

Report from the United States

**ONLY HALF THE PROBLEM IS BEING ADDRESSED:
UNDERINSURANCE IS AS BIG A PROBLEM
AS UNINSURANCE**

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This article examines the sociodemographic and health characteristics of the underinsured—people who have some health insurance but are having trouble paying for health care or medications. It uses data from the Boston Area Community Health (BACH) Survey, a large (N = 5,503) community-based random sample of Boston residents aged 30 to 79 years (1,767 black, 1,877 Hispanic, and 1,859 white; 2,301 men and 3,202 women). The authors found that minorities were less likely than whites to have health insurance (for men and women, respectively, 30% and 19% of Hispanics, 16% and 9% of blacks, and 9% and 7% of whites lacked health insurance). Blacks were the most likely to be underinsured (for men and women, respectively, 18% and 20% of blacks vs. 9% and 14% of Hispanics and 8% and 12% of whites were underinsured). Those of lower and middle socioeconomic status were also more likely to be uninsured or underinsured. The health status of the uninsured was similar to that of the adequately insured, whereas those who were underinsured reported more co-morbidities and depression. The underinsured are generally older and sicker, and make greater use of the health care system, and may present a larger public health and health policy challenge than the uninsured.

Much has been made of the 47 million Americans who don't have health insurance. But the healthcare reform debate should also focus on the fact that an estimated 25 million working-aged Americans have health insurance but still can't afford to see a doctor.

—Howard Dean, 2009 (1)

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That some 49.5 million American adults (28%) under the age of 65 have no health insurance is widely discussed in health policy circles. With few exceptions (2–4), much less attention is given to the additional 42.5 million (24%) who are underinsured (5, 6). In 2007, after some tightening of bankruptcy laws, it was estimated that over 60 percent of bankruptcies were due to medical bills, even though three-quarters of these people had health insurance at the beginning of their illness (7). Another study found that people with health insurance were paying more out-of-pocket and avoiding needed health care (8, 9). The cost of American medical care has encouraged some residents to seek care (10) or medications (11) abroad.

Lack of health insurance has been linked to adverse health outcomes in several areas, including emergency room or urgent care visits for worsening of asthma symptoms (12), use of thiazolidinediones among diabetics (13), worse outcomes after acute myocardial infarction (14), health care utilization after injury or acquiring a new chronic condition (15), cancer diagnosed at advanced stages (16), and utilization of care for cancer (17). The recent nationwide increase in so-called “retail clinics” has been linked to inadequate health insurance coverage (18).

Using a community-based random sample of Boston, Massachusetts, residents aged 30 to 79 years, this study sought to identify: (a) the sociodemographic characteristics of those who were underinsured—people who had health insurance but reported having trouble paying for health care or medications; (b) health characteristics (co-morbidities, health-related quality of life, and risk factors) according to people’s health insurance status; and (c) how underinsurance affects health care utilization.

METHODS

The Boston Area Community Health (BACH) survey is an ongoing epidemiological survey of Boston residents aged 30 to 79 years. Detailed methods have been described elsewhere (19). In brief, a stratified two-stage cluster sample was used to recruit residents of Boston, with the goal of enrolling approximately equal numbers of participants by gender, race/ethnicity (black, Hispanic, white), and age group (30–39, 40–49, 50–59, 60–79 years). In total, 5,503 adults participated in BACH (1,767 black, 1,877 Hispanic, and 1,859 white; 2,301 men and 3,202 women). The response rate was 63.3 percent of screened eligible participants, which is typical of an epidemiological field survey requiring a lengthy in-home protocol and phlebotomy. Data were collected between 2002 and 2005, before mandatory health insurance became law in Massachusetts (20–25). After written informed consent, data were collected during a two-hour interview (in English or Spanish), usually in the respondent’s home. All protocols and procedures were approved by the New England Research Institutes’ Institutional Review Board.

Sociodemographics and Health Insurance Status

Race/ethnicity was determined by self-report, using the Office of Management and Budget classifications (26). *Socioeconomic status* (SES) was determined as a combination of education and income, and categorized such that one-quarter of the study population was of lower SES, one-half middle, and one-quarter upper (27). Respondents reported their current *employment status* (working for pay, unemployed and looking for work, temporarily laid off or on sick leave, disabled, retired, homemaker, full-time student, or other). A person was said to have *no health insurance* if he or she reported no private (from employer, spouse's employer, military health, or self-pay), public (Medicare or Medicaid), or workers' compensation health insurance. A person was considered to be *underinsured* if he or she had health insurance but reported trouble paying for health care or medications, or as *adequately insured* if he or she had health insurance and did not report trouble paying for medical care.

