contextual + biopsychosocial variables

Acknowledgements

This research uses data from Add Health, funded by grant P01 HD31921 (Harris) from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (**NICHD**), with cooperative funding from 23 other federal agencies and foundations. Add Health is currently directed by Robert A. Hummer and funded by the **National Institute on Aging** cooperative agreements U01 AG071448 (Hummer) and U01AG071450 (Aiello and Hummer) at the University of North Carolina at Chapel Hill. Add Health was designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill.

This research received support from the Population Research Infrastructure Program (P2C-HD050924) and the Biosocial Training Program (T32-HD091058) awarded to the Carolina Population Center at the University of North Carolina at Chapel Hill by the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

THANK YOU!

EXTRA SLIDES

Table 1. Descriptive statistics of study variables: Add Health, Waves III-V (N = 7,371).

	White (N = 5,468)		BA light (N = 268)			BA medium (N = 602)			BA dark (N = 1,033)		
Self-rated health (1 = poor, 5 = excellent)											
W3	4.02	(.84)	4.05	(.85)		3.90	(.94)	**	4.01	(.89)	
W4	3.75	(.88)	3.68	(.90)		3.61	(.91)	***	3.56	(.94)	***
W5	3.60	(.96)	3.47	(.95)	*	3.40	(.96)	***	3.36	(.97)	***
Education (0 = less than high school, 4 = postgraduate)											
W3	1.67	(.89)	1.67	(.88)		1.52	(.89)	***	1.47	(.85)	***
W4	2.31	(1.05)	2.43	(1.00)		2.18	(1.15)	**	2.02	(1.07)	***
W5	2.45	(1.07)	2.62	(1.08)	**	2.35	(1.16)	*	2.24	(1.11)	***
Personal income (0 = less than $10k, 10 = $200k or more)											
W3	1.34	(1.53)	1.14	(1.36)	*	1.08	(1.42)	**	1.04	(1.36)	***
W4	3.53	(2.26)	3.27	(2.04)		3.01	(2.22)	***	2.82	(2.13)	***
W5	4.70	(2.74)	4.33	(2.48)	*	3.93	(2.63)	***	3.60	(2.50)	***
Occupational prestige (W4)	100.33	(37.34)	99.55	(34.60)		95.14	(35.48)	**	89.38	(37.07)	***
Unfair treatment (0 = never, 3 = often) [a]											
Treated with less respect or courtesy than others (x_1)	.95	(.80)	.96	(.81)		1.03	(.85)	*	1.03	(.89)	**
Treated with less respect or courtesy than others (x_2)	2.03	(.83)	2.08	(.82)		2.12	(.84)	*	2.13	(.88)	**
Receive poorer service at restaurants or stores (x_3)	1.55	(.67)	1.93	(.71)	***	1.97	(.77)	***	2.02	(.80)	***
People act as if they think you are not smart (x_4)	1.70	(.78)	1.84	(.85)	**	1.93	(.87)	***	1.93	(.91)	***
People act as if they are afraid of you (x_5)	1.52	(.74)	1.72	(.81)	***	1.78	(.87)	***	1.83	(.91)	***
Threatened or harassed (x_6)	1.32	(.60)	1.33	(.57)		1.32	(.61)		1.37	(.66)	**
Subjective social status (W4)	5.15	(1.69)	5.01	(1.69)		4.88	(1.77)	***	4.83	(1.73)	***
C-reactive protein (W4)	.70	(1.33)	.92	(1.44)	**	.88	(1.49)	**	.87	(1.41)	***
Preexisting conditions (W4)	.95	(1.11)	.90	(.96)		.91	(1.09)		.79	(.97)	***
Adolescent self-rated health (W1)	3.92	(.88)	3.94	(.88)		3.90	(.94)		3.93	(.94)	

Notes: Unweighted means are reported with standard deviations in parentheses. BA = Black American. Light/medium/dark = skin tone distinctions. C-reactive protein is reported in logged mg/L of blood.

[a] X_1 is measured at Wave IV and X_2 through X_6 are measured at Wave V.

* $p < .05$, ** $p < .01$, *** $p < .001$ significant difference in means relative to White respondents (two-tailed).

