HEALTH POLICY

High Medical Cost Burdens, Patient Trust, and Perceived Quality of Care

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BACKGROUND: The financial burden of medical care expenses is increasing for American families. However, the association between high medical cost burdens and patient trust in physicians is not known.

OBJECTIVE: To examine the association between high medical cost burdens and self-reported measures of patient trust and perceived quality of care.

METHODS: Cross-sectional household survey based on random-digit dialing and conducted largely by telephone, supplemented by in-person interviews of households with no telephones. The sample for this analysis includes 32,210 adults who reported having a physician as their regular source of care. Measures of patient trust include overall trust, confidence in being referred to a specialist, and belief that the physician uses more services than necessary. Perceived quality measures include thoroughness of exam, ability to listen, and ability to explain.

RESULTS: In adjusted analyses, persons with high medical cost burdens had greater odds of lacking trust in their physician to put their needs above all else (OR=1.43, CI=1.19, 1.73), not referring them to specialists (OR=1.39, CI=1.22, 1.58), and performing unnecessary tests (OR=1.42, CI=1.20, 1.62). Patients with high medical cost burdens also had more negative assessments of the thoroughness of care they receive from their physician (OR=1.26, CI=1.02, 1.56). The association of high medical cost burdens with patient trust and perceived quality of care was greatest for privately insured persons.

CONCLUSION: The rising cost of medical care threatens a vital aspect of the effective delivery of medical care–patient trust in their physician and continuity of care. Exposing patients to more of the costs could lead to greater skepticism and less trust of physicians' decision-making, thereby making health-care delivery less effective.

KEY WORDS: medical cost burden; patient trust; perceived quality of care.
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Health-care costs have been rising faster than general inflation and the nation's gross domestic product (GDP) for the past decade, thereby increasing out-of-pocket costs for American families[1]. In addition, the financial burden of out-of-pocket medical expenses has increased the most among privately insured persons[2]. A number of negative consequences associated with high out-of-pocket costs have been identified, including family financial distress, bankruptcy, and barriers to receiving necessary medical care[3,4].

Although public opinion polls show that rising out-of-pocket costs are contributing to Americans' growing dissatisfaction with the health-care system, the extent to which patients' trust in their physicians to make medical decisions on their behalf has been negatively affected is unknown. Patients' trust in their physicians has been shown to be crucial to their willingness to seek care, adhere to treatment recommendations, achieve positive health outcomes, and use recommended preventive services[6-9]. Recent efforts to improve quality of care through more patient-centered care practices and medical homes also depend on a high degree of trust between patients and physicians[10].

Although the issue of patient trust in physicians has been studied widely and from a number of different perspectives[6,11-14], there are no studies that have examined the effects of out-of-pocket medical costs on trust. Previous studies have shown that—relative to fee-for-service plans—incentives to limit services in HMOs and other managed care plans negatively affected fiduciary trust in their physicians[14-16]. Health plan attributes that affect patient cost-sharing (e.g., copays, deductibles) may or may not imply financial incentives to the physicians, but patients who incur high out-of-pocket costs may nevertheless perceive a financial motive on the part of physicians. Some research has examined differences between insured and uninsured patients in their trust of physicians' decision-making and interpersonal style, although the results from these few studies are mixed at best[11,13,14].

This study examines the association between high medical cost burdens, patient trust in their physician to make medical decisions on their behalf, and assessments of the quality of care they receive. Patients with high medical cost burdens are more likely to view their medical encounters in terms of financial transactions and medical providers as economic actors. Similar to other financial transactions, the marginal benefits of care received relative to the higher cost will be assessed more critically by these patients. To the extent that out-of-pocket costs become financially burdensome, the motives of the sources of these expenses (i.e., health-care providers) may become increasingly suspect, especially if patients are not satisfied with the quality of care received.

