Associations between Financial Decline and Harmful Health Behaviors: Comparing Perceived and Objective Indicators of Financial Decline

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ABSTRACT

Links between socioeconomic position and health have been extensively documented. Using a population-based sample of southeast Michigan residents, we build on this literature by examining how a decline in socioeconomic position may be related to adopting new harmful health behaviors, specifically smoking, excessive alcohol consumption, lack of sleep, and drug use. We draw a distinction between objective decline, as assessed by change in income to needs ratio between two interviews, and perceived financial decline, reported at the second interview. Our preliminary findings indicate that people who have experienced a decline in their income-to-needs ratio are less likely to adopt new harmful health behaviors compared to those who have not. We find no evidence of associations between perceived financial decline and adopting harmful health behavior.

INTRODUCTION

Links between socioeconomic position (SEP) and health have been extensively documented. Researchers have shown that lower income people consistently face higher risks of mortality and morbidity and a variety of mechanisms through which social and economic disparities in health are created and maintained have been proposed (Link and Phelan 1995). Among these, health behaviors have been discussed as a prominent stratifying mechanism that connects lower material and social resources to physical health. For example, extant literature has shown that people of lower SEP are more likely to be smokers or use addictive substances, and less likely to have an optimal diet or be physically active in their free time (Stringhini, Dugravot, Shipley, Goldberg, Zins, Kivimäki, Marmot, Sabia, and Singh-Manoux 2011). Unfavorable health behaviors contribute to the socioeconomic health gradient in the population, so understanding their socioeconomic predictors is important. Our study explores the ways in which health behaviors are linked to objective and perceived socioeconomic status, here measured with changes in income-to-needs ratios and perceived change in financial resources across two time points.

Some of the literature drawing links between SEP and health behaviors has focused on periods of economic downturn—times when individuals face higher risks of losing employment themselves and potentially experience the stress associated with increased levels of material hardship in their communities. This body of literature has produced mixed findings. Some researchers find a countercyclical relationship between the health of the economy and the health of people, and argue that people engage in less salutary behaviors during periods of economic hardship (because of stress and frustration-aggression). Others find a procyclical association, with health improving during economic downturns, and argue that workers are less likely to engage in substance abuse or other harmful health behaviors that might lead to them losing their job during trying times (Catalano, Goldman-Mellor, Saxton, Margerison-Zilko, Subbaraman, LeWinn, and Anderson 2011).

Typically, these studies have compared people who have been affected by an economic downturn, and may have experienced a financial decline, to those who have not. Such an approach is not entirely satisfactory when we are studying health behaviors in a population experiencing a major global recession. While some people have been affected more than others, the atmosphere of increased economic hardship could affect everyone. Thus, we must expand our understanding of changes in health behaviors in relation to economic hardship by studying the distinction between an objective decline in financial resources from perceived decline in financial resources or standard of living, which individuals could report either due to a real financial decline or from following the media or events in their community. We also need to examine various forms of health behavior changes that might follow from a personal economic decline.

Our paper uses the Michigan Recession and Recovery Study (MRRS), a longitudinal dataset initiated in the Detroit metro area in the wake of the Great Recession of 2009-2010, with a follow-up in 2011. We examine the relationship between both objective and perceived changes in SEP across a range of health behaviors: smoking, alcohol abuse, inadequate amount of sleep and drug use. We explore four research questions: (1) Do people who have undergone objective financial declines show unfavorable changes in their health behaviors? (2) Do people who perceive that they have undergone financial decline show unfavorable changes in their health behaviors? (3) Are the associations between objective or perceived financial decline and health behaviors consistent when we adjust for both simultaneously? (4) Are observed associations consistent across a range of health behaviors that could change relatively quickly?

DATA AND METHODS

MRRS data were collected in face-to-face interviews of a stratified random sample of English-speaking adults aged 19 to 64 who lived in Southeastern Michigan (Macomb, Oakland, and Wayne counties). The baseline wave was fielded from October 2009 to April 2010 and the follow-up interviews were conducted from April to August of 2011. MRRS was designed with an oversample of African Americans and includes mainly African American and non-Hispanic white respondents, reflecting the local residential composition. At wave 1 we interviewed 914 respondents, with a response rate of 82.8%, and at wave two, 847 respondents were re-interviewed for a response rate of 94% of survivors. Survey weights address non-response and make the MRRS representative of adults aged 19 to 64 living in the three-county area in Southeastern Michigan. We limit our analysis to those who participated at both interviews. Our analyses account for the complex sample survey design and selection of the analytic sample with survey estimation procedures in Stata/SE 12.