Health Status

We report three aspects of health status: (a) co-morbidities, (b) health-related quality of life, and (c) risk factors. *Co-morbidities* were assessed by self-report, with the exception of *depression*, which was ascertained using an abridged Center for Epidemiologic Studies Depression scale (28) in which 5 or more (out of 8) symptoms suggest significant depression. Participants' perception of their current *health-related quality of life* was assessed with the SF-12, whose 12 questions can be combined into a physical and mental health component score, each with a mean of 50 and standard deviation of 10 in the U.S. adult population (29). The first question of the SF-12 is: "In general, would you say your health is: (excellent, very good, good, fair, poor)?" The number of participants responding fair or poor is reported. *Risk factors* included uncontrolled high blood pressure, level of physical activity, obesity, smoking, and alcohol consumption. Interviewers measured blood pressure twice with a stethoscope, appropriate-size blood pressure cuff, and sphygmomanometer, two minutes apart. Based on the second reading, a participant was said to have *uncontrolled high blood pressure* if the systolic reading was 140 mm Hg or higher or the diastolic reading was 90 mm Hg or higher. *Physical activity* was measured with the Physical Activity Scale for the Elderly (PASE) (30) and categorized into low, moderate, and high. The interviewer also measured the respondent's height and weight, which can be converted to *body mass index* (BMI) (kg/m^2) (31). BMI was categorized as normal (<25), overweight (25–30), or obese (30+). *Smoking* (cigarettes or cigars) history was classified as never, former, or current smoker. *Alcohol consumption* of beer, wine, or liquor was categorized on the basis of average number of drinks per day, as none, <1 drink per day, 1 to <3 drinks per day, and ≥ 3 drinks per day.

Health Care Utilization

We asked participants about the *number of visits to a health care provider* (including routine care, emergency, dental, physical therapy) within the past year. If any visit, we asked whether it was for *care for an urgent (acute) problem, a routine visit for an ongoing problem, a flare-up of an ongoing problem, surgery or injury care, or non-illness care*. We also asked participants whether they went for *regular care*. All *prescription and over-the-counter (OTC) medications* used in the past four weeks were collected at the start of the interview, and the label information was recorded by the interviewer. In addition, participants were asked whether they currently took medications for specific indications (such as high blood pressure or pain), and these reports were recorded. Medications were coded using the Slone Drug Dictionary created by the Slone Epidemiology Center at Boston University School of Public Health (32). The coding process identifies drug components and classifies them based on a modified form of the American Hospital Formulary Service Drug Pharmacologic Therapeutic Classification System (33). We counted the number of classes of medications used as prescribed, OTC, or herbal/vitamin preparations as indicative of the number of different medications used.

Statistical Analysis

Chi-square tests and logistic regression were used to test the assumption of equal distributions by race/ethnicity or health insurance status. We used multiple imputation to impute plausible values for missing observations with SAS 9.1.3 (SAS Institute, Cary, NC). Twenty-five multiply imputed datasets were created by gender and race/ethnicity. For most variables, less than 1 percent of the data were missing. The only exception was income, for which 4, 11, and 3 percent were missing for black, Hispanic, and white participants, respectively. Observations were weighted inversely to their probability of selection, and weights were post-stratified to the Boston census population in 2000. Analyses were conducted in SUDAAN 9.0.1 (Research Triangle Institute, Research Triangle Park, NC).

RESULTS

Basic sociodemographic information, by gender and race/ethnicity, is presented in Table 1. Minorities are less likely to have health insurance than whites. Hispanics are twice as likely as blacks to be uninsured. Blacks are most likely to be underinsured.

