OPHTHALMIC MALPRACTICE AND PHYSICIAN GENDER: A CLAIMS DATA ANALYSIS (AN AMERICAN OPHTHALMOLOGICAL SOCIETY THESIS)

By Tamara R. Fountain MD

ABSTRACT

Purpose: To analyze and compare malpractice claims rates between male and female ophthalmologists and test the hypothesis that claims rates are equal between the two sexes.

Methods: A retrospective, cohort study review was made of all claims reported to the Ophthalmic Mutual Insurance Company from January 1990 through December 2008 in which an expense (including indemnity and/or legal defense costs) was paid or reserved. A total of 2,251 claims were examined. Frequency (claims per physician) and severity (indemnity payment, associated expenses and reserves per claim) were analyzed for both male and female ophthalmologists. Frequency and severity data were further stratified by allegation, type of treatment, and injury severity category.

Results: Men were sued 54% more often than females over the period studied ($P<.001$). Women had lower claims frequencies across all allegations and within the treatment areas of cataract, cornea, and retinal procedures ($P<.7$). Men had more claims associated with severe injury, including permanent major injury and death ($P<.001$). The average amount paid in indemnity and expenses was 7% higher for claims against women ($115,303 compared to $107,354 against men).

Conclusions: Nearly 20 years of closed claim data reveal male ophthalmologists are significantly more likely than women to have reported malpractice activity. Claims against men were associated with more severe injury to the patient but were slightly less costly overall compared to claims against women. Further study is necessary to understand the reasons underlying gender disparities in malpractice claims rates and whether the observed past differences are predictive of future results.

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INTRODUCTION

Fifty years ago, women made up less than 10% of first-year medical students in the United States. For the 2008-09 academic year, that percentage had climbed to almost 50%.[1] The number of women physicians has grown 10-fold in the last 40 years, and according to the American Medical Association, they were 28% of all US doctors by 2006.[2] Women have traditionally been overrepresented in primary care disciplines such as internal medicine, pediatrics, and family practice, and their ranks are also growing in the surgical subspecialties. Twenty-four percent of the American Academy of Ophthalmology's over 17,000 domestic members are women (Jill Hartle, Director of Membership, American Academy of Ophthalmology, San Francisco, California, personal communication, September 14, 2011).

It is generally accepted that men and women have different communication styles, and these differences appear to carry into the physician-patient relationship. Medical literature supports the finding that women physicians relate differently to their patients than men do. Women have been found to make greater use of questioning and counseling, engage in more emotional and positive talk, and more actively enlist patient input. They also spend more time with their patients than male physicians do.[3]

Closed claims studies and patient interviews have identified several interpersonal communication failures that prompt patients to file lawsuits against their doctors. These include patients' perceptions that they were ignored or misled, their visit was rushed, tests were not properly explained, and the doctor was reluctant to talk openly with them.[4,5] Other studies suggest that communication styles are more likely to mitigate malpractice activity in primary care specialties than they are in surgical disciplines.[6]

While there are a myriad of reasons why patients sue their physicians, a bad outcome combined with an absence of, or breakdown in, the patient-physician relationship appears to be a common theme in the initiation of malpractice litigation. Data from malpractice companies that insure doctors show male physicians were named in an overwhelming 92% of over 175,000 closed claims between 1985 and 2007.[7] Ophthalmic Mutual Insurance Company (OMIC), San Francisco, California, the nation's largest insurer of ophthalmologists, found that between 1988 and 1999, male insureds were sued twice as often and were more likely to have had an indemnity payment compared to women physicians.[8] This study covered the first 11 years of the company's existence, when the number of insured physicians was smaller and women made up a much lower percentage of the overall insured count.

With more women entering the medical field in general and ophthalmology in particular, are the historical expectations of greater claims frequency for male physicians still borne out? Are there features of claims against men vs women that may have risk management implications? This comprehensive review examines a large number of malpractice events over an extended 19-year period to compare features of claims brought against male and female ophthalmologists and to test the hypothesis that male and female ophthalmologists have similar malpractice claims rates. Particular attention is paid to the frequency of malpractice activity as well as severity, defined as monetary costs associated with this activity. Further comparisons are made taking into account type of allegation, clinical/anatomic area of treatment, and severity of injury caused.

METHODS

A claims study proposal was submitted to and ultimately approved by a data oversight committee of OMIC. Due to the proprietary nature of claims data and de-identification of all patient and physician references, IRB review was not required.

All 6,377 malpractice claims, lawsuits, and incidents reported to OMIC from its inception in 1987 to June 30, 2010, were initially

From the Department of Ophthalmology, Rush University Medical Center, Chicago, Illinois.

reviewed. Of these, the following were excluded: claims closed with no indemnity or other associated expense paid or reserved; incidents (no monetary demands made); claims made against nonophthalmologist employees and entities such as corporations, group practices, and ambulatory surgical centers. In addition, data prior to 1990 and after 2008 were excluded to eliminate very old information that may not have been reflective of future claims experience and very recent claims activity where ultimate losses and expenses are less reliably predicted. This left 2,251 claims (a written notice or demand for money) and suits (court proceeding seeking a remedy) reported against individual ophthalmologists between January 1, 1990, and December 31, 2008. The gender of the physician was not recorded in eight cases (0.35%). A gender was assigned to these claims based on generally accepted gender assumptions of first names (ie, a physician named Mary was assigned a female gender). The gender of the patient was also recorded.