Measures of Financial Decline
We use two measures of financial decline—an objective measure of a decrease in income-to-needs ratio and a subjective evaluation of a decline in one's household financial situation. All respondents were asked about their total household income in the year prior to each interview (2008 and 2010). We used this information, along with information about the number of other adults and children in the household, to construct an income-to-needs ratio based on the US Census thresholds for the respective years. We then compared each respondent's 2008 and 2010 income-to-needs ratio. The respondents whose income-to-needs ratio in 2010 was 70% or less of their ratio for 2008 were considered to have undergone a financial decline (n = 385). Perceived financial decline was assessed with a survey item at the second interview that asked: "Since we last spoke to you, would you say your household's financial situation today has greatly improved, somewhat improved, remained the same, somewhat deteriorated or greatly deteriorated?" We combined the responses "somewhat deteriorated" and "greatly deteriorated" to create the perceived decline indicator (n = 246).

Measures of Health Behaviors

In this abstract, we present our analysis on four behaviors: smoking, excessive alcohol consumption, lack of sleep and using drugs. We define as smokers people who say they smoke cigarettes regularly or occasionally (at W1 n = 308; at W2 n = 299). Excessive alcohol consumption was assessed according to the guidelines described by the Alcohol Use Disorder Identification Test (AUDIT) (Allen, Litten, Fertig, and Babor 1997). Those respondents whose alcohol consumption was judged to be harmful and hazardous according to the test were defined as excessive drinkers (at W1 = 101; at W2 n = 82). MRRS also collected information about respondents' usual amount of sleep. We considered those reporting less than six hours per night as not getting an adequate amount of sleep (at W1 n = 138; at W2 n = 148). Finally, we considered whether the respondents use any drugs. During the interview, the respondents were asked to identify what substances were they taking "on their own." The interviewers specified that "on their own" meant either without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed. Respondents were given a booklet that listed different types of substances including, for example, amphetamines, marijuana, LSD and crack, but also prescription or over the counter medications that could be abused. Respondents were coded as using drugs if they indicated any of the substances on the list (at W1 = 194; at W2 n = 183).

All health behaviors were measured at both the first and second interviews. In the analyses presented in this abstract, we focus on analytic samples of respondents specific to each health behavior who did not report that negative health behavior at the first interview, and considered whether or not they reported it the second interview. In the appendix attached, we show additional models where we consider the remainder of the total sample — namely respondents exhibiting unhealthy behaviors at wave one – and models predicting whether they continued or ceased the behavior by the second interview.

Other Measures

In our analyses we account for respondent's gender, household income in 2010, race (African American or not African American), educational attainment (bachelor's degree or more versus less), and partnership status (married or cohabitating versus not), and depression. Depression was measured using the Patient Health Questionnaire (PHQ), a validated 9-item scale based on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual Fourth Edition (DSM-IV). The PHQ-9 has two components that: (1) assess symptoms and functional impairment over the past 2 weeks to make a tentative diagnosis, and (2) can be used to derive a severity score (designed to help clinicians select and monitor treatment). Respondents were classified as meeting symptomatic criteria for major or minor depression according to guidelines provided by creators of the scale, so that meeting criteria = 1 and not meeting criteria = 0 (Martin, Rief, Klaiberg, and Braehler 2006). Overall, 18.20% of the sample meets these criteria at W1 and 15.82% at W2 (both unweighted).

