Managed Care and Gender Disparities in Problematic Health Care Experiences

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Objective. To determine whether gender differences in reports of problematic health care experiences are associated with characteristics of managed care.

Data Sources. The 2002 Yale Consumer Experiences Survey ($N = 5,000$), a nationally representative sample of persons over 18 years of age with private health insurance, Interstudy Competitive Edge HMO Industry Report 2001, Area Resource File 2002, and the American Hospital Association Annual Survey of Hospitals 2002.

Study Design. Independent and interactive effects of gender and managed care on reports of problematic health care experiences were modeled using weighted multivariate logistic regression.

Principal Findings. Women were significantly more likely to report problems with their health care compared with men, even after controlling for gendered differences in expectations about medical care. Gender disparities in problem reporting were larger in plans that used certain managed care techniques, but smaller in plans using other methods. Some health plan managed care practices, including closed networks of providers and gatekeepers to specialty care, were associated with greater problem reporting among women, while others, such as requirements for primary care providers, were associated with greater problem reporting among men. Markets with higher HMO competition and penetration were associated with greater problem reporting among women, but reduced problem reporting among men. Women reported more problems in states that had enacted regulations governing access to OB/GYNs, while men reported more problems in states with regulations allowing specialists to act as primary care providers in health plans.

Conclusions. There are nontrivial gender disparities in reports of problematic health care experiences. The differential consequences of managed care at both the plan and market levels explain a portion of these gender disparities in problem reporting.

Key Words. Managed care, women, gender disparities, state regulation, competition

In 2003, 95 percent of persons with employer-sponsored health insurance were enrolled in some form of managed care (including HMOs, PPOs, and POS plans) (Kaiser Family Foundation 2003a). Although managed care has the potential to improve care by reducing fragmentation of care and focusing

on preventive care and disease management, it also has the potential to undermine appropriate care by altering treatment patterns and imposing barriers to care. The consequences of managed care practices can also affect the care of patients under conventional insurance, by changing practice norms or intensifying market pressures on practitioners (Baker 1997; Mukamel, Zwanziger, and Tomaszewski 2001; Glied and Zivin 2002).

The implications of managed care clearly differ depending on the characteristics of the enrolled population. Past research documents differing consequences for enrollees with chronic versus acute illness (Schlesinger, Druss, and Thomas 1999; Druss et al. 2000), with incomes above and below average (Miller and Luft 1997; Lillie-Blanton and Lyons 1998), for those covered by public versus private insurance (Rowland et al. 1995), as well as among different ethnic and racial minority groups (Phillips, Mayer, and Aday 2000; Lurie et al. 2003).

Although several studies have examined the effects of managed care on women specifically, relatively few have examined gendered differences in the effects of managed care (Collins and Simon 1996; Scott and Simon 1996; Wyn, Collins, and Brown 1997; Gonen 1999a, b; Weisman and Henderson 2001; Bartman 1996; Carlson 1997). Apart from the limited number of these studies, four factors limit our understanding of the differential effects of managed care on women and men.

First, most studies that examine the impact of managed care typically control for gender rather than assessing the differential effects of managed care on men and women (Blendon et al. 1998; Landon et al. 2001; Schlesinger et al. 2003). Among the few studies that have looked at the gendered impact of managed care, most present simple descriptive statistics or examine a single gender rather than exploring gender disparities.

Second, most studies that examine the impact of managed care on a women's health compare broad categories of managed care, including "HMOs" versus "fee-for-service" or "conventional insurance" (Bierman et al. 1998; Weinick and Beauregard 1997). This is problematic because substantial heterogeneity of administrative practices among similar forms of managed care plans limits the predictive value of comparisons between broad categories of insurance types (Hacker and Marmor 1999). Further, with fee-for-service

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insurers increasingly adopting managed care practices, comparisons between fee-for-service and managed care become less useful.

Third, measures typically used to assess the impact of managed care, most commonly measures of patient satisfaction, are not sensitive enough to identify underlying factors that drive overall assessments. Further, these measures may mask issues or problems that differ by gender. Finally, because the expansion of managed care has been accompanied by a shift in the nature of competition among health care providers (Melnick et al. 1992; Mukamel, Zwanziger, and Tomaszewski 2001) and regulatory responses by state governments, many of which are gender specific (Sloan and Hall 2002), to accurately identify the implications of managed care, it is important to measure and control for these other factors. Most prior research controls for neither market characteristics nor regulatory constraints, so that the coefficients on their managed care variables are capturing the combined effect of all of these factors.

This study addresses this gap in our knowledge of the effects of managed care by examining the impact of different aspects of managed care, including health plan practices, managed care market characteristics, and state policies regulating managed care plans on men and women. We begin by examining actual reports of problematic health care experiences to better understand specific issues and problems facing women and men using the health care system. We identify the particular problems for which there are gender disparities and identify the extent of these disparities associated with managed care practices, market characteristics, and state regulatory policies. In this way, the study aims to provide new insights into the underlying causes of gender disparities in health care.