For each claim, certain financial and clinical data were collected. Amount paid in indemnity and associated expense, known as loss and allocated loss adjustment expenses (ALAE), nature of allegation, type of treatment involved, and severity of the injury alleged, as determined internally by the OMIC claims department, were recorded for each claim and suit. For claims still open, monies reserved for future payments, known as "case reserves," were also included in the overall calculation of claim costs.

To simplify statistical analysis, the large number of allegation, treatment, and injury codes was condensed into a smaller number of broad categories. Seventy allegation codes were grouped into five categories: diagnostic, surgery, treatment/procedure, miscellaneous, and no allegation. Diagnostic claims include failure to diagnose, delay in diagnosis, and wrong diagnosis. Surgery allegations include improper performance, improper preoperative assessment or postoperative management, unnecessary surgery, delay in or failure to perform surgery, and wrong eye/wrong IOL placement. Treatment/procedure allegations include improper management or performance of treatment, delay in or failure to treat, wrong treatment, medication error, and failure to supervise treatment or procedure. In some cases, no allegation was made or recorded.

Ninety-three treatment codes were regrouped into the following 11 categories: cataract, corneal, glaucoma, local anesthesia, refractive surgery, retina, strabismus, trauma, oculoplastic, miscellaneous, and "other." The miscellaneous category includes treatment of infection, topical therapy, and prescriptions for glasses and contacts. The "other" category includes such areas as peer review, research, and expert witness testimony.

Twelve different injury codes were grouped into five categories: temporary, minor, moderate, permanent/major, and death. There is inherently some subjectivity in determining injury severity, but many LASIK cases, for instance, were grouped in the temporary minor category, whereas retinopathy of prematurity and no light perception cases were classified in the permanent/major category. In some cases, the injury severity was unknown.

Historical information for insured physicians was assigned to the data set. This information included gender, surgical class (no surgery, minor surgery, and major surgery) and any part-time discounts. Physician gender, surgical class, and part-time status were not recorded in OMIC's database for the years 1990-2000. It was, therefore, estimated based on linear interpolation, where possible. For surgical class and part-time discounts, where no data were available prior to 2001, earlier percentages were estimated based on data for the later periods. "Female Surgical Class-Adjusted Exposure" (Table 1, column 4) reflects the slight decrease in exposure to women ophthalmologists who are insured at lower surgical classes (ie, "no" or "minor" surgery compared to "major" surgery). For those physicians, both male and female, who practiced part-time, further adjustments were made to reflect the reduced exposure from part-time practice (Table 1, columns 5 and 6). The physician counts used in the analysis (Table 1, columns 7 and 8) thus adjust for differences between male and female ophthalmologists in the surgical intensity of their clinical practices and whether or not they practiced full-time or part-time. For the 1990 to 2008 report period, this produced a total of 41,584 adjusted physician-years (ie, a physician-year is one physician insured full-time for one year), of which 5,811 (14%) were women (Table 1, bottom row, columns 7 and 8).

Most of the analysis is focused on comparing the average frequency (number of claims per physician-year) for male and female insureds. The mean frequency for male and female insureds is calculated across each of the categories described above. To determine the standard deviation of the mean frequency for each group, it is assumed that the number of claims made against an individual doctor in a given year is characterized by a Poisson distribution; this allows the calculation of the variance of the mean estimator as the total number of claims divided by the number of physician-years. For each subgroup considered, a two-sided *t* test is performed to test the null hypothesis that average male and average female frequency are equal for the subgroup. Because the underlying sample sizes and variances for the male and female mean frequency differ, the Welch *t* tests version for the *t* statistic is used.

In addition, the average severity (dollars per claim) for male and female insureds is calculated for each subgroup to see the trends in costs as well as number of claims. The final data analysis considered gender differences in claims frequency and severity (loss and ALAE) as stratified by allegation, treatment type, and injury severity and adjusted for historical differences between men's and women's surgical class rating and part-time employment status.

RESULTS

FREQUENCY

Estimates of frequency and results of *t* tests by gender are indexed by allegation, treatment, and injury in Tables 2, 3, and 4, respectively. Male to female frequency by report year is summarized in Figure 1. Over the 19-year study period, 1996 was the only report year when women physicians had a higher claim frequency than men. Overall, there were 2036 claims against men and 215 against women. Claim frequency was 5.69% (SD, 0.13%) for men and 3.70% (SD, 0.25%) for women, yielding a male to female ratio of 1.54 ($P<.001$) (Figure 2). For the two populations in total, male claim frequency is 1.54 times that of females over the period studied. These data do not support the hypothesis that men and women ophthalmologists have similar malpractice claims rates.