Table 2 summarizes the sociodemographic characteristics of our sample by gender, race/ethnicity, and health insurance status. In keeping with the predominant source of health insurance in the United States (the workplace), BACH

Table 1

Descriptive statistics of participants in the BACH survey by gender and race/ethnicity

	Men				Women			
	Black	Hispanic	White	<i>p</i>	Black	Hispanic	White	<i>p</i>
<i>Demographics, percent</i>								
Age				<.0001				<.0001
30–39	34.5	46.4	36.4		32.7	43.3	31.6	
40–49	28.7	28.8	24.0		27.1	27.7	22.2	
50–64	26.5	17.9	24.3		27.4	19.8	26.8	
65–79	10.4	7.0	15.3		12.8	9.2	19.4	
Socioeconomic status				<.0001				<.0001
Lower	37.3	58.7	11.8		44.1	63.3	16.2	
Middle	52.8	30.2	51.6		46.8	30.9	47.8	
Upper	9.9	11.2	36.6		9.1	5.8	36.0	
Employment status				<.0001				<.0001
Employed	58.7	68.3	64.8		53.6	47.6	62.1	
Unemployed	9.9	9.2	6.5		9.0	12.5	4.3	
Laid off	3.3	2.4	4.2		3.0	0.8	1.0	
Disabled	14.8	14.7	7.4		15.1	17.0	8.3	
Retired	11.4	3.7	14.0		12.2	3.2	15.3	
Other ^a	1.9	1.6	3.2		7.1	19.0	9.1	
Foreign-born	24.5	84.2	8.8	<.0001	18.7	86.6	10.9	<.0001
Spanish interview	0.1	61.8	0.4	<.0001	0.4	67.9	0.1	<.0001
Trouble paying for health care	24.0	21.1	13.2	.0001	24.0	21.6	14.8	.0024
<i>Health-related quality of life^b</i>								
PCS 12, mean	48.8	50.0	50.9	.0150	47.3	47.3	48.9	.0567
MCS 12, mean	50.0	50.7	50.5	.5356	48.7	47.9	49.9	.0661
<i>Health insurance status, percent</i>								
				<.0001				<.0001
Uninsured	15.9	30.5	9.3		8.7	19.3	6.6	
Underinsured	17.5	9.3	8.2		20.0	14.0	12.2	

Note: *p* values from a chi-square test for the null hypothesis that the racial/ethnic groups have the same distribution by gender.

^aHomemaker, full-time student, other.

^bPCS 12, physical health component score from SF-12; MCS 12, mental health component score from SF-12.

Table 2

Percentage of BACH participants without health insurance (None) or underinsured (Under) by gender, race/ethnicity, and sociodemographic characteristics

	Men						<i>p</i>
	Black		Hispanic		White		
	None	Under	None	Under	None	Under	
Age, percent							
30–39	19.6	11.3	34.8	4.7	8.6	6.7	<.0001
40–49	15.0	17.6	31.9	10.7	15.0	7.0	.0006
50–64	13.5	21.3	21.3	15.1	9.1	9.2	.0009
65–79	12.5	28.0	19.7	18.8	2.6	12.5	.0094
Socioeconomic status, percent							
Lower	20.0	29.2	40.1	13.2	14.2	22.8	.0001
Middle	15.8	12.0	21.0	3.8	12.7	9.4	.0081
Upper	1.6	2.4	5.4	3.7	3.0	1.9	.7238
Employment status, percent							
Employed	15.7	7.9	33.4	5.2	8.9	4.4	<.0001
Unemployed	30.6	17.4	53.2	12.1	28.4	5.6	.0956
Laid off	28.2	32.9	10.7	3.2	18.8	34.2	.6406
Disabled	8.4	43.0	10.0	25.7	4.9	17.1	.0244
Retired	9.8	28.6	18.9	17.5	2.7	13.0	.0463
Other ^a	20.4	24.0	17.0	6.9	8.0	17.2	.7407
Foreign-born, percent							
Yes	15.7	15.5	32.3	9.6	3.4	6.5	<.0001
No	16.0	18.1	22.9	7.8	9.9	8.4	.0005
Interview language, percent							
English	15.9	17.5	22.9	5.4	9.3	8.3	<.0001
Spanish	56.3	0.0	35.2	11.6	9.8	0.0	.1647

Table 2 (Cont'd.)

