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Financial hardship and self-rated health among low-income housing residents

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Abstract

BACKGROUND—Self-rated health (SRH) has been shown to be predictive of morbidity and mortality. Evidence also shows that SRH is socioeconomically patterned, although this association differs depending on the indicator of socioeconomic status (SES) used. The purpose of this study was to determine the association between SRH and financial hardship among residents of low-income housing; and to determine if psychological distress attenuates this association.

METHODS—We analyzed cross sectional data from the Health in Common Study (N=828), an observational study to investigate social and physical determinants of cancer risk-related behaviors among residents of low-income housing in three cities in the Boston metropolitan area. Modified Poisson regression models were used to obtain the relative risk of low SRH (fair or poor), adjusting for demographic and socioeconomic characteristics.

RESULTS—Unadjusted models revealed that the respondents reporting financial hardship were 53% more likely to report low SRH compared to those not reporting financial hardship. After controlling for demographic and socioeconomic characteristics and psychological distress, the results showed that those reporting financial hardship were 44% more likely to report low SRH.

CONCLUSION—Our results suggest that financial hardship is a robust predictor of SRH; and over and above the influence of demographic and traditional socioeconomic indicators, and even psychological distress, financial hardship remains strongly associated with low SRH. Additional research needs to be conducted to further elucidate this pathway and to better understand the determinants of variability in financial hardship among low-income housing residents to ensure the most appropriate policy levers (e.g. housing-related policy, food-related policy) are chosen to improve health outcomes in this population.

Keywords

SELF-RATED HEALTH; PSYCHOLOGICAL STRESS; SOCIO-ECONOMIC

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INTRODUCTION

Many studies have shown that low-income status can have detrimental effects on mental and physical health.¹⁻³ However, a focus on income status alone does not fully characterize the difficulty one might be experiencing in attempting to garner financial resources to meet one's financial obligations;⁴ nor does income fully capture the goods and services available to the household.⁵ Income can also vary greatly from year to year for individuals with low income and low levels of education.⁶ Additionally, individuals with the same level of income may have different living standards⁷ and utilize their financial resources very differently, which could result in varying levels in how well they are making ends meet. However, few studies have investigated the association between health status and measures of socioeconomic status (SES) that tap into dimensions of socioeconomic circumstances not captured by traditional measures of SES, such as how well an individual feels like s/he is "making ends meet" or is experiencing financial hardship. Additionally, even fewer such studies focus exclusively on low-income housing residents. Moreover, although low-income may be associated with financial hardship, there is not a perfect correlation between income status and material deprivation.² This suggests that low-income status and financial hardship should not be used interchangeably⁸ and may not be capturing the same underlying construct.

Financial hardship occurs when one has insufficient financial resources to adequately meet household's needs.^{9,10, 11} Experiencing this type of deprivation can impact the health and well-being of the family. One potential pathway linking financial hardship to poor health is through the psychological distress financial hardship may cause. In particular, the material deprivation that characterizes financial hardship may induce psychological distress¹² due to the lack of access to health promoting resources.¹³ Psychological distress can be defined as the difficulty one experiences in maintaining healthful psychological functioning when faced with stressful life events.¹⁴ For low-income households with few resources to buffer the effects of financial hardships, the management of current and subsequent stressful life events can be even more difficult and several studies have shown that the result can be an increased level of psychological distress.¹⁵⁻¹⁸

Although a large literature has examined disparities in health across socioeconomic groups, little attention has been paid to the variability in health within low socioeconomic groups.¹⁹ As low-income housing is considered a safety net program for families in need financially, it is assumed that there is not much variability in financial deprivation in this population (given that a requirement of residency is low-income status). Yet, baseline data from a randomized trial among low-income housing residents showed great variability in the reported financial status of the households, with over 20% reporting their financial situation as "Comfortable with some extras" and about 13% reporting an inability to "make ends meet."²⁰ While the fact that low-income households are struggling to make ends meet is not new²³, the association of variability in making ends meet among low-income housing residents with health deserves further attention. Research does show that residents of low-income housing often report poorer health than the general population²¹, even in areas where access and utilization to health care is similar to non-public housing residents.²² Thus investigating the association between financial hardship and self-rated health within a low-income housing population to understand intra-[SES]-group variation in health status and perceived socioeconomic circumstances is warranted. In so doing, we can better understand the range of vulnerability to the negative consequences of adverse socioeconomic circumstances among low-income groups.¹⁹