TABLE 1. OMIC-INSURED PHYSICIANS BY SEX, ADJUSTED FOR REDUCED EXPOSURE DUE TO LESS INTENSE SURGICAL CLASSIFICATION AND PART-TIME STATUS

YEAR	PHYSICIAN INSUREDS AT YEAR END	FEMALE INSURED PERCENTAGE	FEMALE SURGICAL CLASS-ADJUSTED EXPOSURE PERCENTAGE	PHYSICIANS WITH PART-TIME DISCOUNTS		SURGICAL EXPOSURE-ADJUSTED PHYSICIAN INSUREDS AT YEAR-END	
				MALE	FEMALE	MALE	FEMALE
(1)	(2)	(3)*	(4)†	(5)‡	(6)§¶	(7)¶	(8)
1988	844	8.00%	7.88%	56	6	735	62
1989	1,027	8.53%	8.40%	68	8	889	80
1990	1,068	9.05%	8.92%	70	9	920	88
1991	1,110	9.58%	9.43%	72	10	950	97
1992	1,173	10.10%	9.95%	76	11	999	108
1993	1,274	10.63%	10.47%	82	13	1,078	124
1994	1,369	11.16%	10.99%	88	14	1,152	140
1995	1,569	11.68%	11.51%	100	17	1,313	168
1996	1,708	12.21%	12.03%	108	19	1,421	191
1997	1,825	12.74%	12.54%	115	22	1,509	212
1998	1,936	13.26%	13.06%	121	24	1,591	235
1999	2,010	13.79%	13.58%	125	26	1,642	253
2000	2,145	14.31%	14.95%	128	29	1,727	299
2001	2,432	14.84%	14.93%	156	35	1,950	336
2002	2,968	14.59%	14.25%	188	42	2,402	391
2003	3,174	15.37%	15.36%	197	41	2,537	456
2004	3,476	15.82%	15.45%	199	52	2,788	497
2005	3,602	16.40%	15.83%	212	60	2,871	525
2006	3,658	16.76%	16.22%	224	62	2,894	546
2007	3,756	16.88%	16.13%	255	75	2,956	549
2008	3,939	17.26%	16.73%	272	83	3,073	596
2009	4,107	17.65%	17.27%	294	89	3,174	642
Total	50,170	14.56%	14.28%	3,204	748	40,572	6,595
1990-2008	44,192	14.54%	14.26%	2,287	644	35,773	5,811

OMIC, Ophthalmic Mutual Insurance Company.
*Column (3): 1989-2000 based on a linear interpolation of 1988 and 2001-2010 values.
†Column (4): 1999 and prior: (3) x 0.985, where 0.985 is the judgmentally selected ratio of (4) to (3) based on 2001-2005.
‡Column (5): 1989-2000 based on judgmentally selected ratios of part-time discounts to in-force physicians by gender.
§Column (6): (2) × [1 - (4)] - (5) × 76.0%.
¶Column (7): (2) × (4) - (6) × 76.0%. 76.0% is the reduction of losses on average from the switch to part-time status.

By Allegation

Men ophthalmologists had a higher claim frequency within each of the categories—diagnostic, surgery, treatment/procedure, miscellaneous, and no allegation—studied (all *P* values <.02). The differences ranged from surgery, where men were 1.4 times (*P*=.04) as likely as women to have had a claim, to diagnostic, where it was nearly 2.5 times (*P*<.001) as likely (Table 2).

By Treatment

There is greater variation in this category, with *P* values ranging from <.001 to .86. The low values seen in cataract, corneal, and retina suggest a statistically significant difference in frequency for women ophthalmologists. The difference in frequency is most

notable in retinal and corneal procedures, where men were nearly 2 and 3 times as likely to have reported a claim, respectively. The only treatment category in which women had a higher claims frequency was strabismus, but this did not meet the level of statistical significance (*P*=.13). No trauma claims were reported against female ophthalmologists (Table 3).

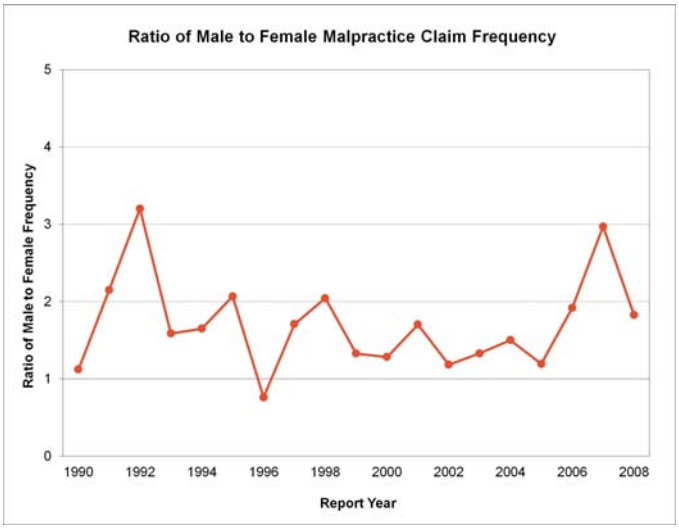

FIGURE 1

Ratio of claims per physician for Ophthalmic Mutual Insurance Company (OMIC) male insureds to claims per physician for OMIC female insureds, each year from 1990 through 2008. A ratio of 1.0 means male and female insureds had claims brought against them at the same rate during the year.