	Women						<i>p</i>
	Black		Hispanic		White		
	None	Under	None	Under	None	Under	
Age, percent							
30–39	6.5	20.2	16.2	13.3	7.1	12.0	.0109
40–49	11.6	22.7	23.2	12.5	5.9	14.9	.0004
50–64	11.8	16.3	21.4	15.7	9.1	11.7	.0125
65–79	1.5	21.7	17.8	18.0	3.3	10.1	.0330
Socioeconomic status, percent							
Lower	11.4	24.4	19.9	15.3	10.1	26.2	.0194
Middle	7.2	17.0	21.0	13.0	8.5	11.8	.0048
Upper	3.8	14.0	4.6	5.0	2.6	6.4	.7189
Employment status, percent							
Employed	7.9	16.1	25.4	8.2	6.4	9.0	<.0001
Unemployed	21.8	34.9	15.9	14.8	17.4	28.8	.5182
Laid off	19.1	25.9	31.4	40.9	34.1	12.6	.4918
Disabled	4.1	25.1	1.6	31.5	3.1	33.0	.5120
Retired	5.9	21.6	3.7	24.5	1.6	9.8	.0613
Other ^a	8.5	14.7	24.5	9.2	12.3	11.3	.3612
Foreign-born, percent							
Yes	9.2	21.0	21.1	11.6	10.7	8.0	.0004
No	8.6	19.8	7.6	29.3	6.2	12.7	.0280
Interview language, percent							
English	8.6	20.0	11.0	19.8	6.6	12.2	.0038
Spanish	26.2	22.4	23.2	11.2	82.3	17.7	.5343

Note: *p* values from a chi-square or *F* test for the null hypothesis that the racial/ethnic groups have the same distribution of insurance status by gender and sociodemographic variable.

^aHomemaker, full-time student, other.

participants are less likely to have health insurance if they are unemployed and looking for work or temporarily laid off. However, being employed does not necessarily mean having health insurance: a third of employed Hispanic men, 25 percent of employed Hispanic women, and 16 percent of employed black men report having no health insurance. Those of lower and middle SES are less likely to have health insurance and more likely to be underinsured than those of upper SES. People who are employed are less likely to be underinsured. The proportion of men without health insurance tends to drop as they become older, but the same pattern does not hold for women: it increases in the forties, before dropping. We found that some people (recent immigrants and others) lack any health insurance after the age of 65. Hispanics who are foreign-born or who preferred to do their interview in Spanish are less likely to have health insurance than U.S.-born or English-speaking Hispanics, and they are more likely to be underinsured. Figure 1 shows the percentage of uninsured and underinsured by gender, race/ethnicity, and SES.

Table 3 shows the health status of respondents by gender, race/ethnicity, and health insurance status. For men, the underinsured are older than the uninsured or adequately insured, but this is not the case for women. In general, people with no health insurance have levels of co-morbidities similar to those of the adequately insured, whereas those who are underinsured have higher prevalences of some co-morbidities such as depression. In terms of health-related quality of life, people who are underinsured are more likely to report poor or fair health, and they report lower physical and mental health component scores.

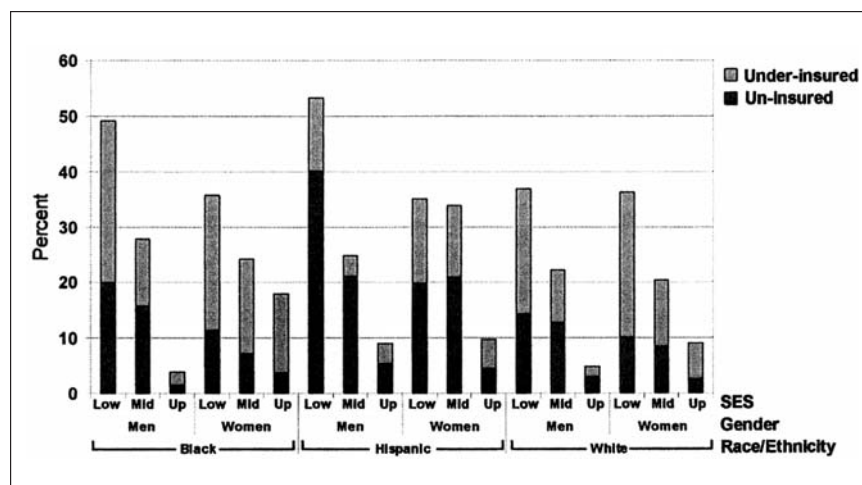


Figure 1. Percentage of uninsured and underinsured by gender, race/ethnicity, and socioeconomic status (SES; low, middle, and upper).