PRELIMINARY RESULTS

Table 1 shows the descriptive statistics of the sample stratified by whether or not we measured an objective income-to-needs ratio decline and by whether or not the respondent reported that their household was in a worse financial position than before. Based on the objective measure, those who saw their financial resources decline had lower median household income at both W1 and W2 ($60,000 vs. 61,000 at Wave 1 and $55,000 vs. 78,000 at Wave 2). Married respondents were significantly less likely than unmarried respondents to have their objective financial situation deteriorate. Based on the perceived measure, we do not see a difference in median household incomes in 2008, but those reporting perceived decline at W2 had significantly lower median incomes in 2010 ($52,000 vs. 70,000). African Americans reported perceived financial decline at higher rates than non-Blacks, and those meeting criteria for depression were much more likely to perceive decline (20.5 vs. 8.3%).

Table 2 shows a set of logistic regression models that compare the associations between objective and perceived financial declines and adopting an unfavorable health behavior. The populations at risk in each one of these models are the people who did not exhibit the specific type of behavior at Wave 1. All models control for the natural log of household income at 2010, marital status, gender, race, educational attainment and depression. We find no effect of perceived financial decline on adopting a new unhealthy behavior. However, we observe statistically significantly lower odds of taking up smoking, excessive alcohol consumption or inadequate sleep among those who experienced at least a 30% decline in their income to needs ratio over follow-up.

Table 3 shows a similar set of models that include both objective and subjective financial decline indicators simultaneously. The odds ratios remain essentially unchanged from those presented in Table 2, with one important exception. We observe a marginally significant odds ratio of 2.10 for perceived financial decline as a predictor of excessive alcohol consumption, whilst observing a statistically significant odds ratio of 0.23 for objective financial decline in the same model. Thus we find weak evidence that net of the other, perceived and objective financial declines could have opposing associations with hazardous alcohol consumption.

In the appendix to this text, we show Table 4, which displays models for which we interacted objective and perceived financial decline indicators. We also append Table 5, which presents models in which examine the relationship between perceived and objective financial decline and positive changes in health behavior for those who had reported an unfavorable health behavior at the first wave of the survey.

PRELIMINARY CONCLUSIONS & FUTURE ANALYSES

We find that respondents experiencing objective financial decline are less likely to adopt new unfavorable health behaviors than others, which aligns with the hypothesis that people are not turning to unhealthy behaviors when they are under financial pressure and suggests the opposite. We do not identify any significant relationship between perceived financial decline and adopting new health behaviors, although we note an important exception in the model where we combined both perceived and objective measures of decline and predict alcohol abuse. This suggests that we need to expand our analysis of joint distributions of perceived and objective decline, as well as other models including interactions. Before the PAA meeting, we intend to explore fixed effects models and other specifications, which will allow us to adjust for unobserved heterogeneity and other dimensions of these associations. Furthermore, we will be able to consider other health behaviors in our analysis, such as lack of exercise or over-eating and under-eating.

SOURCES

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Table 1. Descriptives at W2 by Income to Needs Ratio Changes and Perceived Financial Well-Being Changes

	Sample Overall	No Income to Needs Changes or	Negative Income to Needs	p for diff.	Perceived No Changes or Positive	Perceived Negative Changes	p for diff.
Median Household Income 2010	$66,000	$78,000	$55,000	0.096	$70,000	$52,000	0.004
Median Household Income 2008	$60,000	$61,000	$60,000	0.005	$60,000	$57,581	0.710
% Married	58.39%	63.10%	50.82%	0.011	60.21%	54.62%	0.478
% Male	49.17%	45.46%	52.53%	0.212	48.83%	50.64%	0.728
% African American	22.64%	22.70%	22.98%	0.938	20.88%	27.49%	0.090
% Bachelor's Degree or More	30.76%	32.39%	27.02%	0.180	33.23%	23.37%	0.105
% Depressed	11.62%	11.22%	12.73%	0.640	8.29%	20.47%	0.002
% Smoking	32.17%	31.38%	35.75%	0.338	31.74%	33.82%	0.696
% Hazardous Alcohol Consumption	11.85%	14.29%	8.70%	0.226	10.70%	14.85%	0.235
% Lack of Sleep	15.76%	15.63%	15.56%	0.978	14.03%	20.26%	0.149
% Taking Drugs	18.98%	19.48%	20.40%	0.805	18.46%	20.66%	0.516
N	847	419	385		558	246	

Table 2. Unfavorable Changes in Health Behaviors - Logistic Models in Odds Ratios