WHY MANAGED CARE MAY AFFECT MEN AND WOMEN IN DIFFERENT WAYS

Women and men have different health care needs. Compared with men, women's health needs are more complex and change over their life's course, often requiring multiple providers and specialists (Bierman and Clancy 1999). Studies document that women who do not have access to multiple providers, including both women's health specialists and general practitioners, are at risk for less comprehensive preventive, acute, and chronic care services (Weisman 1996; Moy et al. 1998). Women also have fewer resources to address their health care needs. Rising health care costs have a disproportionate impact on

women—even those with health insurance—because of their lower socioeconomic status (Salganicoff et al. 2002). Studies show that among nonelderly women, cost of care presents a significant barrier to access, resulting in unmet need and unstable connections with providers (Salganicoff, Wyn, and Solis 1998).

Given these distinctive gendered differences in health care needs, patterns of utilization, and financial circumstances, managed care could either exacerbate or diminish disparities. And its effects may be quite different, operating at the level of the plan, the market, or in terms of regulatory responses to the spread of managed care.

Gender and Specific Managed Care Practices

For women, some features of managed care plans, such as greater use of primary care providers and limited cost sharing, may be beneficial by improving identification of those in need of specific services, enhancing continuity of care, and reducing financial barriers to service that exist in a fee-for-service system (Collins and Simon 1996; Scott and Simon 1996). Indeed, studies of women enrolled in managed care plans show that they are less likely to cite problems with out-of-pocket costs (Wyn, Collins, and Brown 1997). However, managed care may also restrict provider choice or impose additional charges for out-of-network providers. Because women have greater need for specialists trained to address their specific health concerns, and have limited financial resources, these managed care practices may have disproportionate adverse effects compared with men (Lamp and Frommer 1996).

We therefore hypothesize that managed care requirements that more effectively coordinate care, such as mandates to select a primary care provider, will help women to deal with their more complex patterns of health care use and thus reduce disparities. Conversely, requirements that inhibit referrals, such as gatekeeper or prior authorization requirements, are likely to exacerbate gendered disparities, particularly related to access to care. Finally, closed panel plans are likely to have an ambiguous effect, as they may, on the one hand, restrict access to specialists but may, on the other, identify specialists willing to treat enrollees and thus ease referrals and enhance patient choice.

Gender and the Market-Level Impact of Managed Care

Market-level factors will alter the intensity of managed care effects. Because we cannot predict which of the mixed effects of managed care practices will be more consequential, we cannot determine whether increasing the impact of

managed care will on balance increase or decrease the magnitude of gender disparities. But we can predict the relative impact of different market factors. Whether managed care increases or decreases gender disparities, one would expect that the magnitude of this effect will be amplified as the market share of managed care increases, as this gives plans more leverage over clinician practices (Glied and Zivin 2002) and intensifies the normative pressures for changing practice patterns (Mukamel, Zwanziger, and Tomaszewski 2001). Conversely, as managed care market becomes more competitive, the bargaining position of practitioners is enhanced, allowing them to more effectively protect their clinical autonomy and reducing the magnitude of managed care influence on gender disparities.

Managed Care Regulation and Gender Disparities

Although managed care regulations address a variety of aspects of managed care practices (Noble and Brennan 1999; Sloan and Hall 2002), we expect that those regulations targeted to easing referrals from primary care to specialists will have the largest effects in ameliorating gender disparities, given the greater frequency with which women make use of specialist providers (particularly OB/GYNs).

METHODS

Data

We use data from a new survey of 5,000 Americans, the Consumer Experiences Survey (CES), which collected information on consumer health care experiences (including experiences with their health plan, hospital care, and physician care), their expectations of health care, as well as the characteristics of their health plan. The survey was designed by investigators from Yale University and The New York Academy of Medicine.

Sampling Methods. The sample population for the survey included all Americans with health insurance.¹ Because the survey was designed to study a variety of questions, some of which required information from geographic areas with particular characteristics, a two-tiered design was used. One thousand of the 5,000 respondents were drawn from a simple random sample of the American population. The remaining four thousand respondents were drawn from a random sample of 67 metropolitan statistical areas

(MSAs) located in 15 different states that met these other geographical criteria (Schlesinger et al. 2004).

The person in the household selected for the interview was the one who had been identified as “most knowledgeable about the family’s health care.” Because women tend to be more aware of the health care needs and use of family members than are men (Schlesinger and Heldman 2001; Salganicoff et al. 2002), this produced a sample that contained a greater number of women (66 percent) than men. To increase the number of respondents with recent health care experiences, the survey oversampled persons with particular health conditions. Sixty-nine percent of the sample had at least one of these conditions requiring them to use medical care during the previous year.

Fielding the Survey. The survey was completed by telephone between June 26 and September 20 of 2002.² A total of 5,000 respondents were interviewed, with the average length of interview being approximately 30 minutes. The cooperation rate, which describes the proportion of potential survey respondents who participated once contacted in person, was 49.5 percent. These rates have been calculated according to industry standards developed and published by the American Association for Public Opinion Research.

Other Data. Health plan characteristics were identified from several sources including the Interstudy HMO Directory, the Health Plan Insurance Association of America Sourcebook, and Best’s Guide to Health Plans. Market characteristics, including HMO penetration and HMO competition, come from the 2002 Interstudy Competitive Edge Regional Market Analysis. State-level regulations, including direct access to specialists and ability to designate an OB/GYN as a primary care provider, were obtained from the Yale State Regulation of Managed Care Project.

