Higher Perceived Neighborhood Disorder and Lower Subjective SES Predict Higher Metabolic Syndrome Risk

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(Supported by NHLBI: R01-HL084333)

Introduction

Metabolic Syndrome (MetS) is a constellation of risk factors that greatly increases one's risk of developing coronary heart disease, stroke, and Type II Diabetes. MetS now is on the rise, affecting approximately 34% of US adults.

Research links objective indices of low socio-economic status (SES) with higher prevalence of MetS, but less is known about the relationship between *subjective* SES, *subjective* neighborhood disorder, and MetS.

We tested the hypotheses that greater perceived neighborhood disorder (ND) and lower subjective SES would predict higher perceived stress, depressive symptoms, and metabolic syndrome risk, defined as increased central obesity, higher fasting plasma glucose (FPG) levels, and reduced high density lipoprotein (HDL).

Hypotheses

Hypothesis 1: Participants reporting higher perceived neighborhood disorder (ND) and lower subjective socioeconomic status (SES) will have higher scores on indices of stress and ill-health (e.g., depressive symptoms, perceived stress).

Hypothesis 2: Participants reporting higher ND and lower subjective SES will be more likely to meet at least 3 diagnostic criteria for MetS.

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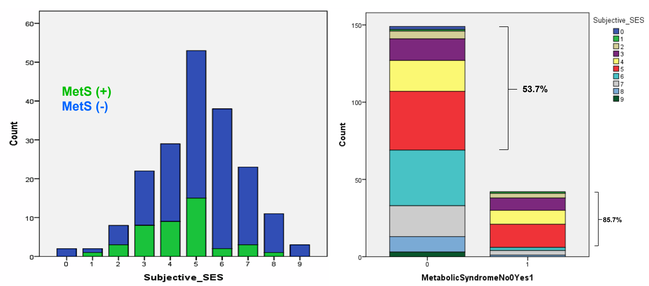
Persons with MetS report Lower Subjective SES



MetS (+) Mean Subjective SES: 5.5
MetS (-) Mean Subjective SES: 4.3

Logistic Regression Predicting MetS from Subjective SES

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Subjective_SES	-.357	.119	8.941	1	.003	.700
	Gender	.820	.404	4.132	1	.042	2.271
	Race	.236	.394	.358	1	.549	1.266
	Age	.243	.063	14.740	1	.000	1.275
	Constant	-7.892	2.122	13.838	1	.000	.000

a. Variable(s) entered on step 1: Subjective_SES, Gender, Race, Age.

Methods

Participants were 215 adults (72% female, % black, 37% white; age = 32 ± 3.4 years; BMI = 30.9 ±7.8 kg/m^2) who took part in the Project Heart studies in Baltimore during high school (1987-1997) and again in 2005-2012.

Subjective SES, perceived ND, perceived stress, and depressive symptoms were assessed by self-report; central obesity was defined as waist circumference; and FPG, VLDL (very low density lipoproteins) , TRG (triglycerides) and HDL (high density lipoproteins) were assessed by blood lipid profiles via colorimetric and assay procedures.

Results

Prevalence of MetS was 24.2%, with no difference by race or income. Subjective SES was inversely related to perceived stress (r=-.32, p<.001), depressive symptoms (r= -.30, p<.01), BMI (r=-.16, p=.03) and waist-hip ratio (r= -.20, p=.01). Neighborhood disorder was positively associated with perceived stress (r=.21, p=.01) and depressive symptoms (r=.17, p=.02), but not BMI or WHR (p>.05).

Regression analyses controlling for age, sex, and race, revealed that both ND (b=.16, p=.02) and subjective SES (b = -.21, p<.01) predicted greater waist circumference. Lower subjective SES, but not greater ND, predicted higher FPG (b = -.16, p=.02); however, neither ND nor subjective SES predicted reduced HDL levels (all p >.05).

A between-groups ANOVA revealed that participants who met criteria for MetS reported significantly *lower* subjective SES than those who did not meet criteria (F=1.01, p=.002).

Disparities in Health (High SSES v. Low SSES)

	BMI (kg/m^2)	Systolic BP (mmHg)	Depression (BDI)	FPG (mg/dL)	Waist (cm)
Low SSES	32.6	115.7	12.5	97.6	99.6
High SSES	28.8	111.0	7.8	87.7	90.1
	t(174)=3.09, p<=.002	t(186)=-4.41, p=.01	t(177)=3.76, p<.001	t(189)=2.39, p=.01	t(177)=3.53, p<.001

Disparities in Health (Low ND v. High ND)

	VLDL (mg/dL)	TRG (mg/dL)	Stress (PSS)	Waist (in)
Low ND	18.8	93.14	21.3	92.2
High ND	24.5	122.1	23.6	98.0
	t(166)=-2.38, p=.01	t(166)=-2.44, p=.02	t(148)=-2.05, p=.04	t(177)=-2.48, p=.014

Discussion

Findings support the hypothesis that chronic exposure to stress in the form of higher perceived neighborhood disorder and lower perceived subjective status predict heightened risk for developing metabolic syndrome.