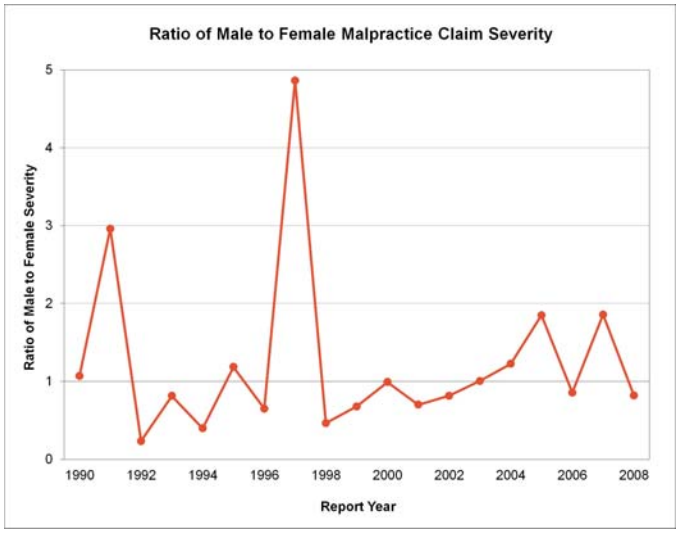

FIGURE 2

Ratio of cost per claim (including indemnity and legal expense payments and case reserves) for Ophthalmic Mutual Insurance Company (OMIC) male insureds to cost per claim for OMIC female insureds, each year from 1990 through 2008. A ratio of 1.0 means that claims costs for male and female OMIC insureds were the same during that year.

By Injury Severity

Frequency of male ophthalmologist claims was greater across the entire spectrum of injury severity but was most notable at the more severe end of the scale. Men were 1.7 times as likely to have an injury classified as permanent major (*P*<.001) and nearly 8 times as likely to have a claim in which the patient died (*P*<.001) (Table 4).

SEVERITY

Historical claims of severity (defined as paid indemnity, case reserves, and associated legal expenses) stratified by allegation, treatment, and injury severity can be found in Tables 5, 6, and 7, respectively. The *t* test analysis was not applied for severity because of the statistical complexity presented by data that did not satisfy a Poisson process. Male to female severity is tracked by report year in Figure 2. There was more volatility in earlier years, possibly reflecting the relatively small number of claims against female insureds as well as the smaller number of claims reported overall. The overall severity of claims was 7% lower for men, averaging $107,354 compared with $115,303 for women (Table 5).

By Allegation

Diagnostic claims against men were 1.4 times as expensive as those against women and roughly equal to those against women in the area of surgery. Treatment/procedure and miscellaneous claims were roughly twice as costly when made against female ophthalmologists (Table 5).

By Type of Treatment

Paid and reserved expenses made on behalf of male ophthalmologists were roughly equal to those for women in the areas of cataract, refractive surgery, and retina. Oculoplastic claims against women were approximately 80% more expensive than those against men (Table 6).

By Injury Severity

The greatest difference in claims severity was found with moderate injuries and death, where men's claims were almost 3 times and over 2 times as expensive, respectively, as those brought against women in these categories (Table 7).

TABLE 2. MALE AND FEMALE INSURED FREQUENCY BY TYPE OF ALLEGATION: REPORT YEARS 1990-2008

	NUMBER OF REPORTED CLAIMS FOR		REPORTED CLAIM FREQUENCY FOR		RATIO OF MALE TO FEMALE FREQUENCY	ESTIMATED STANDARD DEVIATION OF REPORTED CLAIM FREQUENCY		
ALLEGATION	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS		MALE PHYSICIANS	FEMALE PHYSICIANS	*t* TEST P VALUE
(1)	(2)	(3)	(4)*	(5)†	(6)‡	(7)§	(8)¶	(9)#
Diagnostic	305	20	0.85%	0.34%	2.477	0.05%	0.08%	<.001
Surgery	1,040	125	2.91%	2.15%	1.352	0.09%	0.19%	<.001
Treatment/procedure	370	43	1.03%	0.74%	1.398	0.05%	0.11%	.019
Miscellaneous	177	16	0.49%	0.28%	1.797	0.04%	0.07%	.005
No allegation	144	11	0.40%	0.19%	2.127	0.03%	0.06%	.001
Total	2,036	215	5.69%	3.70%	1.538	0.13%	0.25%	<.001

*Column (4): (2)/male physicians for the 1990 to 2008 period.
†Column (5): (3)/female physicians for the 1990 to 2008 period.
‡Column (6): (4)/(5).
§Column (7): Square root of (2)/male physicians for the 1990 to 2008 period.
¶Column (8): Square root of (3)/female physicians for the 1990 to 2008 period.
#Column (9): Based on a two-sided *t* test for samples of unequal size and populations of unequal variance.

TABLE 3. MALE AND FEMALE INSURED FREQUENCY BY TYPE OF TREATMENT: REPORT YEARS 1990-2008

	NUMBER OF REPORTED CLAIMS FOR		REPORTED CLAIM FREQUENCY FOR		RATIO OF MALE TO FEMALE FREQUENCY	ESTIMATED STANDARD DEVIATION OF REPORTED CLAIM FREQUENCY		
TREATMENT	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS	*t* TEST P VALUE
(1)	(2)	(3)	(4)*	(5)†	(6)‡	(7)§	(8)¶	(9)#
Cataract	643	78	1.80%	1.34%	1.339	0.07%	0.15%	.007
Corneal	71	4	0.20%	0.07%	2.883	0.02%	0.03%	.002
Miscellaneous	367	32	1.03%	0.55%	1.863	0.05%	0.10%	<.001
Glaucoma	98	11	0.27%	0.19%	1.447	0.03%	0.06%	.182
Local anesthesia	14	2	0.04%	0.03%	1.137	0.01%	0.02%	.869
Refractive surgery	201	20	0.56%	0.34%	1.633	0.04%	0.08%	.012