Variables

Dependent Variables. Our main outcome variables are based on respondent’s reports of problematic health care experiences. Although experiential reports have not been used in past studies of disparities, previous research suggests that information of this sort can be reliably reported by consumers (Paulson 2002; Sofaer 2002). Comparable data on patient experiences have been shown to be accurate indicators of quality of care and predictors of clinical outcomes associated with care (Longo et al. 1997).

Respondents were asked a series of 15 questions about different types of problems they may have experienced with their health care in the previous 12 months. The question wording was derived from questions included in previous surveys including the Kaiser CES 2001 (Kaiser Family Foundation 2000) and the Consumer Assessment of Health Plans Survey (CAHPS 1998).

Based on these 15 individual types of problematic experiences, five dichotomous outcome variables were constructed. Two outcome variables measure the overall burden of problem experiences: (1) having experienced *any type* of problem, and (2) a count of the *total number of problems* experienced.

The final three outcome variables measure different categories of problematic experiences, including problems related to *medical care*, *insurance coverage*, and *access*. These measures were created based on factor analysis of the individual 15 problems. The correlation among the three factors ranged from 0.31 to 0.37. Problems related to medical care include: quality, delays, inability to get referrals, misunderstanding or disagreements about treatment, unanswered questions about treatment, treated with disrespect, and decline in health ($\alpha = 0.76$). Problems related to coverage include the following: lack of coverage for needed treatment, misunderstanding over coverage, questions unanswered about coverage, inability to afford cost, and problems with billing or paperwork ($\alpha = 0.71$). Problems related to access include the following: unmet need, denied access to specialists, and problems getting needed medication ($\alpha = 0.62$). Based on these 15 individual types of problematic experiences, four dichotomous and one continuous outcome variables were constructed.

Health Plan Managed Care Practices. Respondents were asked about the presence of four specific managed care practices in their health plan. These practices included the following: (1) closed network of providers/co-payments for out-of-network services, (2) primary care provider requirement, (3) gatekeeper/referrals for specialist care, and (4) prior approval for treatment or services. Managed care practices were coded as individual dichotomous variables equal to one if the respondent indicated the presence of the practice in their health plan. Because these measures are based on respondent reports, it is important to control for differential knowledge of managed care practices among respondents (Cunningham, Denk, and Sinclair 2001).³ To do this, we created an additional continuous variable measuring the number of managed care practices for which respondents indicated that they “did not know” whether their health plan utilized such a practice.

Market-Level Factors. We assess the impact of market-level managed care penetration and competition. Markets were defined as the MSA. Following previous work, managed care penetration was defined as the proportion of the population enrolled in an HMO (includes commercial, Medicare, and Medicaid HMOs), and managed care competition was the number of HMOs serving the market (Wholey et al. 1997).⁴ Following prior work examining the effects of managed care penetration on patient outcomes (Bundorf et al. 2003), we used categorical rather than continuous measures of market characteristics, identifying three levels of penetration (<10 percent; ≥ 10 percent and <40 percent; and ≥ 40 percent) and competition (<5 HMOs; ≥ 5 and ≤ 15 ; and >15).

State-Level Regulations. We examine two state-level policies that may be associated with gendered differences in the impact of managed care. The first mandates direct access to an OB/GYN, allowing women to make at least one visit per year to an OB/GYN without a referral from a primary care physician. The second allows specialists to be designated as primary care providers, enabling some patients⁵ access to other designated specialists without referrals. Both measures were coded as dichotomous variables indicating the presence of state regulation in the respondent's state.

Role of Expectations. Previous research on enrollee satisfaction with health care suggests that consumers' evaluation of their experiences—more specifically in this context, their recognition of problems—will depend on their expectations for medical care (Thompson and Suñol 1995). All else equal, one would expect that those who have high expectations will be more likely to report problems. Because expectations of care may well differ by gender, it is essential to control for expectational differences between men and women to accurately determine how managed care may affect their experiences with health care. We therefore include a measure of health plan expectations in our analyses, as discussed in the section on statistical methods.

Other Control Factors. Prior survey research measuring satisfaction with health plans suggests that respondent characteristics, including age, race/ethnicity, educational attainment, and health status, affect reported levels of satisfaction with health plans (Clearly, Zaslavsky, and Cioffi 1997; Schlesinger, Druss, and Thomas 1999). Because these factors may affect the reporting of health

care experiences, we statistically control for the following respondent characteristics: age, race/ethnicity, educational attainment, and health status. We also included measures of household income and employment status as additional control variables, as financial consequences of problems may be related to the respondent's ability to pay his or her medical bills.

Age, education, and household income are measured as continuous variables. Respondents' race/ethnicity, education, and employment status are categorical variables measured as dichotomous variables representing each level. Race/ethnic categories include African Americans, Hispanics, Asians, and non-Hispanic whites (reference group). Employment status categories include full-time, part-time, not currently working, and retired (reference group).

We included three measures of health status. Self-reported health was measured using the conventional five-point scale. The presence of a chronic illness or disability was included as separate dichotomous variables indicating whether the respondents reported having been diagnosed with any one of seven chronic conditions including heart disease or stroke, mental illness, cancer, diabetes, chronic breathing disorder, chronic back problems, or HIV/AIDS, or reported having a disability, handicap, or long-term disease that prevented them from participating fully in work, school, housework, or other activities.