METHODS

Data Source

The data for this study are from the 2003 Community Tracking Study (CTS) Household Survey[17]. The survey is based on 60 randomly selected communities defined as counties or groups of counties using conventionally accepted definitions of statistical and economic areas, including Metropolitan Statistical Areas (MSAs) and Bureau of Economic Analysis economic areas for nine non-metropolitan sites.

Within each of the 60 sites, the primary sample selection method was random digit dialing (RDD), supplemented by in-person interviews among families with no working telephones. Interviews were conducted in Spanish for respondents who were not fluent in English. The final sample consists of 25,419 families and 46,587 individuals. The sample in this study includes adults age 18 and over, or 41,441 persons. The overall response rate for the survey was 56 percent. Person-level weights used in the analysis were designed to produce nationally representative estimates and were also post-stratified to correct for any differences in nonresponse based on age, sex, race or ethnicity, and education (based on the Current Population Survey conducted by Census)[17]. Standard errors used in tests of statistical significance and to derive confidence intervals were computed using SUDAAN computer software and take into account the complex survey design[18].

Measures of the Patient-Physician Relationship

The survey included questions on patient trust in their physician to make medical decisions on their behalf as well as patient assessments of the quality of care provided. All measures reflect patient's experiences with their regular source of medical care. Persons who reported that they don't have a regular source of care or that they don't usually see a physician at their regular source of care are excluded from the analysis. After these exclusions, the final sample for the analysis is 32,210 adults.

Patient trust in their physician. Three questions on patient trust in physicians' medical decision-making were adapted for use in the CTS Household Survey from existing scales, including the Trust in Physician Scale[14,19] (Table 1). These include a general assessment of whether the physician puts the patient's needs above all other considerations and two measures that reflect fiduciary trust, including their likelihood of referring the patient to specialists when needed and their likelihood of providing unnecessary services. Dichotomous measures of each of the three measures are constructed reflecting the probability that patients do not trust their physician. This is defined as responses of somewhat or strongly disagree to item 1 and responses of somewhat or strongly agree to items 2-3.

Assessment of quality of care from physician. Three questions in the survey measured patients' perceptions of the physicians' thoroughness of care, listening skills, and explanations (Table 1). These questions were asked with respect to the last physician visit they had in the prior year, assuming that it was with the regular source of care. Response categories included a five-point scale rating of poor, fair, good, very good, and excellent. As with the patient trust measures, dichotomous measures are constructed from these three questions that reflect the probability of a rating of fair or poor.

Table 1. Measures of the Patient Trust and Perceived Quality of Care

Patient trust[1] (reference is the physician they usually see when they get medical care)
General trust in physician
1. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.
Fiduciary trust in physician
2. I think my doctor may not refer me to a specialist when needed.
3. I sometimes think that my doctor might perform unnecessary tests or procedures.
Assessment of quality of care[2] (reference is the last visit to the regular source of care)
1. How would you rate the thoroughness and carefulness of the examination and treatment that you received?
2. How would you rate how well your doctor listened to you?
3. How would you rate how well the doctor explained things in a way you could understand?

[1]Response categories include somewhat agree, strongly agree, neither agree nor disagree, somewhat disagree, strongly disagree
[2]Response categories include excellent, very good, good, fair, poor

Measure of High Medical Cost Burden

Persons with "high medical cost burden" are identified based on having high out-of-pocket medical costs relative to their income and/or problems paying medical bills. The survey included questions that asked (1) total out-of-pocket payments for health-care expenses in the prior year; (2) out-of-pocket payments for private health insurance premiums; (3) whether families experienced problems paying medical bills in the prior year; (4) annual family income in the prior year. The ratio of out-of-pocket expenses for services and health insurance premiums to family income was computed. A dichotomous measure was constructed that identifies persons with "high medical cost burden" if they met one of the following conditions: (1) they had family incomes less than 200% of the federal poverty level and had out-of-pocket health expenses greater than 5% of family income; (2) they had family incomes 200% of poverty or higher, and with out-of-pocket expenses greater than 10% of family income; (3) they were in families who reported problems paying medical bills in the previous year. The 5% and 10% threshold for determining high out-of-pocket expenditures relative to family income is consistent with the thresholds used in other studies (2, 4). A lower threshold for low income persons is also consistent with public program requirements in Medicaid and the State Children's Health Insurance Plan[20].