TABLE 3 CONTINUED. MALE AND FEMALE INSURED FREQUENCY BY TYPE OF TREATMENT: REPORT YEARS 1990-2008

TREATMENT	NUMBER OF REPORTED CLAIMS FOR		REPORTED CLAIM FREQUENCY FOR		RATIO OF MALE TO FEMALE FREQUENCY	ESTIMATED STANDARD DEVIATION OF REPORTED CLAIM FREQUENCY		
	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS	*t* TEST P VALUE
(1)	(2)	(3)	(4)*	(5)†	(6)‡	(7)§	(8)¶	(9)#
Retina	266	24	0.74%	0.41%	1.800	0.05%	0.08%	<.001
Strabismus	22	8	0.06%	0.14%	0.447	0.01%	0.05%	.131
Trauma	18	0	0.05%	0.00%	n/a	0.01%	n/a	n/a
Oculoplastic	181	23	0.51%	0.40%	1.278	0.04%	0.08%	.224
Other	155	13	0.43%	0.22%	1.937	0.03%	0.06%	.003
Total	2,036	215	5.69%	3.70%	1.538	0.13%	0.25%	<.001

*Column (4): (2)/male physicians for the 1990 to 2008 period.
†Column (5): (3)/female physicians for the 1990 to 2008 period.
‡Column (6): (4)/(5).
§Column (7): Square root of (2)/male physicians for the 1990 to 2008 period.
¶Column (8): Square root of (3)/female physicians for the 1990 to 2008 period.
#Column (9): Based on a two-sided *t* test for samples of unequal size and populations of unequal variance.

TABLE 4. MALE AND FEMALE INSURED FREQUENCY BY TYPE OF INJURY SEVERITY: REPORT YEARS 1990-2008

INJURY SEVERITY CLASSIFICATION	NUMBER OF REPORTED CLAIMS FOR		REPORTED CLAIM FREQUENCY FOR		RATIO OF MALE TO FEMALE FREQUENCY	ESTIMATED STANDARD DEVIATION OF REPORTED CLAIM FREQUENCY		
	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS		MALE PHYSICIANS	FEMALE PHYSICIANS	*t* TEST P VALUE
(1)	(2)	(3)	(4)*	(5)†	(6)‡	(7)§	(8)¶	(9)#
Temporary	523	78	1.46%	1.34%	1.089	0.06%	0.15%	.468
Minor	187	18	0.52%	0.31%	1.688	0.04%	0.07%	.010
Moderate	31	2	0.09%	0.03%	2.518	0.02%	0.02%	.071

TABLE 4 CONTINUED. MALE AND FEMALE INSURED FREQUENCY BY TYPE OF INJURY SEVERITY: REPORT YEARS 1990-2008

INJURY SEVERITY CLASSIFICATION	NUMBER OF REPORTED CLAIMS FOR		REPORTED CLAIM FREQUENCY FOR		RATIO OF MALE TO FEMALE FREQUENCY	ESTIMATED STANDARD DEVIATION OF REPORTED CLAIM FREQUENCY		*t* TEST P VALUE
	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS		MALE PHYSICIANS	FEMALE PHYSICIANS	
(1)	(2)	(3)	(4)*	(5)†	(6)‡	(7)§	(8)¶	(9)#
Perm major	616	58	1.72%	1.00%	1.725	0.07%	0.13%	<.001
Death	48	1	0.13%	0.02%	7.797	0.02%	0.02%	<.001
Unknown	631	58	1.76%	1.00%	1.767	0.07%	0.13%	<.001
Total	2,036	215	5.69%	3.70%	1.538	0.13%	0.25%	<.001

*Column (4): (2)/male physicians for the 1990 to 2008 period.
†Column (5): (3)/female physicians for the 1990 to 2008 period.
‡Column (6): (4)/(5).
§Column (7): Square root of (2)/male physicians for the 1990 to 2008 period.
¶Column (8): Square root of (3)/female physicians for the 1990 to 2008 period.
#Column (9): Based on a two-sided *t* test for samples of unequal size and populations of unequal variance.

TABLE 5. MALE AND FEMALE INSURED SEVERITY IN 2008 DOLLARS BY TYPE OF ALLEGATION: REPORT YEARS 1990-2008

ALLEGATION	TOTAL TRENDED REPORTED LOSS & ALAE FOR		TRENDED REPORTED LOSS & ALAE PER CLAIM FOR		RATIO OF MALE TO FEMALE SEVERITY
	MALE PHYSICIANS	FEMALE PHYSICIANS	MALE PHYSICIANS	FEMALE PHYSICIANS	
(1)	(2)	(3)	(4)*	(5)†	(6)‡
Diagnostic	$63,773,949	$3,052,796	$209,095	$152,640	1.370
Surgery	94,841,583	10,869,730	91,194	86,958	1.049
Treatment/procedure	37,036,705	8,177,954	100,099	190,185	0.526
Miscellaneous	11,244,080	2,268,073	63,526	141,755	0.448
No allegation	11,675,823	421,650	81,082	38,332	2.115
Total	$218,572,140	$24,790,202	$107,354	$115,303	0.931

ALAE, allocated loss adjustment expenses.
*Column (4): (2)/reported claims against male insureds. See Table 1.
†Column (5): (3)/reported claims against female insureds. See Table 1.
‡Column (6): (4)/(5).