The aim of the present study was to determine the association between financial hardship and self-rated health among residents of low-income housing developments in three cities in

the Boston metropolitan area; and to determine if psychological distress attenuates this association. We hypothesized that financial hardship would be negatively associated with self-rated health, even after controlling for other socio-demographic characteristics and that this association would be substantially attenuated by psychological distress.

METHODS

Data Source

The Health in Common Study was an observational cross-sectional study to investigate social and physical determinants of cancer risk-related behaviors among residents of low-income housing. Participants were recruited from the adult population of 20 publicly and privately managed low-income housing developments across three cities in the Boston metropolitan area. A multistage cluster design was used to sample households from housing developments and to select adults within households.²⁴ In housing developments with fewer than 60 households, a census was used to recruit one participant from each household. In the housing developments with more than 60 households, a random selection of households was performed and a recruitment list developed. One adult resident within each randomly selected household was invited to participate in our study. Across the housing developments we attempted to recruit an equal number of participating households. Our sampling strategy yielded a sample that is similar to the subsidized housing population across the three cities where our study took place. In particular, across the three cities the subsidized housing population consists of families where approximately 70% are headed by women and over 60% are minority. The survey response rate averaged 49% across the 20 sites (range: 27-64%). Study participants were given a \$30 pre-paid grocery card as an incentive for participation. The survey was conducted from February 2007 to June 2009. The Office of Human Research Administration at the author's institution approved this study.

Measures

Outcome variable—Self-rated health was measured using the single question: “In general, how would you say your health is: excellent, very good, good, fair or poor.”²⁵ We dichotomized this variable into two categories: excellent/very good/good vs. fair/poor.

Independent variables

Primary exposure variable: To assess financial hardship, respondents were asked about how their household finances usually worked out at the end of the month: “Would you say there is some money left over, just enough money to make ends meet, or not enough money to make ends meet?” We dichotomized this variable into two categories: presence of financial hardship (not enough money to make ends meet) vs. no financial hardship (just enough money to make ends meet or some money left over).

Socio-demographic characteristics: Potentially confounding socio-demographic characteristics that have been shown in the literature to be associated with self-rated health and financial hardship and included as covariates in our models were: gender; race/ethnicity; marital status; age; educational attainment; employment status; and poverty status. A poverty index was created by comparing household composition (# of children under 18 and total household size) and income to Census Bureau 2008 poverty thresholds. Residents were defined as being in poverty if they fell below the threshold. We used the poverty thresholds from the following US Census website to create our poverty variable: <http://www.census.gov/hhes/www/poverty/data/threshld/thresh05.html>

Potential mediating variable: Cohen, Kamarck, and Marmelstein's (1983) four-item Perceived Stress Scale (PSS) was used to operationalize psychological distress in this

study.²⁶ The PSS includes the following questions: 1) “felt that you were unable to control the important things in your life”; 2) “felt confident about your ability to handle your personal problems”; 3) “felt that things were going your way”; 4) “felt difficulties were piling up so high that you could not overcome them.” The response options for these questions were: often, sometimes, rarely, or never. Rarely and never were combined and the responses were summed across the four-items to create a psychological distress score for each respondent ranging from 0-12, with a higher number indicating a higher level of psychological distress. The PSS has shown good internal and test-retest reliability.²⁶

Statistical testing

Chi-square tests were conducted to estimate differences in self-rated health across categories of the socio-demographic variables. T-tests were conducted to determine differences in psychological distress across the categories of the primary exposure variable (financial hardship) and the outcome variable (self-rated health). Modified Poisson regression models were estimated in SAS© 9.2. (Proc Genmod using Poisson distribution and log link) to obtain the relative risk of low self-rated health.²⁷ We estimated four models: 1) a simple model including only the primary exposure, financial hardship; 2) model adjusting for potentially confounding demographic characteristics; 3) model adjusting for potentially confounding demographic and socioeconomic characteristics; and 4) a model to evaluate if psychological distress mediated (attenuated) the association between financial hardship and self-rated health. We included fixed effects for the housing developments (*n*-1) to control for the effect of the housing development of residence on self-rated health in each of the four above listed models.