The measure reflects a general measure of medical cost burden—i.e., financial pressures the family is experiencing from all sources of health-care spending–rather than medical cost burdens specific to the regular source of medical care or any other individual provider. A composite measure of out-of-pocket expenditures and self-reported medical bill problems is used both to simplify the results and because sensitivity tests show that the strength of the associations with patient trust and perceived quality of care are stronger than when the measures are included separately.

Analysis

Multivariate logistic regression analysis is used to examine the association between high medical cost burdens and patient

trust in physicians' decision-making as well as assessments of quality of care received. Other control variables in the model include patient age, gender, family income (relative to the US poverty line), race/ethnicity, citizenship, prevalence of chronic conditions, general health status, insurance coverage at the time of the interview, enrollment in an HMO plan, and attitude about seeing a doctor when sick (based on a question that asks survey respondents how likely they are to visit a doctor when they are sick). Also included are measures of the number of physician visits in the prior year, the number of hospital emergency department visits, the number of hospital inpatient nights in the prior year, whether there was a change in insurance coverage, a change in the regular source of care, and characteristics of the patient's regular source of care (type of place and whether they see the same physician at every visit). Characteristics of the local area include the number of hospital beds per capita in the county, number of primary care physicians per 1,000 persons, census region, and location in large metropolitan area (greater than 200,000 persons), small metropolitan area, and nonmetropolitan area.

RESULTS

Percent of Population with High Medical Cost Burden

Table 2 shows the percent of US adults with high medical cost burdens—both overall as well as for the various components of the measure of high medical cost burden. About 26.5 percent of US adults with a regular source of care are in families with high medical cost burdens. This includes 18.4 percent who have high out-of-pocket expenses relative to their income and 13.8 percent who reported problems paying their medical bills. Medical cost burdens among the uninsured are highest compared to persons with public and private insurance coverage. Among low income persons (family incomes less than 200% of the federal poverty level), high out-of-pocket expenses relative to income are highest among the privately insured (63.6 percent) and lowest among those enrolled in Medicaid and other state coverage (17.3 percent).

Characteristics of Persons with High Medical Cost Burden

Table 3 shows the percent of persons with low trust in physicians' medical decision-making and negative perceptions of the quality of care they receive. About 6 percent of patients do not believe that their physician puts their needs above all other concerns, and 13-14 percent believe their physician may not refer them to a specialist or that they perform unnecessary tests. Fair or poor ratings regarding care quality were 7.3 percent of respondents regarding the thoroughness of their exam, 6 percent for how well the doctor listened, and 5.5 percent for how well the physician explained things. In general, persons with high medical cost burdens are more likely to lack trust in medical decision-making and provide negative assessments of their encounters with physicians compared to persons who did not have high burdens, with the differences somewhat larger among higher income persons.

Table 2 also shows differences in the characteristics of patients by medical cost burden and income. Not surprisingly, some of the largest differences between those with low and high medical cost burden are related to health insurance coverage, income, and health status. Low income persons with high burden are much more likely to be privately insured and less likely to have Medicaid/coverage or be uninsured compared to persons with no burden. Among moderate or higher income persons, those with high burden are more likely to be uninsured and have lower income levels compared to those with no burden. For both low income and higher income groups, persons with high medical cost burden have higher prevalence of chronic conditions and are more likely to be in fair or poor health.