To control for differences in health insurance associated with type of provider, we include the respondent's source of health insurance measured by a set of dichotomous variables indicating whether the patient has employer-sponsored insurance, Medicare, Medicaid, or has an individually purchased policy (reference group), health plan ownership, whether they chose health plans at the time of enrollment, and the number of years enrolled in the plan.

Because differential exposure to the health care system could influence problem reporting, we control for family size (number of persons in the household) and whether the respondent has had any hospital encounter (inpatient or outpatient) in the past 12 months. Additionally, we include measures of social support⁶ and problem-solving capacity⁷ that may affect both the likelihood of experiencing problems and the ability to deal with such problems.

Statistical Methods

We use logistic regression to estimate the relationship among health plan managed care practices, market structure, and state-level regulations on problematic

health care experiences among men and women. More specifically, logistic regressions were used with dichotomous outcome variables and ordered logistic regression with the continuous outcome variable (number of problems experienced).⁸ To account for the sampling design that oversampled for persons with health conditions and geographic areas, we weighted the models back to the sample populations.

To control for differences in health care expectations that may be related to gender and could distort reports of problematic experiences, we incorporated a measure of predicted expectations of health plans for each respondent into these models (we used the predicted value to avoid problems of reverse causality, in which problem experiences *produce* more pessimistic expectations). To construct these predicted values, we estimated an ordinary least squared regression model of respondent's expectations of health plan behavior⁹ as a function of demographic and socioeconomic characteristics that have been shown to affect individual attitudes (Thompson and Suñol 1995), including age, education, income, race, primary language, whether the respondent is native to the U.S., and geographic region of residence. Also included in the model are health care-specific experiences, including the respondent's degree of concern about medical care, whether they have been diagnosed with chronic condition or disability, had been to the hospital for inpatient or outpatient treatment in the past 12 months, had worked in a health care organization, and the length of time they had been enrolled in their current health plan.

To determine the impact of managed care practices, market structure, and state regulations on problematic health care experiences, we first modeled each outcome measure controlling for gender to determine the magnitude and significance of gender disparities in problematic health care experiences. We then estimated the same models among subgroups of women and men to determine whether the impact of different aspects of managed care on problematic health care experiences differs by gender. Significant differences in the coefficients on managed care variables between women and men were calculated using a chow test.

RESULTS

Problem Reporting

Table 1 presents the raw percentages of problem reporting among women and men. Over half of all women and men reported experiencing at least one

Table 1: Respondent Reports of Problematic Health Care Experiences by Gender

	Women (%) [*]	Men (%) [*]	Significant <i>p</i> -Value [†]
Overall problematic health care experiences			
Experienced any problem	55.9	50.6	.0004
Number of problems experienced	2.1	1.8	.0008
Experienced any problem related to medical care	37.3	31.6	< .0001
Experienced any problem related to health insurance	43.4	40.2	.0299
Experienced any problem related to access to care	22.6	18.7	.0014
Medical care problems			
Experienced a serious problem with the quality of medical care	8.6	7.5	
Experienced long delays in getting an appointment when sick	15.6	13.9	.0196
Experienced delays in getting referrals to specialists	10.6	9.6	< .0001
Disagreement or misunderstanding about the type of treatment that was needed	9.5	7.9	.0011
Difficulty getting someone to answer questions about medical care	13.8	11.4	.0307
Treated in a manner that was insensitive or disrespectful	13.7	8.9	< .0001
Health problem became unexpectedly worse in a way that seriously affected well-being	12.4	9.3	.0025
Health insurance problems			
Told that insurance did not cover a necessary treatment or service	22.7	20.1	.0019
Misunderstanding over which health services were covered by your insurance plan	15.0	14.8	
Difficulty getting someone to answer questions about health insurance	13.7	14.4	
Asked to pay more for your medical services than could afford	15.2	10.9	
Experienced problems with paperwork regarding billing or payment for services	23.1	23.0	
Access to care problems			
Unable to obtain medical care believed was needed	11.0	8.3	
Unable to see a specialist appropriate for a given condition	11.2	10.3	
Unable to obtain a specific medication needed	12.5	9.5	

^{*}Value represents the proportion of respondents who reported experiencing the problem. Values for the total number of problems represents the average number of problems reported.

[†]*p*-value derived from *t*-test of differences in proportions.

problem with their health care in the previous 12 months. Rates of problem reporting were similar to the Kaiser CES in 1999 (Kaiser Family Foundation 1999). In the Kaiser survey, 49 percent of respondents reported experiencing a problem with their health care. Women were more likely to report any problematic health care experience ($p < .01$) as well as a higher average number of problematic experiences ($p < .01$) compared with men. The largest difference in problem reporting was among problems related to medical care ($p < .01$), followed by problems related to access and health insurance.

Among specific types of problems related to medical care, the largest differences in reporting between women and men included experiencing difficulty in obtaining answers to questions about medical care, being treated in a manner that was insensitive or disrespectful, and experiencing an unexpected serious decline in health. Among problems related to health insurance, women reported more problems associated with lack of coverage and cost compared with men. Among problems related to access, women reported more problems related to unmet need and inability to obtain medications compared with men.

Managed Care

Table 2 displays the descriptive statistics for managed care characteristics among women and men. The majority of men and women report that their health plan uses all four managed care practices measured in the survey. Men were more likely to report requirements for primary care providers and gatekeepers compared with women. Among market characteristics, women were slightly more likely to reside in geographic areas characterized by moderate (10–40 percent) HMO penetration, while men were slightly more likely to reside in areas with high (> 40 percent) HMO penetration. The majority of men and women lived in states with managed care regulations in place allowing women to designate an OB/GYN as their primary care provider, although less than half lived in states with regulations allowing direct access to specialists (without referral).