RESULTS

Table 1 lists the frequency distributions for the demographic and socioeconomic variables across the primary predictor (financial hardship) and outcome variable (self-rated health). Bivariate analyses revealed significant differences in self-rated health. Self-reported health was better for men compared to women ($p=.02$), among those with higher educational attainment ($p<.001$), employed compared to unemployed respondents ($p<.001$), and for those not in poverty compared to those in poverty ($p<.001$). Self rated health decreased with increasing age ($p<.001$). There were no significant differences noted in self-rated health by race/ethnicity categories or marital status (Table 1). Tests of the difference in average psychological distress across categories in self-rated health and financial hardship revealed no significant differences for self-rated health ($p=.27$) or for financial hardship ($p=.06$). The intra-class correlation coefficient of self-rated health across the housing developments was 0.02.

The results from multivariable tests of the association between financial hardship and self-rated health are shown in Table 2. The simple model revealed that the respondents reporting financial hardship were 53% more likely to report low (fair/poor) self-rated health than those not reporting financial hardship. Controlling for demographic and socioeconomic characteristics revealed that those reporting financial hardship were 44% more likely to report low self-rated health (See Table 2) than those not reporting financial hardship. Psychological distress was then added to the model to determine if it mediated (attenuated) the association between financial hardship and self-rated health. Psychological distress was not significant at the $p<.05$ level; and its inclusion in the model changed the effect estimate for financial hardship only slightly (1.45 to 1.44; see Table 2).

DISCUSSION

This study investigated the association between financial hardship and self-rated health among low-income housing residents across three cities in the metro Boston area. The main finding of our study revealed that financial hardship was negatively associated with self-rated health, with this changing very little after controlling for demographic and other socioeconomic characteristics. In addition, we found that psychological distress was not associated with low self-rated health and did not attenuate the association between financial hardship and low self-rated health. As such, financial hardship proved to be a robust correlate of low self-rated health even when including psychological distress and socio-demographic characteristics in the models.

Self-rated health has been shown to be socioeconomically patterned²⁸ and to be predictive of morbidity²⁹ and mortality³⁰ in the general population. Yet, the association between self-rated health and socioeconomic circumstances extends beyond the traditional measures of income, education, and occupation, especially for women.³¹ Research with African Americans and Hispanics has shown a strong negative association between financial hardship and health.^{32, 33} In the few studies that have investigated the association between financial hardship and self-rated health in multiethnic samples the results have shown a robust negative association even after controlling for other socioeconomic characteristics.¹³ The results from the present study are consistent with these findings.

Surprisingly, psychological distress did not attenuate the association between financial hardship and self-rated health in this low-income sample. However, it remains unclear if the stress that results from financial hardship should best be measured by asking specific questions about household finances-related stress (e.g. financial stress) or if a general stress measure such as the PSS used in our study adequately captures the stress resulting from an inability to make ends meet. Perhaps a more useful measure to assess the potential mediating influence of distress in the financial hardship and self-rated health association would be a more domain-specific measure of financial stress. That is, a measure that captures specifically the stressful influence of the financial hardship experienced.

Although psychological distress has been shown to be associated with self-rated health in other multi-ethnic low-incomes samples,³⁴ we did not find statistically significant differences in psychological distress between the categories of self-rated health in our sample ($p=.06$). Factors that might explain the differences in our results and those of Watson, Logan, and Tomar (2008) could be measurement related as we used the 4-item abridged version of the PSS³⁵ and they used the full 14-item version; additionally, we dichotomized self-rated health and they used self-rated health as a continuous outcome in linear regression models.