Results of Multivariate Analysis

Table 4 summarizes the results from 30 separate logistic regression analyses of the association between high medical cost burdens and the measures of patient trust and perceived quality of care, as well as by insurance status. Odds ratios less than 1 indicate higher levels of patient trust, while odds ratios greater than 1 reflect lower levels of trust. Thus, the odds of

Table 2. Percent of Persons with High Medical Cost Burdens by Insurance Coverage*

	All persons n=32,210	Type of insurance coverage			
		Medicare, (age 65 and over) n=6,368	Privately insured (age 18-64) n=20,259	Medicaid/state (age 18-64) n=1,184	Uninsured (age 18-64) n=2,390
Overall percent with high medical cost burdens	26.5 (0.7)	23.3 (1.2)	24.4 (0.63)	25.3 (2.7)	39.5 (2.4)
Percent with high out-of-pocket expense greater than 5 percent of income (for low income) or greater than 10 percent (for higher income)	18.4 (0.5)	20.5 (1.0)	17.3 (0.5)	14.6 (2.0)	19.2 (1.5)
Low income persons (<200% of poverty)	42.0 (1.7)	41.2 (3.1)	63.6 (2.2)	17.3 (2.5)	27.9 (2.4)
Higher income persons (200% of poverty or higher)	9.4 (0.4)	9.4 (1.2)	9.7 (0.5)	4.4 (1.8)	6.7 (1.0)
Percent with problems paying medical bills	13.8 (0.5)	6.6 (0.7)	12.1 (0.5)	18.0 (2.1)	30.8 (2.3)

*Standard errors in parentheses

Data source: 2003 Community Tracking Study Household Survey

Table 3. Percentage of Respondents Reporting Lower Physician Trust and Quality Care and Sample Characteristics by Family Income and Financial Burden

	All persons	Income <200% of poverty		Income 200% of poverty or higher	
		High financial burden	Lower financial burden	High financial burden	Lower financial burden
Patient trust in physicians' medical decision-making					
Doesn't put needs above all other concerns	6.4	8.8	6.6***	8.6	5.2***
May not refer to specialist	13.8	23.0	19.4**	14.3	10.0***
Performs unnecessary tests	13.4	18.5	17.1	16.1	10.6***
Fair or poor rating of physician care					
Thoroughness of exam	7.3	11.9	8.5**	7.7	5.6**
Physician listening to patient	6.0	9.2	7.2	7.3	4.6***
Physician explaining things to patient	5.5	9.2	7.4	7.4	3.7***
Age					
18-34	28.0	31.0	37.6**	26.9	25.1
35-44	21.3	20.4	19.1	21.5	22.0
45-54	18.9	15.3	10.1***	22.8	21.1
55-64	13.6	13.2	8.2**	17.7	14.2**
65+	18.2	20.0	25.1**	11.2	17.6***
Gender					
Male	44.4	37.5	38.4	43.4	47.8***
Female	55.6	62.5	61.3	56.6	52.3***
Race/ethnicity					
White	73.5	60.7	55.7	77.7	80.1
Black	11.3	18.3	18.7	9.7	8.2
Hispanic	10.5	15.0	21.2	7.9	7.4
Other	4.7	6.0	4.4	4.7	4.4
Health insurance coverage					
Medicare	21.0	27.8	30.6	13.5	18.6***
Private insurance	59.7	40.9	20.4***	70.5	71.8
Medicaid/state coverage	5.1	8.2	20.4***	1.7	1.3
Other coverage	2.8	2.9	4.4	2.2	2.6
Uninsured	11.4	20.3	24.2**	12.3	5.8***
Family income					
<100% of poverty	11.3	40.6	37.8	–	–
100-199% of poverty	17.5	59.4	62.2	–	–
200-299% of poverty	17.0	–	–	38.6	20.8***
300-399% of poverty	14.0	–	–	23.9	18.8***
400% of poverty and higher	40.1			37.6	60.4***
Number of chronic conditions					
None	56.5	46.8	60.3***	48.1	59.7**
1 chronic condition	24.4	24.3	19.3**	28.2	24.8***
2 or more	19.1	28.8	20.3***	23.7	15.5***
Perceived general health					
Excellent or very good	56.0	37.8	44.6***	48.6	64.8***
Good	26.4	28.0	28.4	29.7	24.8***
Fair or poor	17.7	34.2	27.1***	21.7	10.4***