PATIENT GENDER

Patient gender was recorded in 2,155 claims (96%) studied and did not appear to affect claims rates between men and women ophthalmologists. Of the claims in which patient gender was recorded, male patients accounted for 51% of claims against male doctors and 50% of claims against female doctors.

DISCUSSION

In 1960, less than one-third of women were part of the nation's work force. In 2010, they are nearly 50% of all workers and the primary or cobreadwinner in almost two-thirds of American households.[9] The percentage of women medical students has also climbed steadily and stands now just shy of 50%.[1] While 24% of the American Academy of Ophthalmology's 17,000 domestic members are women, 38% of ophthalmology residents and fellows are women (Jill Hartle, personal communication, September 22, 2011). With more women in the academic training pipeline, they are certain to represent an increasing percentage of practicing ophthalmologists in the future. As more women enter medicine, trends are emerging in malpractice claims data. As a whole, women physicians are sued less often than men and are less likely to incur an indemnity payment when they are sued.[7] Understanding the factors that prompt medical malpractice suits is helpful in interpreting the relative gender-specific differences in claims activity.

Malpractice litigation is an inefficient and inequitable process. The overwhelming majority of medical malpractice claims are without merit, and a similar overwhelming majority of negligent medical errors are never litigated.[10-14] Some data suggest a poor outcome is not a major determinant in whether patients bring suit. Entman and coworkers[15] compared frequently sued and never-sued obstetrician-gynecologists and found no difference in the quality of care as judged by peer review. In another study, only 2% of patients significantly injured due to negligence initiated a malpractice claim.[14] St Paul Fire and Marine Insurance Company found that less than 10% of 100 hospitalized patients who could legitimately bring a malpractice claim against a negligent provider chose to do so.[16] A poor outcome may be *one* of the elements of a meritorious malpractice suit, but it is clearly not the *only* factor driving claims rates. Literature suggests a breakdown in the physician-patient relationship also plays a role.

When an error or injury does occur, what patients want is an explanation of what happened, how and why it happened, and an expression of regret and remorse from the physician.[17] This is, however, not often what patients receive.[18-20] While studies show that patients want to know of medical errors, research also reveals that physicians are less likely to disclose an error, especially when it is not apparent to the patient.[21] Despite increasing evidence that early admission of errors may limit incidence and severity of malpractice awards, physicians are often still reluctant to be forthcoming about adverse clinical events. Mazor and colleagues[22] found "no evidence that full disclosure increases the risk of negative consequences for physicians," but did find that full disclosure increases patient satisfaction and trust and reduces the likelihood the patient will change physicians. Vincent and coworkers[23] asked a series of patients who had brought suit against their doctors if anything could have been done once the incident occurred to prevent litigation, and 41.4% said yes. The top three actions cited were an explanation and apology, a correction of the mistake, and financial compensation.

Patients are unhappy when they feel their physicians are "hurried, uninterested and unwilling to listen and answer questions."[4] Beckman and colleagues[24] reviewed depositions from settled malpractice claims and identified problematic relationship issues in 71%. These patients felt their doctor deserted them, devalued their opinions, delivered information poorly, or lacked empathy. If a breakdown in the physician-patient relationship plays a role in malpractice litigation, are gender differences in communication style a contributing factor?

In a study of 645 surgical and nonsurgical physicians,[25] 9% of doctors generated more than half of all patient complaints. These physicians were more likely to be male, to be surgeons, and to have greater clinical activity (based on relative value units [RVUs]) than their counterparts. Not all studies, however, support physician gender as a predictor of claims activity.[10,26]

The role physician gender plays in the doctor-patient relationship has been well studied.[3,8,27-36] Roter and colleagues[3] performed a meta-analytic review of 26 studies of the physician-patient encounter. They found female physicians generally engaged in more active partnership behaviors, positive and emotionally focused talk, and more psychosocial counseling. Their patient visits were also on average 2 minutes (10%) longer than those of male physicians. Men and women doctors did not, however, show differences in social conversation or the amount, quality, or manner of giving medical information. Not always, however, is the female communication style expressed as a physician preference for patients. In a study of Canadian college athletes,[27] there was not a preference for gender of team physician except where it came to medical problems of a sexual nature. In these instances, both male and female athletes expressed a preference for the stereotypical maternal and nurturing personality of a female physician. For all other medical issues, education, experience ,and ability were the most important factors driving team physician preference.

Physician gender is but one variable in the physician-patient encounter; patient gender also plays a role.[37-39] Female patients have been shown to prefer women physicians in certain studies, particularly in areas of sexual trauma and colorectal screening.[31,35] Other reports show that women patients hold professionalism and courtesy in higher regard than gender in choosing their physicians.[36] A study of 196 real and simulated gynecologic physician-patient encounters showed it was not the gender of the physician but gender-related, patient-centered communication styles that determined patient satisfaction.[30] In a study of new patient primary care visits to second- and third- year residents, no differences were found in the overall amount of time spent with the patient, but female doctors spent proportionately less time than their male counterparts on the physical aspects of the exam and more time on counseling.[38] Hamberg and colleagues[40] devised a questionnaire to identify how patient gender may affect physician perceptions of a hypothetical patient with neck pain. They found that physicians of both genders were more likely to offer drugs to female patients than to male patients with identical symptoms and were more likely to stress compliance when the patient was of opposite gender. There are