Table 2. Multilevel within-between regression estimates of self-rated health: Add Health, Waves III-V (N = 7,371).

	Model 1			Model 2		
	b	s.e.	p	b	s.e.	p
Intercept (β_0)	3.734	(.042)	***	3.734	(.042)	***
Between-person race/skin tone ($\beta_{1\text{-}3}$)						
White (reference)	–			–		
BA light	-.122	(.051)	*	-.122	(.051)	*
BA medium	-.156	(.041)	***	-.156	(.041)	***
BA dark	-.101	(.029)	**	-.101	(.029)	**
Between-person SES (β_4)						
Education	.158	(.014)	***	.158	(.014)	***
Personal income	.061	(.008)	***	.061	(.008)	***
Within-person SES (β_5) [a]						
Education	.050	(.023)	*	.025	(.020)	
Personal income	.023	(.004)	***	.028	(.005)	***
Cross-level interactions ($\beta_{6\text{-}8}$)						
BA light × within-person education	-.094	(.067)		–		
BA medium × within-person education	-.021	(.057)		–		
BA dark × within-person education	-.165	(.031)	***	–		
BA light × within-person income	–			-.027	(.026)	
BA medium × within-person income	–			-.008	(.010)	
BA dark × within-person income	–			-.039	(.010)	***
Time-varying covariates (β')						
Age	-.054	(.006)	***	-.054	(.006)	***
Age^2	.001	(.000)	***	.001	(.000)	***
Time-invariant covariates (β'')						
Female (vs. male)	-.004	(.021)		-.004	(.021)	
Adolescent self-rated health	.247	(.010)	***	.247	(.010)	***
Random components						
Level-1 residual (e_{it})	.693	(.008)		.693	(.008)	
Level-2 intercept (u_i)	.471	(.011)		.471	(.011)	

Notes: Based on the model summarized in Equation 1. Unstandardized linear regression coefficients (b) are reported with robust standard errors (s.e.) clustered by Wave I school in parentheses. Coefficients are weighted and derived with maximum likelihood procedures. Age and age-squared are centered on the youngest age group at Wave III (=18). Adolescent self-rated health is centered on the median (=4). BA = Black American. SES = socioeconomic status. Random components are standard deviation estimates.

[a] Represents the estimated within-person effect of SES for White respondents when included in the interactions.

* p < .05, ** p < .01, *** p < .001 (two-tailed).

Table 3. Coefficients from a path model testing mechanisms of skin tone disparities in health returns to educational attainment: Add Health, Waves IV & V (N = 7,371).

	Unfair treatment			Subjective social status			C-reactive protein			Self-rated health		
	b	s.e.	p	b	s.e.	p	b	s.e.	p	b	s.e.	p
Education [a]	-.083	(.013)	***	.310	(.033)	***	-.161	(.025)	***	.123	(.018)	***
Race/skin tone												
White (reference)	–			–			–			–		
BA light	.084	(.054)		-.012	(.122)		.307	(.118)	**	-.181	(.082)	*
BA medium	.151	(.057)	**	.011	(.114)		.060	(.118)		-.060	(.059)	
BA dark	.135	(.045)	**	.190	(.091)	*	.136	(.070)		-.027	(.049)	
Interactions												
BA light × education	.068	(.040)		-.137	(.100)		.087	(.120)		.062	(.057)	
BA medium × education	.116	(.031)	***	.065	(.091)		.062	(.101)		-.042	(.042)	
BA dark × education	.121	(.030)	***	-.217	(.092)	*	.106	(.062)		.007	(.038)	
Mechanisms												
Unfair treatment	–			-1.101	(.111)	***	-.028	(.107)		-.580	(.093)	***
Subjective social status	–			–			-.040	(.015)	**	.043	(.011)	***
C-reactive protein	–			–			–			-.127	(.012)	***
Covariates												
Age	.005	(.005)		.023	(.014)		.018	(.012)		-.022	(.007)	**
Female	-.069	(.023)	**	.019	(.052)		.535	(.044)	***	.134	(.036)	***
Occupational prestige	-.095	(.049)		.644	(.139)	***	.102	(.126)		.099	(.079)	
Personal income	-.025	(.007)	***	.182	(.014)	***	-.013	(.012)		.046	(.007)	***
Preexisting conditions	.064	(.012)	***	-.037	(.024)		.141	(.020)	***	-.065	(.015)	***
Intercept	.661	(.158)	***	6.382	(.402)	***	-.028	(.388)		4.800	(.252)	***
R-squared	.149	(.022)	***	.287	(.017)	***	.081	(.007)	***	.234	(.015)	***