Multivariate Analysis

Tables 3 presents odds ratios from logistic models estimating the independent effects of managed care characteristics controlling for gender, other demographic and socioeconomic characteristics, health status, measures of health care knowledge, and predicted health care expectations. There are significant gender disparities in problem reporting. Women were significantly more

Table 2: Managed Care Characteristics by Gender

	Women (%)	Men (%)	Significant <i>p</i> -Value*
Health plan managed care practices			
Closed network of providers	71.6	70.2	
Primary care provider required	64.8	68.3	.0157
Gatekeepers	64.0	68.6	.0010
Prior approval for treatment	71.7	69.4	
Market characteristics			
Low HMO competition [†]	20.8	21.1	
Medium HMO competition	41.4	42.0	
High HMO competition	37.7	36.9	
Low HMO penetration [‡]	8.7	8.8	.0281
Medium HMO penetration	59.3	56.4	.0237
High HMO penetration	31.9	35.1	
State-managed care regulations [§]			
OB/GYN as primary care provider	76.5	79.0	.0476
Direct access to specialists	39.5	37.0	

**p*-value derived from *t*-test of differences in proportions.

[†]HMO penetration based on % population in MSA enrolled. Low (<25%), medium (25–40%), high (>40%).

[‡]HMO Competition based on the number of HMOs in operating in the MSA. Low (<10), medium (11–15), high (16+).

[§]State-level regulations based on the presence of regulation in the state in which the respondent resides.

likely to report experiencing any problem (OR = 1.2, $p < .01$), a greater number of problems (OR = 1.2, $p < .001$), and problems related to medical care (OR = 1.3, $p < .001$) and health insurance coverage (OR = 1.2, $p < .01$) compared with men. Health plan managed care practices were also associated with problem reporting, although not all increased problem reporting. Closed networks of providers, use of gatekeepers, and requirements for prior approval were associated with significantly more frequent reports of problems. By contrast, requirements for primary care providers were associated with fewer reports of problems overall, although more frequent problems related to access.

Geographic areas characterized by higher levels of HMO penetration were associated with greater problem reporting, while the impact of HMO competition was relatively flat and, in the case of coverage-related problems, was associated with fewer reports of problems in this area. State-level managed care regulations seemingly had little effect on reports of problematic health care experiences overall, and actually displayed a positive relationship with problems related to medical care.

Table 3: Association between Gender, Managed Care, and Problematic Health Care Experiences

Respondent Characteristics	Prevalence of Problems				Types of Problems			
	Any Problem		Number of Problems		Care Problem		Coverage Problem	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Female	1.2	[1.04 1.39]**	1.2	[1.09 1.42]***	1.3	[1.10 1.52]***	1.2	[1.04 1.41]**
Health plan managed care practices								
Closed network of providers	1.2	[1.04 1.44]**	1.3	[1.19 1.58]***	1.3	[1.15 1.65]***	1.3	[1.13 1.57]***
Require selection of primary provider	0.7	[0.64 0.88]***	0.8	[0.77 1.03]	1.0	[0.85 1.21]	0.7	[0.61 0.85]***
Gatekeeper requirements for referrals	1.3	[1.18 1.62]***	1.3	[1.18 1.56]***	1.3	[1.16 1.64]***	1.1	[0.96 1.32]
Prior approval for treatment	1.1	[0.98 1.33]	1.3	[1.20 1.58]***	1.0	[0.84 1.19]	1.5	[1.29 1.79]***
Managed care market characteristics								
High HMO competition	0.8	[0.73 1.07]	0.9	[0.80 1.12]	0.9	[0.78 1.18]	0.7	[0.60 0.90]**
Medicaid HMO competition	1.0	[0.85 1.21]	1.1	[0.94 1.28]	1.1	[0.97 1.41]	0.7	[0.62 0.89]***
High HMO penetration	1.5	[1.20 1.88]***	1.2	[1.05 1.56]**	1.3	[1.08 1.76]**	1.3	[1.11 1.75]***
Medicaid HMO penetration	1.5	[1.25 1.85]***	1.3	[1.11 1.57]***	1.3	[1.09 1.68]**	1.7	[1.43 2.13]***
Managed care regulatory policies								
Direct access to OB/GYN	1.1	[0.95 1.33]	1.0	[0.94 1.27]	1.3	[1.08 1.57]**	0.9	[0.83 1.17]
Specialist as primary care provider	1.0	[0.89 1.20]	1.0	[0.91 1.17]	1.0	[0.91 1.25]	1.0	[0.87 1.18]

Odds ratios from logistic regression models weighted to the sample population. All models control for respondent demographic and socioeconomic characteristics, health status, insurance characteristics, and geographic region.

Reference group for managed care market characteristics are low HMO competition and low HMO penetration.