	Started Smoking	Started Smoking	Started Drinking	Started Drinking	Change to Inadequate Sleep	Change to Inadequate Sleep	Started Taking Drugs	Started Taking Drugs
Perceived Decline	1.811		1.633		1.275		0.878	
	(0.527 - 6.222)		(0.756 - 3.527)		(0.447 - 3.63)		(0.527 - 1.464)	
Objective Decline		0.446 +		0.262**		0.501 +		0.884
		(0.174 - 1.142)		(0.107 - 0.642)		(0.223 - 1.126)		(0.510 - 1.532)
LN HH Income in 2010	0.862**	0.894*	0.788***	0.813***	0.843***	0.861***	0.796***	0.796***
	(0.788 - 0.943)	(0.814 - 0.983)	(0.739 - 0.840)	(0.750 - 0.881)	(0.771 - 0.922)	(0.795 - 0.932)	(0.745 - 0.850)	(0.741 - 0.856)
Married	0.252*	0.275+	0.302	0.297	0.368*	0.359*	2.246 +	2.274 +
	(0.071 - 0.896)	(0.072 - 1.046)	(0.052 - 1.743)	(0.051 - 1.724)	(0.139 - 0.973)	(0.137 - 0.937)	(0.953 - 5.296)	(0.974 - 5.313)
Male	0.725	0.827	1.494	1.982	0.813	0.957	0.643	0.670
	(0.180 - 2.920)	(0.200 - 3.417)	(0.629 - 3.547)	(0.819 - 4.801)	(0.334 - 1.982)	(0.409 - 2.239)	(0.351 - 1.180)	(0.389 - 1.153)
African American	0.336*	0.408*	0.136**	0.207*	0.475 +	0.558	0.385*	0.392*
	(0.147 - 0.769)	(0.206 - 0.807	(0.031 - 0.594)	(0.057 - 0.746)	(0.203 - 1.112)	(0.229 - 1.359)	(0.176 - 0.842)	(0.184 - 0.835)
BA+	0.052**	0.047*	0.499	0.557	1.468	1.453	0.403	0.399
	(0.006 - 0.433)	(0.005 - 0.455)	(0.168 - 1.485)	(0.177 - 1.751)	(0.510 - 4.224)	(0.472 - 4.472)	(0.131 - 1.236)	(0.129 - 1.241)
Depression	0.494	0.603	2.368	3.508	1.112	1.330	7.074***	6.797**
	(0.098 - 2.489)	(0.137 - 2.655)	(0.492 - 11.397)	(0.748 - 16.456)	(0.465 - 2.661)	(0.574 - 3.083)	(2.447 - 20.488)	(2.345 - 19.703)
N	505	507	704	702	674	672	616	614

+ p<0.10, *p<0.05, **p<0.01, ***p<0.001

Table 3. Unfavorable Changes in Health Behaviors - Logistic Models in Odds Ratios

	Started Smoking	Started Drinking	Change to Inadequate Sleep	Started Taking Drugs
Perceived Decline	1.927	2.095+	1.314	0.875
	(0.587 - 6.327)	(0.933 - 4.707)	(0.483 - 3.577)	(0.513 - 1.492)
Objective Decline	0.422 +	0.230**	0.505 +	0.895
	(0.164 - 1.087)	(0.093 - 0.572)	(0.226 - 1.125)	(0.512 - 1.567)
LN HH Income in 2010	0.881*	0.798***	0.856**	0.798***
	(0.797 - 0.973)	(0.740 - 0.860)	(0.543 - 0.937)	(0.743 - 0.857)
Married	0.251*	0.278	0.351*	2.303 +
	(0.070 - 0.897)	(0.047 - 1.648)	(0.130 - 0.946)	(0.984 - 5.390)
Male	0.831	2.017 +	0.938	0.674
	(0.205 - 3.363)	(0.867 - 4.694)	(0.410 - 2.149)	(0.385 - 1.180)
African American	0.404*	0.203*	0.542	0.393*
	(0.196 - 0.833)	(0.061 - 0.679)	(0.225 - 1.301)	(0.183 - 0.841)
BA+	0.051*	0.594	1.534	0.395
	(0.006 - 0.462)	(0.193 - 1.827)	(0.493 - 4.774)	(0.128 - 1.222)
Depression	0.460	2.975	1.252	7.115**
	(0.086 - 2.456)	(0.637 - 13.887)	(0.533 - 2.940)	(2.373 - 21.332)
N	505	702	672	614