***Difference with high financial burden within income groups is statistically significant at 0.05 level*
****Difference with high financial burden with income groups is statistically significant at 0.01 level*
Source: 2003 Community Tracking Study Household Survey

disagreeing that the physician puts patients' needs above all other concerns was 1.40 ($p<0.01$) for persons with high medical cost burdens. The results are similar for the other measures of physician trust and perceived quality of care, in that the odds of lacking trust in their physician and more negative ratings of the quality of care are higher for persons with high medical cost burdens. Odds ratios for the association between high medical cost burden and measures of patient trust/perceived quality of care are consistent, ranging from 1.26 to 1.41, and all are statistically significant.

When examining differences by insurance coverage, the negative association among high medical cost burdens, patient trust, and perceived quality of care is more concentrated among privately insured persons (ages 18-64), and there were few statistically significant effects for the other insurance groups. For the privately insured, odds ratios associated with medical cost burdens on all measures of trust and perceived quality range from 1.36 to 1.77, and all are statistically significant at the 0.01 level.

Separate logistic regression models also were run for low income (less than 200% of poverty) and higher income persons, although differences by insurance coverage within income groups were not examined due to small sample sizes for some groups. The results—not shown in any of the tables—are similar for lower income and higher income persons.

DISCUSSION

Lower fiduciary trust in physicians' medical decision-making among those with high medical cost burdens includes perceptions of both overuse and underuse of services: patients with

Table 4. Odds Ratios for the Association of High Medical Cost Burden and Measures of the Patient-Physician Relationship*

Measures of physician trust	Odds ratios associated with having high medical cost burdens				
	All persons	Medicare (65 and over)	Privately insured (age 18-64)	Medicaid/ state coverage (age 18-64)	Uninsured (age 18-64)
Physician does not put my needs above all else	1.40*** (1.15, 1.70)	1.04 (0.65, 1.67)	1.77*** (1.32, 2.38)	0.98 (0.42, 2.28)	0.92 (0.68, 1.25)
Physician may not refer to specialist	1.39*** (1.22, 1.58)	1.03 (0.80, 1.35)	1.37*** (1.16, 1.63)	1.60* (0.96, 2.66)	1.31 (0.93, 1.84)
Physician performs unnecessary tests	1.39*** (1.20, 1.62)	1.12 (0.86, 1.45)	1.36*** (1.11, 1.68)	1.54 (0.80, 2.95)	1.43 (0.93, 2.20)
Perceived quality of last visit					
Fair or poor rating of thoroughness of care	1.26** (1.02, 1.56)	1.75*** (1.17, 2.62)	1.48*** (1.16, 1.87)	0.70 (0.39, 1.25)	1.50 (0.80, 2.83)
Fair or poor rating of physician listening	1.37*** (1.10, 1.70)	1.46 (0.88, 2.41)	1.50*** (1.15, 1.95)	0.86 (0.42, 1.75)	1.40 (0.81, 2.39)
Fair or poor rating of physician explaining things	1.41*** (1.11, 1.78)	1.22 (0.80, 1.88)	1.64*** (1.15, 2.34)	0.91 (0.49, 1.67)	1.38 (0.75, 2.53)

****p<0.01*

***p<0.05*

**95% confidential intervals in parentheses*

All results are based on logistic regression analyses that controlled for the following other factors: age, gender, family income relative to the poverty level, race/ethnicity, citizenship, perceived health status, number of chronic conditions, enrolled in HMO, changed insurance in prior year, changed regular source of care in prior year, site of regular source of care (physician office, hospital-based, clinic, other), sees same physician at regular source of care, propensity to visit doctor when sick, number of hospital beds per capita in county, number of primary care physicians per 1,000 persons in county, number of physician visits in prior year, number of emergency department visits in prior year, number of hospital inpatient nights in prior year, size of metropolitan area/nonmetropolitan area, and census region