several studies that have examined not just the effects of either physician or patient gender but also the interaction between physician and patients based on the gender of each.[28,29,33,34,41,42] Because physician gender and communication style are naturally confounding variables, it is challenging to make conclusions from real-life situations, but one study in particular used a virtual medical visit model to alter specific personal characteristics while holding other variables constant.[28] These investigators found the satisfaction of male patients was not dependent on communication style, but that female patients expected their female physicians to exhibit more caring behavior and were most satisfied in their male physicians when they exhibited an intermediate combination of caring and dominant communication styles. Their data suggest that "women and men harbor different expectations about female and male physicians and it seems that women in particular expect female physicians to behave in a sex-congruent way." These patients did not necessarily prefer female doctors but did expect when their doctors were women, that they behave in a gender-congruous (more caring, less dominant) way. It is also reported that female physicians elicit more satisfaction in their patients when they are more formally dressed (as defined as wearing a white coat) and when they have more medical-looking examination rooms. This suggests the patient expectation bar is higher for women physicians and expected to demonstrate greater signs of professionalism.[41] Other studies show patients can behave in different ways depending on the gender of their physician, with both male and female patients tending to talk more, ask more questions, and be more involved with the decision making when their health care providers are women.[29,35,36]

Based on this review of OMIC claims data, there are statistically significant gender differences in the frequency of malpractice claims against ophthalmologists. Male ophthalmologists were more than 50% as likely to have reported a claim resulting in an expense payment or reserve than female ophthalmologists. Male physicians had a higher frequency across all allegations and in all but one treatment area (strabismus). It is interesting to note that 2009 data from the American Academy of Ophthalmology show that pediatric ophthalmology is the subspecialty of ophthalmology with the highest proportion of female physicians at 36%. In comparison, 26% of glaucoma specialists, and 19% of neuro-ophthalmologists, cornea specialists, and comprehensive ophthalmologists are women. Claims against male physicians involved more severe injuries to the patient but were slightly less costly overall compared to claims against women. Despite the differences identified in physician gender, gender of the patient did not appear to have any effect on claims rates.

This study identifies a historical and statistically significant difference in claims activity based on physician gender. It fails, however, to address the logical question: *Why* do male ophthalmologists get sued more often than their female colleagues? What kind of analyses would help explain this disparity? Patients decide to sue their physicians for a multitude of reasons, but time and again, two that are consistently cited are (1) a poor outcome and (2) deterioration of the doctor-patient relationship. Let's consider these separately.

Outcomes measurement may be the simpler of the two to study. Recent health policy emphasis on evidence-based medicine and the movement toward a "pay for performance" system of rewarding quality care has brought outcomes measures to the forefront of the health care reform debate. While few would argue against rewarding the provision of quality care, thorny issues like how to define it, how to measure it, and how to adjust for patient mix continue to present significant challenges for health policy makers. Nonetheless, objective measures are being developed and could be used to compare clinical characteristics and gauge visual impairment of patients who sue men compared to those who sue women. Issues of patient volume and intensity of service can similarly be tracked and compared by RVUs, as these are probably the most objective proxy available to monitor these practice parameters. There is anecdotal evidence that higher volume, greater complexity, or both may correlate with higher claims rates, but as a general rule, physicians are sued for the routine, most commonly performed services. In ophthalmology, these are cataract surgery, general eye exams, and retinal procedures. Applying outcomes measures to patients who file suit and comparing results for claims against female vs male physicians may help identify outcomes disparities based on physician gender.

The study of the interpersonal relationship between a doctor and a patient is a much more subjective analysis made even more complex by the multitude of confounding variables that come into play when trying to assess the effect of one—for instance, communication style. In addition to physician gender, patient characteristics such as gender and socioeconomic background, as well as age and race of both parties, will influence the way a doctor and patient relate to each other. Clinical features like length of relationship, severity of disease process, and degree of patient dependency and disability will similarly affect the dynamic of clinical interaction. Observational studies utilizing videotaped or audiotaped patient encounters may allow a cataloguing of psychosocial communication metrics to classify the level of patient-centered interaction between male and female physicians. This approach would clearly, however, not control for the host of other, previously mentioned variables. Retrospective review, utilizing postlitigation plaintiff surveys and interviews, may identify the reasons that motivate these patients to file suit, and allow for comparisons to be made between cases brought against male and female ophthalmologists.

A prospective approach to answering the claims disparity would be simulated, scripted clinical encounters in which the only manipulated variable is physician gender. These encounters could be live, using physician actors and volunteer patients, or computerized using a series of written or simulated action scripts. Various clinical settings, outcomes, and communication styles, as well as physician and patient characteristics like age, race, and socioeconomic background, could be held constant while varying nothing but physician gender. Patient expectations based on physician gender may independently influence perceptions of the simulated clinical encounter. Are patients as accepting of a traditionally feminine communication style when it is delivered by a man? This gender-specific, culturally derived expectation of human behavior may offer a tantalizing, if not controversial, hypothesis for why men were more frequently sued than women. Because of the evolutionary role women play in childbearing, nurturing, and care giving, is it possible the human race is hardwired not to attack its female members? Most physicians, particularly those who have been on the receiving end, would consider litigation as an attack. To test this hypothesis, it would be useful to review whether women in other fields, such as law, real estate, or banking, are also less likely than their male counterparts to have had professional liability

claims made against them.