In a logistic regression model with uncontrolled hypertension as the dependent variable and including age and gender as explanatory variables, respondents who are uninsured (odds ratio = 1.20; 95% confidence interval, 0.83–1.75) or underinsured (odds ratio = 1.36; 95% confidence interval, 1.04–1.77) are more likely to have (interviewer-measured) uncontrolled hypertension. People with adequate health insurance tend to have higher levels of physical activity and are less likely to be current smokers. Minority men who have adequate insurance are less likely to have 3 or more drinks per day. White men with adequate health insurance are less likely to be obese (BMI ≥ 30 kg/m²).

We next consider health care utilization (see Table 3). Those without health insurance made fewer health care provider visits in the past year, with 20 to 40 percent of the men without health insurance having no visits at all in the past year. People who are underinsured are the most likely to have made 10 or more health care provider visits in the past year, perhaps reflecting their poorer health status. However, participants were equally likely to go to a health care provider for an urgent or acute problem or a flare-up of an ongoing problem if they have no or adequate health insurance, with higher levels for those who are underinsured (data not shown). Men without health insurance were less likely to go for a routine visit for an ongoing problem or non-illness care (data not shown). Both men and women without health insurance were less likely to go for regular care. Participants without health insurance were less likely to report the use of prescription medications. The use of OTC medications is similar for those without health insurance and those who are adequately insured, with somewhat higher use in those who are underinsured (minority men and white women) (data not shown). The use of herbal/vitamin preparations is similar regardless of health insurance status (data not shown).

DISCUSSION

In our population-based survey, we found that minorities and people of lower and middle socioeconomic status are less likely to have health insurance and more likely to be underinsured compared with whites and people of upper socioeconomic status. Hispanics, particularly young Hispanic men, are the least likely to have health insurance. This is consistent with other studies (34–36). Being 65 or older does not guarantee a person health insurance, as 12 to 20 percent of minority men aged 65 or older reported not having health insurance. Because Massachusetts residents are more likely to have health insurance than the national average (37), we do not use these data to project the number of Americans who are uninsured.

It is not surprising that those without health insurance have worse health outcomes down the road (38–40), since they are less likely to go for regular care, even routine care for an ongoing problem. In addition, co-morbidities among the

Table 3
 Health status (co-morbidities, health-related quality of life as measured by the SF-12, and risk factors) and health care utilization by gender, race/ethnicity, and insurance status

	Black men			Hispanic men			White men					
	None	Under	Adq.	None	Under	Adq.	None	Under	Adq.	<i>p</i>		
Age, yrs, mean	46.7	51.6	47.2	.0184	41.9	49.9	44.6	.0001	45.2	51.1	48.4	.0925
<i>Co-morbidities, percent</i>												
Diabetes	5.2	25.4	11.8	.0005	9.7	17.0	12.1	.4160	14.7	11.0	6.0	.4070
CHD	7.6	27.5	10.6	.0018	5.0	21.8	6.1	.0815	3.1	23.4	8.9	.0076
Depress.	12.6	38.5	11.7	.0025	17.1	38.9	13.4	.0037	9.5	39.5	9.9	.1281
<i>Health-related quality of life</i>												
PCS 12, mean	50.3	41.8	50.2	<.0001	51.0	45.3	50.3	.0011	51.3	42.0	51.8	.0001
MCS 12, mean	48.9	42.2	52.2	<.0001	51.5	46.4	51.0	.0635	50.8	44.8	51.0	.0067
Poor/fair health, percent	13.6	42.3	13.4	.0001	29.3	47.1	27.8	.0402	8.8	18.4	9.7	.2657
<i>Risk factors, percent</i>												
HBP	29.5	30.1	32.5	.8287	18.9	25.3	18.1	.5434	13.9	17.3	16.9	.8337
Physical activity				.0001				.0005				.0427
Low	19.9	45.6	21.2		16.3	46.9	27.5		22.7	48.8	26.0	
Moderate	59.7	39.5	44.5		60.9	32.9	41.4		61.6	42.4	47.1	
High	20.4	14.8	34.3		22.8	20.3	31.1		15.6	8.8	26.8	