Source: 2003 Community Tracking Study Household Survey

high burden are less likely to believe that their physician will refer them to a specialist (i.e., receiving fewer services than needed), while at the same time more likely to believe that their physician is performing unnecessary tests (i.e., receiving more services than needed). Such response patterns may reflect a consistent belief that the physician is more interested in financial gain from the patient than ensuring they are receiving appropriate and necessary services.

The negative association between high medical cost burdens and patients' trust and assessments of quality of care received was largest and most consistent for nonelderly adults with private insurance. High medical costs may provoke negative feelings among privately insured persons since there is an expectation that their coverage should protect them from incurring high costs. Uninsured and persons enrolled in Medicaid/ other state coverage generally have lower incomes, lower levels of fiduciary trust, and lower overall assessments of quality of care compared to privately insured persons, and therefore may be more accustomed to negative experiences with health care.

The fact that high medical cost burdens may lead to patient unhappiness and dissatisfaction with the health-care system is perhaps not surprising, but the crucial issue is whether lack of trust associated with high medical cost burdens is long-lasting and detrimental to care and compliance with medical regimens, as has been demonstrated in prior research[6-9]. Some medically related financial problems are temporary and therefore may not have serious or long-term consequences for patient care. However, some persons experience persistently high medical costs and out-of-pocket expenses, usually because of chronic conditions that require ongoing treatment.[21] Other research has shown that high financial barriers increase medication nonadherence, including among elderly with chronic conditions.[22,23]. The extent to which low levels of trust in the physician contribute to these lower compliance rates is unknown. Also, while efforts to strengthen the patient-physician relationship through greater patient-centeredness and stronger medical homes may improve patient trust in physicians, it is unknown whether these efforts can mitigate the negative consequences of high medical cost burdens or instead will be thwarted by them.

Because the results from this study are based on cross-sectional analyses, it is not possible to determine conclusively that high medical cost burdens actually cause lower trust and lower assessments of quality of care. It is possible that persons with less trust in physicians' medical decision-making increase their out-of-pocket costs through overuse or inefficient use of services, for example, by constantly seeking second and third opinions or having expensive tests rerun. However, this would suggest that lower trust leads to greater utilization rather than lower utilization of health care, which is contrary to previous research[6]. Moreover, the logistic regression analyses controlled for measures of health-care utilization, the inclusion of which had little impact on the results.

Another limitation of the analysis is that the survey did not include information on characteristics of the practice setting and the health plan that could also be correlated with high medical cost burdens, but are not controlled for in the analysis.

Greater understanding of the effects of high medical cost burdens on the patient-physician relationship is needed because out-of-pocket expenses are increasing for American families, especially for privately insured persons.[1] Also, many policymakers are advocating for Consumer Directed Health Care (CDHC), including high deductible health plans in which roughly the first $1,000 to $2,000 of health-care bills are paid entirely out of pocket or from a tax-advantaged Health Savings Account. Advocates believe that greater cost-consciousness

among patients will help to both lower health costs and improve quality of care. However, the extent to which greater cost-consciousness may also result in greater skepticism by patients about physicians' treatment recommendations is unknown.

High medical cost burdens among the population threaten not only the financial well-being of American families, but may also pose a threat to the patient-physician relationship. That the general public is highly concerned and aware of rising health-care costs is evident from public opinion polls.[5] Such concerns may translate into greater distrust of physician's motives in making medical decisions about their care when patients discover that their health insurance does not protect them from financially burdensome expenses. As policymakers consider the question of "affordable" health coverage, they also need to consider the impact on patient care of setting affordability standards too high.

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