Significance:

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 4: Association between Managed Care and Overall Problematic Health Care Experiences by Gender

	Any Problem				Number of Problems			
	Women		Men		Women		Men	
	OR	95% CI, Significance	OR	95% CI, Significance	OR	95% CI, Significance	OR	95% CI, Significance
Health plan managed care practices								
Closed network of providers	1.4	[1.16 1.74]*** a	0.9	[0.72 1.27]	1.6	[1.34 1.91]*** a	1.0	[0.82 1.37]
Require selection of primary provider	0.6	[0.54 0.82]*** a	0.9	[0.69 1.21]	0.8	[0.70 1.00]* a	1.0	[0.83 1.39]
Gatekeeper requirements for referrals	1.4	[1.17 1.75]*** a	1.1	[0.86 1.52]	1.3	[1.14 1.61]***	1.1	[0.90 1.52]
Prior approval for treatment	1.2	[1.00 1.48]*	1.0	[0.79 1.37]	1.4	[1.20 1.69]***	1.4	[1.09 1.80]**
Managed care market characteristics								
High HMO competition	0.9	[0.75 1.22]	0.8	[0.60 1.22]	0.9	[0.74 1.13]	1.0	[0.75 1.39]
Medicaid HMO competition	1.2	[1.03 1.62]* a	0.7	[0.52 0.97]*	1.3	[1.13 1.64]*** a	0.7	[0.56 0.99]*
High HMO penetration	1.6	[1.24 2.19]*** a	1.2	[0.84 1.84]	1.4	[1.12 1.81]*** a	0.9	[0.68 1.37]
Medicaid HMO penetration	1.6	[1.27 2.07]***	1.2	[0.91 1.83]	1.4	[1.13 1.74]***	1.0	[0.77 1.43]
Managed care regulatory policies								
Direct access to OB/GYN	1.3	[1.07 1.62]** a	0.7	[0.55 1.03]	1.1	[0.97 1.38] a	0.8	[0.61 1.08]
Specialist as primary care provider	0.9	[0.75 1.08] a	1.4	[1.08 1.82]**	1.0	[0.85 1.17] a	1.3	[1.07 1.70]**

Odds ratios from logistic regression models weighted to the sample population. All models control for respondent demographic and socioeconomic characteristics, health status, insurance characteristics, and geographic region.

Reference group for managed care market characteristics are low HMO competition and low HMO penetration.

Significance:

* $p < .05$;

** $p < .01$;

*** $p < .001$.

a—significant difference between women and men, linear hypothesis testing χ^2 ; $p < .05$.

Table 5: Association between Managed Care and Types of Problematic Health Care Experiences by Gender

	Care Problem			Coverage Problem			Access Problem		
	Women	Men		Women	Men		Women	Men	
	OR	95% CI, Significance	OR	95% CI, Significance	OR	95% CI, Significance	OR	95% CI, Significance	
Health plan managed care practices									
Closed network of providers	1.4 [1.16 1.80]***	1.4 [1.01 2.04]*	1.5 [1.27 1.92]***	a 0.8 [0.64 1.18]	1.0 [0.80 1.33]		0.9 [0.61 1.40]		
Require selection of primary provider	0.8 [0.69 1.08] a	1.5 [1.08 2.15]**	0.7 [0.61 0.93]**	0.6 [0.49 0.90]**	1.2 [0.96 1.63] a		1.8 [1.22 2.84]**		
Gatekeeper requirements for referrals	1.4 [1.15 1.77]***	a 0.9 [0.68 1.36]	1.0 [0.83 1.24] a	1.2 [0.92 1.70]	1.8 [1.42 2.41]***		1.5 [1.01 2.32]*		
Prior approval for treatment	0.8 [0.70 1.06] a	1.5 [1.12 2.20]**	1.6 [1.32 1.97]***	1.4 [1.04 1.88]*	0.8 [0.66 1.09] a		1.5 [1.02 2.28]*		
Managed care market characteristics									
High HMO competition	0.8 [0.69 1.15]	1.1 [0.77 1.69]	0.7 [0.60 0.99]*	0.7 [0.49 1.04]	1.0 [0.75 1.38] a		1.5 [0.96 2.36]		
Medicaid HMO competition	1.3 [1.07 1.70]**	a 0.9 [0.63 1.30]	0.7 [0.63 0.99]*	0.7 [0.50 0.98]*	1.7 [1.31 2.23]***		a 0.6 [0.41 1.01]*		
High HMO penetration	1.3 [1.02 1.87]*	1.3 [0.82 2.10]	1.5 [1.17 2.06]**	a 1.0 [0.69 1.60]	2.1 [1.47 3.08]***		a 0.8 [0.48 1.49]		
Medicaid HMO penetration	1.3 [1.05 1.81]**	1.0 [0.72 1.63]	1.7 [1.37 2.25]***	1.6 [1.13 2.35]**	1.6 [1.19 2.36]**		a 1.2 [0.75 1.94]		
Managed care regulatory policies									
Direct access to OB/GYN	1.4 [1.13 1.77]***	a 0.9 [0.65 1.38]	1.0 [0.84 1.28] a	0.7 [0.55 1.07]	0.9 [0.75 1.26]		0.9 [0.63 1.51]		
Specialist as primary care provider	0.9 [0.79 1.18] a	1.5 [1.15 2.08]**	0.8 [0.74 1.08] a	1.4 [1.10 1.92]**	1.0 [0.80 1.26] a		0.7 [0.53 1.10]		

Odds ratios from logistic regression models weighted to the sample population. All models control for respondent demographic and socioeconomic characteristics, health status, insurance characteristics, and geographic region.