Notes: Based on the model depicted in Figure 2. Unstandardized linear regression coefficients (b) are reported with robust standard errors (s.e.) clustered by Wave I school in parentheses. Coefficients are weighted and derived with full information maximum likelihood procedures. All exogenous variables are recorded at Wave IV except skin tone (W3) and unfair treatment (W4 and W5). Education and income are centered on their medians. Occupational prestige is centered on its mean. BA = Black American.

[a] Represents the effect of education for White respondents.

* p < .05, ** p < .01, *** p < .001 (two-tailed).

Table 4. Coefficients from a path model testing mechanisms of skin tone disparities in health returns to occupational attainment: Add Health, Waves IV & V (N = 7,371).

	Unfair treatment			Subjective social status			C-reactive protein			Self-rated health		
	b	s.e.	p	b	s.e.	p	b	s.e.	p	b	s.e.	p
Occupational prestige [a]	-.150	(.057)	**	.812	(.142)	***	.127	(.143)		.166	(.079)	*
Race/skin tone												
White (reference)	–			–			–			–		
BA light	.100	(.052)		-.056	(.122)		.315	(.106)	**	-.171	(.073)	*
BA medium	.154	(.058)	**	-.062	(.125)		.051	(.121)		-.072	(.060)	
BA dark	.151	(.047)	**	.137	(.085)		.116	(.075)		-.070	(.052)	
Interactions												
BA light × occupation	.135	(.219)		-.434	(.555)		-.393	(.552)		-.192	(.302)	
BA medium × occupation	.177	(.157)		-1.253	(.443)	**	-.144	(.364)		-.253	(.271)	
BA dark × occupation	.393	(.153)	**	-.965	(.372)	**	-.118	(.319)		-.460	(.182)	*
Mechanisms												
Unfair treatment	–			-1.095	(.108)	***	-.019	(.106)		-.573	(.092)	***
Subjective social status	–			–			-.042	(.015)	**	.041	(.011)	***
C-reactive protein	–			–			–			-.127	(.012)	***
Intercept	.674	(.158)	***	6.402	(.403)	***	-.007	(.386)		4.797	(.252)	***
R-squared	.139	(.022)	***	.288	(.017)	***	.081	(.007)	***	.235	(.015)	***

Notes: Based on the model depicted in Figure 2. Unstandardized linear regression coefficients (b) are reported with robust standard errors (s.e.) clustered by Wave I school in parentheses. Coefficients are weighted and derived with full information maximum likelihood procedures. All exogenous variables are recorded at Wave IV except skin tone (W3) and unfair treatment (W4 and W5). Coefficients for covariates are excluded from this table (see Table 3). Education and income are centered on their medians. Occupational prestige is centered on its mean. BA = Black American.

[a] Represents the effect of occupation for White respondents.

* p < .05, ** p < .01, *** p < .001 (two-tailed).

Table 5. Path decomposition analysis: Add Health, Waves IV & V (N = 7,371).

	White			BA medium			BA dark		
Educational attainment									
Direct	.123	(.018)	***	-.042	(.042)		.007	(.038)	
Total indirect	.087	(.010)	***	-.078	(.024)	**	-.100	(.019)	***
Total	.210	(.017)	***	-.120	(.035)	**	-.093	(.037)	*
% mediated	41%			65%			100%		
Occupational prestige									
Direct	.166	(.079)	*	–			-.460	(.182)	*
Total indirect	.115	(.042)	**	–			-.273	(.101)	**
Total	.280	(.082)	**	–			-.734	(.191)	***
% mediated	41%			–			37%		

Notes: Unstandardized linear coefficients are presented with robust standard errors in parentheses. Coefficients represent the direct, indirect, and total associations between education/occupation and self-rated health as depicted in Figure 2 and reported in Tables 3 and 4. BA = Black American. Medium/dark = skin tone distinctions.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).