+ p<0.10, *p<0.05, **p<0.01, ***p<0.001

Appendix

Table 4. Favorable Changes in Health Behaviors - Logistic Models in Odds Ratios

	Quit Smoking	**Quit Drinking**	**Change to Adequate Sleep**	**Quit Taking Drugs**
Perceived Decline	1.343	1.814	0.909	1.338
	(0.381 - 4.729)	(0.432 - 7.613)	(0.417 - 1.981)	(0.652 2.746)
Objective Decline	0.493 +	5.693*	1.364	1.028
	(0.214 - 1.136)	(1.462 - 22.170)	(0.611 3.044)	(0.457 - 2.313)
HH Income in 2010	0.861***	0.917	0.883 +	0.957
	(0.795 - 0.931)	(0.814 - 1.033)	(0.774 - 1.066)	(0.897 - 1.020)
Married	1.829	3.856	1.061	1.434
	(0.682 - 4.904)	(0.747 - 19.893)	(0.315 - 3.572)	(0.598 - 3.436)
Male	1.139	0.678	1.251	0.365**
	(0.361 - 3.589)	(0.223 - 2.060)	(0.401 - 3.907)	(0.196 - 0.680)
African American	0.652	1.042	2.329 +	1.181
	(0.241 - 1.765)	(0.383 - 2.836)	(0.886 - 6.123)	(0.598 - 2.335)
BA+	0.812	0.403	2.282	1.751
	(0.271 - 2.432)	(0.116 - 1.402)	(0.349 - 14.932)	(0.607 - 5.047)
Depression	0.252 +	0.020***	0.239*	2.669
	(0.060 - 1.062)	(0.003 - 0.128)	(0.081 - 0.708)	(0.805 - 8.851)
N	299	95	132	190

+ $p<0.10$, *$p<0.05$, **$p<0.01$, ***$p<0.001$

Table 5. Unfavorable Changes in Health Behaviors - Logistic Models in Odds Ratios with Objective Decline*Subjective Decline Interaction

	Started Smoking	Started Drinking	Adequate Sleep No more	Started Taking Drugs
Perceived Decline	3.027	1.728	1.207	0.172**
	(0.601 - 15.24)	(0.697 - 4.284)	(0.305 - 4.774)	(0.0467 - 0.635)
Objective Decline	0.669	0.163**	0.47	0.440*
	(0.204 - 2.195)	(0.0341 - 0.781)	(0.156 - 1.412)	(0.186 - 1.044)
Doing Worse (Perceived) * Doing Worse (Measured)	0.211	2.052	1.275	15.25***
	(0.0304 - 1.457)	(0.414 - 10.16)	(0.218 - 7.456)	(2.686 - 86.64)
LN HH Income in 2010	0.870**	0.798***	0.857***	0.811***
	(0.778 - 0.972)	(0.738 - 0.863)	(0.782 - 0.939)	(0.757 - 0.869)
Married	0.239**	0.292	0.352**	2.416**
	(0.0683 - 0.836)	(0.0469 - 1.818)	(0.130 - 0.955)	(1.026 - 5.688)
Male	0.881	2.084*	0.939	0.674
	(0.213 - 3.652)	(0.872 - 4.980)	(0.411 - 2.147)	(0.389 - 1.167)
African American	0.371**	0.225**	0.553	0.466**
	(0.174 - 0.789)	(0.0665 - 0.760)	(0.221 - 1.383)	(0.236 - 0.921)
BA+	0.0481***	0.611	1.545	0.415
	(0.00561 - 0.412)	(0.201 - 1.864)	(0.488 - 4.888)	(0.128 - 1.340)
Depression	0.437	2.942	1.223	6.367***
	(0.0690 - 2.774)	(0.650 - 13.31)	(0.541 - 2.764)	(2.583 - 15.69)
N	505	702	672	614

+ p<0.10, *p<0.05, **p<0.01, ***p<0.001