		Black women			Hispanic women			White women			p	
		None	Under	Adq.	None	Under	Adq.	None	Under	Adq.		
<i>Health care utilization, percent</i>											.0019	
HCP visits in past year												
0	22.7	2.3	5.8	<.0001	41.1	18.5	12.5	.0008	21.8	1.6		7.1
1-4	55.1	42.2	58.8		41.0	37.6	58.8		45.3	27.5		48.3
5-9	7.3	20.0	17.9		9.6	15.4	12.8		20.1	17.1		20.5
10+	15.0	35.5	17.5		8.4	28.6	16.0		12.9	53.8	24.1	
Regular care											<.0001	
Prescription med. (classes)											<.0001	
0	67.2	28.7	56.6	.0011	73.6	36.1	55.9	.0027	64.0	23.4	43.1	
1-2	15.6	27.3	18.2		14.3	25.1	20.9		29.8	28.7	29.0	
3-4	8.1	16.3	13.9		6.8	20.2	12.4		2.6	24.1	17.7	
5+	9.1	27.8	11.3		5.2	18.6	10.8		3.6	23.8	10.1	
<i>Age, yrs, mean</i>												
<i>Co-morbidities, percent</i>												
Diabetes												
CHD												
Depress.												
<i>Health-related quality of life</i>												
PCS 12, mean												
MCS 12, mean												
Poor/fair health, percent												
	47.7	47.7	48.6	.7656	46.8	47.1	44.8	.3690	48.9	49.7	50.8	.6252
	10.3	13.3	12.6	.8619	7.5	13.8	12.0	.1947	3.8	11.9	7.3	.1509
	3.4	20.7	9.2	.0052	6.3	11.9	4.1	.1090	8.3	6.7	6.7	.9560
	20.6	42.6	20.4	.0120	35.2	55.5	32.4	.0331	12.6	35.2	10.8	.0002
	49.2	46.1	47.4	.2929	47.8	44.3	47.8	.2114	50.0	43.5	49.6	.0010
	51.2	43.3	49.9	.0015	50.0	38.0	49.4	.0005	47.3	44.5	50.9	<.0001
	17.6	26.2	21.5	.4312	41.4	49.2	33.7	.1234	9.1	26.2	8.9	.0006

Table 3 (Cont'd.)

	Black women			Hispanic women			White women			
	None	Under	Adq.	None	Under	Adq.	None	Under	Adq.	
<i>Risk factors, percent</i>										
HBP	10.1	20.8	16.5	.1081	12.8	10.3	.8124	14.7	8.0	.0784
Physical activity				.4069			.3513			.0010
Low	36.5	28.9	24.9		32.2	31.4		42.8	24.8	
Moderate	48.3	50.4	54.0		59.6	57.2		46.1	53.6	
High	15.2	20.7	21.1		8.2	11.4		11.0	21.5	
<i>Health care utilization, percent</i>										
HCP visits in past year				.0075			.0300			.0050
0	15.9	0.7	1.59		6.3	5.6		5.3	0.3	2.3
1-4	45.2	45.7	51.0		52.2	54.4		53.9	33.4	40.9
5-9	19.7	11.4	22.4		16.8	20.2		21.9	23.2	26.9
10+	19.2	42.2	25.0		24.7	19.8		18.8	43.1	30.0
Regular care	82.3	95.3	95.1	.0350	84.4	95.2	.0041	79.9	93.4	95.3
Prescription med. (classes)				.0035			.0001			.2162
0	59.1	30.6	36.8		50.0	42.4		45.0	24.9	31.9
1-2	21.8	27.6	35.4		34.9	30.4		29.3	30.2	32.8
3-4	7.1	18.8	12.9		11.5	13.0		11.7	18.0	18.4
5+	12.0	23.0	14.9		3.6	14.2		14.0	26.9	16.8

Abbreviations: None, no health insurance; Under, underinsured (health insurance, but trouble paying for health care); Adq., insured and no trouble paying for health care); CHD, heart disease; Depress., 5 or more (of 8) depressive symptoms; PCS 12, physical health component score from SF-12; MCS 12, mental health component score from SF-12; HBP, uncontrolled hypertension; HCP, health care provider.