Significance:

* $p < .05$;

** $p < .01$;

*** $p < .001$.

a—significant difference between women and men, linear hypothesis testing χ^2 , $p < .05$.

Tables 4 and 5 examine the differences in the impact of managed care on problem reporting among women and men. When interpreting these findings, it is important to distinguish between coefficients that are statistically different from zero for either men or women (identified by the asterisks in each column) and those for which there is a statistically significant gender difference (identified by an “a” in the column reporting the coefficients for women). For example, the findings for the number of problems reported in Table 4 indicate that although prior approval requirements increase the count of problems reported by both men and women, it does not produce a gender disparity. By contrast, regulations requiring direct access to OB/GYNs are not significantly related to either more problems for women or fewer ones for men, but are associated with a significant increase in the size of the gender gap for this outcome.

Overall, women appeared to experience managed care in distinctly different ways than did men. Most health plan managed care practices are associated with significantly greater problem reporting among women than men, with the exception of requirements for primary care providers, which seems to reduce problem reporting among women. Gender disparities in the impact of these practices are even more pronounced for specific types of problems (Table 5). Among problems related to medical care, being enrolled in a health plan that has a closed network of providers was associated with similar levels of increased problem reporting among both women and men. However, gatekeeping mechanisms only increased problem reporting among women, and requirements for primary care providers and prior approval only increased problem reporting among men. Among problems related to health insurance coverage, women reported significantly more problems associated with closed panel plans, whereas men reported more problems related to access associated with designated primary care providers and prior approval requirements.

Gender differences in the effect of market characteristics were also evident, but are more complex than anticipated. We had expected that competition and penetration would work in opposite directions. That is, what we find at high levels of each (penetration associated with more problems, competition with fewer) and for the experiences of male enrollees (more problems with moderate levels of penetration, but fewer problems with moderate levels of competition). However, for women, moderate levels of competition are associated with an increased level of problems, so that both competition (moderate) and penetration (high) are associated with larger gender disparities.

The impact of state regulations displayed perverse effects. In states providing direct access to OB/GYNs, women reported significantly more problems compared with men, particularly associated with problems related to medical care. In contrast, policies allowing specialists to be designated as a primary care provider were associated with greater problem reporting among men, especially related to medical care and health insurance coverage, but displayed no effect on women.

DISCUSSION AND CONCLUSION

This is the first study to examine gender disparities in consumer-reported problems and the impact of managed care on those experiences. Controlling for both health plan characteristics and health care expectations, we found significant gender disparities in the likelihood of experiencing problems with health care. Gender differences in problem reporting appear to be larger for at least certain types of problems when plans have closed panels and gatekeeper requirements, but may be ameliorated for certain problems by requirements for a designated primary care provider or prior approval for referrals. Both increased managed care penetration and competition may exacerbate gender disparities, whereas managed care regulations may either enlarge or diminish such disparities.

These findings must be interpreted in light of some methodological considerations. Because women are greater users of the health care system and may have differential knowledge or expectations compared with men and expect, gender disparities in reports of problematic health care experiences may be a function of these differences. Although we are unable to control for differential use of health care in the data, if observed gender disparities were simply the result of more health care encounters, they ought to be evident across all types of problems and the effects of managed care should be consistent. In fact, we found differential effects for particular types of problems and aspects of managed care that cannot be a consequence of generic gender differences in encounter rates. Further, because we controlled for differences in health care knowledge, exposure to the health care system,¹⁰ and health care expectations, observed gender disparities are net of these explanatory factors. However, if differences in attitudes that men and women bring to medical care are not fully captured in our control variables, there may remain subtle differences in reports of problems that are driven by attitudinal rather than experiential differences.

With regard to the effects of managed care on problem reporting, self-reports of health plan managed care practices may contain bias. This may be especially problematic for managed care practices that are less reliably observed, such as requirements for prior approval (Cunningham, Denk, and Sinclair 2001). Because the accuracy of such reports is key to determining its impact on performance, the findings of this study may not reflect the actual degree to which plan characteristics affect consumer experiences. However, our results would be biased only if men and women *differentially* reported these plan features. Because the standard errors on these variables are similar between men and women, there is little evidence regarding gendered differences in the accuracy of reporting. Nonetheless, future studies should compare the impact of health plan managed care practices on consumer-reported problems based on data from health plans identifying the managed care practices that they use.

Finally, because the data are cross-sectional, the true impact of state-level policies regulating managed care may not be captured by the data. On the contrary, the apparently perverse findings reported here for regulations may reflect a process in which states with the most prevalent problems are most likely to adopt particular types of regulations. Studies examining the effects of state-level policies on women's health care should use longitudinal data to determine whether they are effective in reducing gender disparities in health care, by contrasting levels of problems reported before and after regulations are adopted. Nonetheless, it is curious that these regulations appear to have a differential effect on men and women, which one would not expect if the results were capturing interstate differences in regulatory adoption.

Questions for Future Research

Despite these limitations, we believe that our findings are reasonably robust and raise a variety of issues for future research into both gender disparities and managed care. The findings for specific managed care practices and managed care regulations make sense, given the higher rate at which women are referred for specialist care. But the findings related to the market-level effects of managed care were less predictable and are less readily understood. More competitive markets do not appear to improve the performance of health plans. But why are these negative effects concentrated among care-related problems for men, and access-related problems for women?