There are limitations to the present study. First, the study is cross-sectional and cannot provide evidence for a causal relationship between financial hardship and self-rated health. Although, “making ends meet” has been used in previous studies to conceptualize and operationalize financial hardship, there is no standard measure in the literature for operationalizing financial hardship. Additionally, individuals may be reluctant to admit to either mishandling their financial resources or admitting to having financial problems;¹⁰ thus, there is the possibility of misclassification bias. Considering the focus of this study was on the association between financial hardship and self-rated health in a low-income housing sample, the narrow range in this sample may explain the lack of association between financial hardship and psychological distress. Lastly, a low response rate of 49% and over 80% female sample in our study may limit the external validity of our findings to all residents of low-income housing developments.

CONCLUSION

Low-income families use many strategies to mitigate the potential impact of limited resources and financial hardship on their household economies. In particular, such families may develop financial management strategies such as pooling resources from family members, friends and neighbors and also reduce current expenditures in anticipation of large future expenses (e.g. gifts for holidays or graduation)³⁶ to make ends meet. Although coping with financial hardship was not assessed in the present study, future efforts that focus on the strategies that households use to avoid or mitigate financial hardship might prove useful in understanding the relationship between financial hardship and health among low-income housing residents. More specifically, understanding how low-income families manage a chronic lack of financial resources as well as acute material resource losses¹⁷ may help uncover the determinants of the variability in household financial status and health status among low-income housing residents. Additional research needs to be conducted to further elucidate this pathway and to better understand the determinants of variability in financial hardship among low-income housing residents to ensure the most appropriate (and accurate) policy levers are chosen (e.g. housing related policy, food related policy, etc.). Such knowledge will aid in the development of interventions to improve the health and socioeconomic circumstances of this population.

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Table 1
Frequency and percent of respondent characteristics across financial hardship and self-rated health categories

	N	%	Financial Hardship [§]		Self-rated Health [§]		p-value Self-Rated Health [*]	p-value Financial Hardship [†]
			yes	no	Excellent/Very Good/Good	Fair/poor		
Financial hardship							p<.001	
<i>Demographics</i>								
Gender							p=.02	p=.10
Female	659	80%	262 (40%)	385 (60%)	417 (63%)	242 (37%)		
Male	169	20%	56 (34%)	111 (66%)	123 (73%)	46 (27%)		
Race							p=.08	p<.001
Non-Hispanic, White	93	11%	26 (28%)	67 (72%)	58 (62%)	35 (38%)		
Non-Hispanic, Blacks	316	38%	169 (54%)	143 (46%)	211 (67%)	105 (33%)		
Hispanic	341	41%	98 (30%)	233 (70%)	211 (62%)	130 (38%)		
Other	74	9%	25 (34%)	49 (66%)	57 (77%)	17 (23%)		
Age							p<.001	p<.01
18-29 yrs	153	19%	41 (28%)	108 (72%)	126 (82%)	27 (18%)		
30-39 yrs	218	26%	82 (38%)	134 (62%)	165 (76%)	53 (24%)		
40-49 yrs	169	20%	70 (42%)	97 (58%)	102 (60%)	67 (40%)		
50-59 yrs	145	18%	72 (50%)	71 (50%)	74 (51%)	71 (49%)		
60+	140	17%	51 (37%)	86 (63%)	70 (50%)	70 (50%)		
Marital Status							p=.13	p=.18
Married/living with partner	276	33%	115 (42%)	156 (58%)	190 (69%)	86 (31%)		
Not married or living with partner	550	67%	203 (38%)	338 (62%)	349 (63%)	201 (37%)		
<i>Socioeconomic Characteristics</i>								
Educational Attainment							p<.001	p=.06
grade school or below (<8 yrs)	152	21%	53 (36%)	96 (64%)	67 (44%)	85 (56%)		
some HS (9-11.5 yrs)	123	17%	49 (41%)	71 (59%)	73 (59%)	50 (41%)		
High School graduate (12 yrs)	200	27%	61 (31%)	138 (69%)	155 (78%)	45 (23%)		
> High School (13+ yrs)	261	35%	109 (43%)	147 (57%)	191 (73%)	70 (27%)		