The challenge of multivariate analysis lends itself well to a promising, emerging area of study called predictive modeling. As the name implies, a statistical model is created to predict future behavior and is employed to forecast probabilities and trends. The model is composed of variable factors that are likely to influence future behavior, eg, targeted Internet marketing based on a person's Web browsing and past purchase history. Predictive modeling harnesses the sheer number-crunching power available with modern computing technology and is already in use by financial institutions to determine creditworthiness; by meteorologists to predict weather; by the post office to decipher handwriting; and even by sports teams to recruit athletic talent.[43] It is increasingly utilized in the property/casualty line of the insurance industry, but predictive modeling has not gained a large foothold in the medical malpractice arena, at least not yet. It has the potential to be a useful physician-underwriting tool and may hold promise for risk management and claims adjustment by predicting when and why patients initiate litigation, including any effects of physician gender.

This study examines a large number of claims across 49 states and the District of Columbia within all subspecialties of ophthalmology. The 19-year period covered represents nearly the entire claims history of a company that, as of 2013, insures more ophthalmologists than any other in the United States. The longitudinal nature of the data necessitated inflation adjustments for severity data. Further adjustments were made to reflect the greater likelihood of women ophthalmologists to work part-time and to be insured at lower surgical classes—both settings in which malpractice exposure is expected to be lower. These adjustments were deliberately considered and serve to mitigate an inherent weakness of retrospective review, that is, confounding variables. In this way, the malpractice exposure of women and men could more directly be compared. In analyzing claims rates, the ability to neutralize certain sex-specific practice variables adds further strength, validity, and power to the study's findings.

There are certain limitations of this study that should be acknowledged. In comparing men to women ophthalmologists, assumptions were made that they were equally represented in the various ophthalmic subspecialties, that they carried the same coverage limits, and that there were no geographic differences in their practice settings. These may or may not be valid assumptions. Though OMIC does not track insureds by subspecialty, membership data collected by the American Academy of Ophthalmology does allow members to self-describe their practice focus. The subspecialties with the largest percentage of women ophthalmologists were pediatric (36%) and glaucoma (26%), and the lowest percentage of women were found in retina (11%) and refractive surgery (9%). The percentage of women in comprehensive ophthalmology and the other subspecialties ranged from 14% to 19% (Jill Hartle, personal communication, December 15, 2010).

Over the course of the 19 years of this study, both the absolute number of insured ophthalmologists as well as the percentage that are female has increased substantially (1027 insureds, 9% female in 1990; 3939 insureds, 17% female in 2008). This has weighted the study's comparative findings to more recent years, during which time no adjustments were made for cyclical shifts in the medicolegal climate over the 19-year time frame. Additionally, female ophthalmologists compose a greater percentage of younger insureds. Because physician age is not a data point OMIC tracks in its claims data, no adjustments were made for physician age or policy maturity, though it is widely believed that physicians report more claim activity in the middle, busiest stages of their careers.

Adjustments were made to address the general finding that women are more likely to work part-time and to be insured at lower, less surgical classes. However, it is very possible that within the parameters of a full-time, full surgical class physician practice, the intensity of services provided, as measured by RVUs, may differ between male and female physicians. While it has not been scientifically proven, it is generally accepted that volume and complexity of medical practice is correlated with claims frequency and severity. Finally, OMIC insures predominantly ophthalmologists in private practice. With limited exceptions, those physicians employed by the government, hospitals, academic medical centers, or health maintenance organizations are not represented in this review.

This study finds that in ophthalmology, as in other fields of medicine, female physicians have been sued historically less often than their male counterparts. Being a retrospective, observational study based on only frequency and severity, no conclusions can be drawn regarding the underlying reasons for this difference, nor can any predictions be made for future gender-specific trends in claims activity. Further investigation, as outlined above, is needed to identify the underlying reasons for this study's findings. In the meantime, continued public policy efforts directed at defining and tracking quality of care, as well as initiatives to establish evidence-based care as the standard throughout the US health system, will work to improve health care delivered to all of America's citizens. Better quality will presumably translate into better outcomes, which are one side of the medical malpractice coin. The other side of the coin, the doctor-patient relationship, should continue to be a focus of medical school and residency training, and reinforced via continuing medical education and risk management instruction throughout one's medical career. A novel and innovative program has been established at Vanderbilt University in Nashville, Tennessee. Its Program for Distressed Physicians, established in 2005, identifies doctors with inordinate negative unsolicited patient complaints. These physicians are then voluntarily enrolled in an interventional program that focuses on changing the disruptive behaviors at the root of their negative patient evaluations. The program is credited with a 20-fold decrease in rates of malpractice suits and a 90% drop in medical malpractice costs for the University (G. B. Hickson, personal communication, April 13, 2013). These tremendous results have caught the attention of other hospital systems across the country, which now offer to send their physicians to this Vanderbilt program.

The results at Vanderbilt, as well as other studies on medical malpractice claims, reinforce the generally accepted risk management principle that a strong doctor-patient relationship improves patient care and can be protective against professional liability claims. This study isolating the role of physician gender in 20 years of ophthalmic malpractice claims will hopefully contribute to a growing body of literature in this arena and provide data that will be useful in future research exploring the factors that lead patients to sue their physicians.

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