Given the limitations of our cross-sectional data, we may only speculate as to possible explanations. It is possible that in more competitive markets,

health plans impose more administrative barriers to higher-cost specialist care and there are gendered differences in enrollees' response to these barriers. Alternatively, in more competitive markets plans are pressured to more stringently contain their costs. If there are gendered differences in the nature of higher-cost cases, these constraints may then be experienced as different types of problems by men and women.

The measured effects of managed care penetration are even more striking, albeit puzzling. Past research shows that the expanded presence of managed care plans in a particular locality can affect the performance of fee-for-service providers practicing in that community. But why should this have the opposite effects on access and care for men and women? One possibility is that the presence of managed care may affect the mix of specialists willing or able to practice in that community. If the specialties "driven out" of particular communities by managed care are disproportionately those used by female patients, these sorts of supply side effects could produce the pattern of findings that are evident in our regression models.

Policy Implications

The findings presented here shed new light on the nature and causes of gender-related differences in health care experiences. The greater number of problems reported by women is consistent with prior research indicating that gender disparities in treatment are real and not trivial. Because the underlying factors involved in gender disparities are not well understood and there is little empirical research in this area, policy makers have little information to address the problem. We need better ways to assess quality of care across different aspects of managed care that are designed to be gender specific. The Health Plan Employer Data Information Set, considered the national standard for assessing clinical performance in managed care plans and a tool for consumers to choose between plans, now contains measures that focus on women's health. However, they are quite limited and may overlook key factors that affect health care for women (McKinley et al. 2001).

Improving consumerism, however, may not be sufficient to reduce gender disparities and improve health care experiences (Gabel et al. 2004). If consumers were well informed or able to choose between plans based on their individual needs and situation, consumerism concerns would be less salient. However, because some consumers have tenuous connections to the health care system and are in less of a financial position to make choices in their health care providers, particularly vulnerable groups of women, relying on

consumerism may not be an appropriate policy solution. Greater consumer protection by policy makers may help patients, especially vulnerable groups of patients like chronically ill women, access the types of care they need in managed care environments.

To accomplish this, policy makers require greater understanding of the nature of the distinctive problems that are salient to both men and women. Although this study provides evidence that can further clarify our understanding of the why women are less satisfied with managed care, more research is clearly needed. Particularly, there is a need for more data that would allow us to understand why other aspects of managed care, like market structure, seems to have different effects on men and women's health care experiences.

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NOTES

1. Private health insurance coverage included persons enrolled in private plans that had contracted with either the Medicare or Medicaid programs to provide coverage to their beneficiaries. In our study, 9.8 and 2.6 percent of our respondents were covered by these two programs, respectively.
2. As with all random-digit-dialed household telephone-based surveys, this sample is limited to persons living in households with a landline (i.e., wired, fixed) telephones. Therefore, it excludes respondents who have substituted wireless telephones for residential landline telephones. In 2003, among civilian non-institutionalized adults, 3.0 percent had only wireless telephones (Luke, Blumberg, Cynamon, 2004). Characteristics of this population are younger, lower income, uninsured, have more financial barriers to health care, and are more likely to report excellent or very good health.
3. Cunningham and colleagues (2001) note that people tend to misperceive the external review feature in their health plan. Even if there are biases in reporting about external review, one would not expect these biases to be different for men than for women.
4. Because there is no generally accepted empirical measure of competitive market structure, the number of HMOs has two empirical advantages over a Herfindahl index. First, it does not have to be constructed from prorated HMO enrollment

data. Second, it is less likely to be endogenous because it does not depend on HMO enrollment (Wholey et al. 1995). Wholey et al. (1995) used the number of HMOs versus a Herfindahl index in their study of market structure and premiums because they believed it was a better measure of premium elasticity due to product differentiation and cooperative behavior on the part of HMOs.

5. In most states, this law applies only to persons diagnosed with chronic illnesses who require ongoing care from a specialist provider.
6. Social support is measured by an index ($\alpha = 0.81$) based on two survey items asking respondents about the availability of family and friends for problem solving and decision making.
7. Problem-solving capacity is measured by an index ($\alpha = 0.78$) of health care knowledge based on four survey items asking respondents about their ability to address particular problematic situations.
8. We used ordered logistic models for this variable to ease the comparison with our other outcome variables. Results did not differ when this model was estimated as either an OLS or Poisson's regression, which are the more common specifications for count variables.
9. Respondent's expectations of health plan behavior were measured as an index based on the following five survey questions: "How many health plans, (1) provide access to high quality care, (2) provide all necessary tests and procedures regardless of cost, (3) overcharge for health insurance, (4) treat all enrollees fairly regardless of race, and (5) treat enrollees like a person rather than a number?" Responses were measured on a four-point scale indicating whether the respondent thought that "all," "most," "some," or "no plans" exhibit this behavior. On average, respondents had pessimistic views of health plans, with 82 percent stating that they thought all health plans do not provide all necessary tests and procedures regardless of cost, 73 percent stating that they overcharge for health insurance, 66 percent stating that they do not provide access to high quality medical care, 62 percent stating that health plans treat enrollees like numbers versus people, and 40 percent stating that they do not treat all enrollees fairly regardless of race.
10. The number of persons in the household serves as a proxy for differential exposure to the health care system.

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