Note: *p* value from a chi-square or *F* test that the proportion or mean is the same across health insurance status by gender and race/ethnicity.

uninsured may reflect loss of insurance or difficulty getting insurance following diagnosis of a major medical problem.

Underinsurance seems to be more of a problem than uninsurance for many groups. Although we found that those who are underinsured were likely to make more health care provider visits, they are less healthy (more co-morbidities and more likely to have uncontrolled hypertension) and have lower health-related quality of life. This may be a function of our operational definition of underinsurance—those reporting trouble paying for health care may be the people who are using it most and hence have the highest costs. Regardless, our analyses suggest that for those who have many health problems, it is a struggle to pay for health care and traditional insurance may be inadequate. Our findings are timely because the Kaiser Family Foundation recently reported that 32 percent of Americans live in a household where at least one person has trouble paying medical bills, with 18 percent having medical bills exceeding \$1,000 (41). The same study also reported that 47 percent of Americans live in a household in which someone put off or postponed getting health care they needed, skipped recommended medical tests or treatments, didn't fill a prescription, cut pills or skipped doses of medications, or had problems getting mental health care because of cost. Research has shown that important global determinants of health include universal coverage and low or no co-payments (42), which may explain why Americans have a lower life expectancy at birth than the residents of many other industrialized countries (43). Researchers also have recently found that 45,000 deaths per year in the United States are associated with uninsurance (44). Additional mortality is probably associated with underinsurance, as wealth has been shown to be an independent predictor of health status and life expectancy (45).

Use of a community-based random sample (with adequate representation of different racial/ethnic and socioeconomic groups) allows us to include people who are uninsured and not visiting health care providers to seek care. The proportion of people with health insurance is considered a "leading health indicator," and improving the proportion with coverage is a goal of the national 2010 Healthy People initiative (46). BACH has now transitioned to a prospective cohort design, so we will be able to follow up to determine whether racial/ethnic and socioeconomic disparities change in the wake of the Massachusetts health care reform (20–25).

Our study has major strengths. It uses a community-based random sample with adequate racial/ethnic and socioeconomic diversity. We are able to consider a wide variety of covariates, including sociodemographics, health status, co-morbidities, health-related quality of life, lifestyle, and health care utilization. Some of our measures are interviewer-measured (height, weight, blood pressure) and others rely on self-report, which is known to be well correlated with medical records (47–49). Our study also has some limitations. Unfortunately, we were unable to include other minority groups (e.g., Asian Americans) because the city

of Boston does not have these minorities in sufficient numbers to include them, given our survey sampling design. A combination of education and income may not fully capture what is signified by the concept of SES, but it does seem to account for much of the variation of health insurance status. The generalizability of our findings may be questioned, because the BACH study was conducted in a single inner-city area. However, we have compared the health status of BACH participants with national surveys such as the Behavior Risk Factor Surveillance System, National Health Interview Survey, and National Health Examination and Nutrition Survey, and we find comparable prevalence rates (with the exception of asthma, which appears to be more prevalent in Boston); this indicates that our results, with suitable modification for different demographics and health insurance status, may be generalizable to the U.S. population.

CONCLUSION

Using data from a representative, population-based sample, we have estimated the sizeable proportions of the population that are underinsured and described their sociodemographic characteristics, health status, and health care utilization behavior. While much attention is justifiably focused on the national challenge of uninsurance, which is the situation for some 49 million Americans, we have highlighted what may be an even more insidious problem: the underinsurance of an additional 42 million people in the United States. Our data permit us to describe in some detail who, exactly, the underinsured are and provide new information on their health status, utilization of health care, and quality of life.

For most people in the United States, health insurance is inextricably tied to employment. The past two decades have witnessed a decline in the large manufacturing sectors (with their strong workers' unions and excellent health and retirement benefits) and an increase in the competitive, small-business sector (with disproportionately non-unionized, older, minority workers who are uninsured or underinsured). To simply remain economically viable, many small businesses cannot offer (increasingly costly) health insurance coverage to employees, or only offer the bare minimum (underinsurance), or introduce cost-sharing measures. Present trends in the U.S. economy suggest that this trend in health insurance will increase, with even the largest employers reducing or eliminating coverage because of the explosive increase in health care costs. Changes in the composition of the workplace (especially the increase in the small-business sector) seem to make employment-based health insurance an unsustainable foundation for our future U.S. health care system.

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