				Financial Hardship [§]		Self-rated Health [§]			
	N	% [‡]	yes	no		Excellent/Very Good/Good	Fair/poor	p-value Self-Rated Health [*]	p-value Financial Hardship [‡]
Employment Status								p<.001	p=.05
Employed	424	51%	177 (42%)	241 (58%)		311 (73%)	113 (27%)		
Unemployed	403	49%	141 (36%)	254 (64%)		229 (57%)	174 (43%)		
Poverty Status									
Not in poverty	327	42%	123 (38%)	202 (62%)		235 (72%)	92 (28%)		
In Poverty	445	58%	176 (40%)	264 (60%)		262 (59%)	183 (41%)	p<.001	p=.55
Psychological Distress									
Average Psychological Distress Score	6.97 (2.06) [‡]		7.08 (2.11) [‡]	6.90 (2.00) [‡]		6.87 (2.08) [‡]	7.16 (2.01) [‡]	p=.06	p=.27

* bivariate association with self-rated health

[‡] bivariate association with financial hardship

[‡] Totals may not add to 100% due to rounding

[§] Percentage frequency in parentheses

[‡] number in parentheses is the standard deviation

Table 2

Relative risk (and 95% confidence intervals) for the multivariable associations between financial hardship and low (fair/poor) self-rated health^s

	Model 1	Model 2	Model 3	Model 4
Financial Hardship				
No financial hardship	Reference			
Financial hardship present	1.53^{***} (1.27, 1.84)	1.45^{***} (1.20, 1.74)	1.45^{***} (1.19, 1.77)	1.44^{***} (1.18, 1.75)
Demographics				
Gender				
Male	Reference			
Female		1.32 [*] (1.01, 1.72)	1.22 (.92, 1.63)	1.20 (.90, 1.60)
Race/Ethnicity				
White	Reference			
Black, non-Hispanic		.69 (.44, 1.08)	.73 (.47, 1.12)	.74 (.48, 1.14)
Hispanic		.93 (.60, 1.43)	.83 (.54, 1.28)	.85 (.55, 1.30)
Other		.80 (.49, 1.31)	.68 (.42, 1.12)	.69 (.42, 1.14)
Age				
18-29	Reference			
30-39		1.03 (.81, 1.33)	.81 (.62, 1.04)	.82 (.63, 1.06)
40-49		1.24 (.97, 1.60)	.97 (.72, 1.30)	.98 (.73, 1.31)
50-59		2.09 ^{***} (1.56, 2.83)	1.56 [*] (1.10, 2.22)	1.58 [*] (1.11, 2.24)
60 and older		2.68 ^{***} (1.82, 3.93)	1.86 ^{**} (1.23, 2.82)	1.86 ^{**} (1.23, 2.82)
Marital Status				
Married/Living with Partner	Reference			
Not Married		1.08 (.88, 1.34)	1.05 (.84, 1.30)	1.04 (.84, 1.30)
Socioeconomic Characteristics				
Educational Attainment				
< 8yrs			Reference	
Some High School			1.24 (.89, 1.71)	1.24 (.90, 1.72)
High school graduate			.78 (.58, 1.04)	.77 (.57, 1.03)
Greater than High School			.65 [*] (.50, .85)	.65 [*] (.50, .85)
Employment Status				
Employed			Reference	
Unemployed			1.28 [*] (1.02, 1.61)	1.29 [*] (1.03, 1.61)
Poverty Status				
Not in Poverty			Reference	
In Poverty			1.17 (.94, 1.44)	1.16 (.94, 1.43)
Perceived stress				1.03 (.99, 1.08)

Model 1: simple model including only financial hardship

Model 2: adjusting for demographic characteristics

Model 3: adjusting for demographic and socioeconomic characteristics

Model 4: adjusting for demographics, socioeconomic characteristics, and perceived stress

^s all models are fixed effects regression models that include dummy variables (n-1) for each housing site.

*
p <.05

**
p<.01

p<.001