Characteristics Associated With Physician Discipline

A Case-Control Study

Neal D. Kohatsu, MD, MPH; Dawn Gould, RN, MSN; Leslie K. Ross, PhD; Patrick J. Fox, PhD

Background: There has been increasing attention devoted to patient safety. However, the focus has been on system improvements rather than individual physician performance issues. The purpose of this study was to determine if there is an association between certain physician characteristics and the likelihood of medical board-imposed discipline.

Methods: Unmatched, case-control study of 890 physicians disciplined by the Medical Board of California between July 1, 1998, and June 30, 2001, compared with 2981 randomly selected, nondisciplined controls. Odds ratios (ORs) were calculated for physician discipline with respect to age, sex, board certification, international medical school education, and specialty.

Results: Male sex (OR, 2.76; P<.001), lack of board certification (OR, 2.22; P<.001), increasing age (OR, 1.64; P<.001), and international medical school education (OR, 1.36; P<.001) were associated with an elevated risk for disciplinary action that included license revocation, practice suspension, probation, and public reprimand. The following specialties had an increased risk for discipline compared with internal medicine: family practice (OR, 1.68; P=.002); general practice (OR, 1.97; P=.001); obstetrics and gynecology (OR, 2.25; P<.001); and psychiatry (OR, 1.87; P<.001). Physicians in pediatrics (OR, 0.62; P=.001) and radiology (OR, 0.36; P<.001) were less likely to receive discipline compared with those in internal medicine.

Conclusion: Certain physician characteristics and medical specialties are associated with an increased likelihood of discipline.

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Patient safety has received increased attention since the release of the 1999 Institute of Medicine report, To Err Is Human: Building a Safer Health System.1-5 While the report emphasized the need to develop better systems in medicine, it acknowledged that some small proportion of health care professionals “may be incompetent, impaired, unchanging, or may even have criminal intent” and thus are the appropriate subject of medical board discipline to protect patients from harm.6 In addition, prompt identification of such practitioners coupled with appropriate corrective action is an important component of a comprehensive patient safety program.3

Discipline is administrative sanction imposed by a medical board for violations of laws or regulations.6 Regarding the incidence of medical discipline among the 800,000 physicians licensed in the United States, approximately 4000 disciplinary actions were imposed by state medical boards in 2001.7 Of the approximately 110,000 physicians licensed by the Medical Board of California, the Board disciplines about 350 doctors per year.8

The prevalence of physicians with concerns that might lead to discipline is surprisingly high. For example, approximately 4% of California-licensed physicians have been disciplined by the Medical Board of California.9 Similarly, one international review reported a 5% prevalence of problem doctors (defined as physicians with recurrent problems in functioning) across several countries including the United States.10 Also, Donaldson11 reported that over a 5-year period approximately 6% of senior physicians in a region of England’s National Health Service had serious disciplinary problems. In addition, Schaffer et al12 found that during a 10-month period 5% of applications for clinical privileges in a national ambulatory care program contained falsified credentials. Finally, since approximately 40% of disciplinary actions by the Medical Board of California are imposed due to a finding of negligence,13 disciplined phy-
Discipline of physicians in California is a matter of significant patient safety and quality of care. To understand the factors associated with discipline, researchers undertook a case-control study of physicians disciplined by the Medical Board of California between July 1, 1998, and June 30, 2001. They aimed to identify risk factors for discipline.

The study included cases (physicians disciplined) and controls (unpunished physicians) matched for sex, age, and years of practice. The cases were identified from the Consumer Affairs System, a computerized database within the California Department of Consumer Affairs. The control group was randomly selected from the American Medical Association (AMA) Physician Masterfile.

Statistical analyses were conducted using multivariable logistic regression models to determine the risk factors associated with discipline. The study found that certain characteristics were associated with a higher risk of discipline, such as age, sex, and specialty. For instance, younger physicians and those in specialties with higher risks of disciplinary actions were more likely to be disciplined.

The study highlights the importance of understanding the factors that contribute to disciplinary actions and suggests areas for further investigation to improve physician wellness and reduce risks of discipline.

RESULTS

Cases and Controls

Descriptive characteristics of cases (disciplined physicians) and controls (nondisciplined physicians) were compared. The data showed that disciplined physicians were more likely to be younger and in specialties with higher risks of discipline.

Because California law governing licensing of physicians does not distinguish between graduation from a Canadian medical school and a US medical school, the study grouped graduates of Canadian and United States institutions into the category “domestic medical education” and graduates of all other medical schools into the category “international medical education.”
Table 1. Characteristics of Cases and Controls

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cases (n = 890)</th>
<th>Controls (n = 2981)</th>
<th>Total (N = 3871)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age,† y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>55.6 ± 11</td>
<td>49.8 ± 13</td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Range</td>
<td>29-90</td>
<td>25-92</td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>81 (9)</td>
<td>716 (24)</td>
<td>797</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>809 (91)</td>
<td>2265 (76)</td>
<td>3074</td>
<td></td>
</tr>
<tr>
<td>Board certification</td>
<td>473 (53)</td>
<td>2170 (73)</td>
<td>2643</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Specialty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>43 (5)</td>
<td>182 (6)</td>
<td>225</td>
<td>.15</td>
</tr>
<tr>
<td>Family practice</td>
<td>109 (12)</td>
<td>275 (9)</td>
<td>384</td>
<td>.008</td>
</tr>
<tr>
<td>General practice</td>
<td>75 (8)</td>
<td>74 (2)</td>
<td>149</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>154 (17)</td>
<td>687 (23)</td>
<td>841</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Obstetrics/gynecology</td>
<td>86 (10)</td>
<td>170 (6)</td>
<td>256</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>26 (3)</td>
<td>248 (8)</td>
<td>274</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>108 (12)</td>
<td>228 (8)</td>
<td>336</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Radiology</td>
<td>13 (1)</td>
<td>166 (6)</td>
<td>179</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Surgery‡</td>
<td>156 (18)</td>
<td>423 (14)</td>
<td>579</td>
<td>.01</td>
</tr>
<tr>
<td>Other§</td>
<td>120 (13)</td>
<td>528 (18)</td>
<td>648</td>
<td>.003</td>
</tr>
<tr>
<td>International medical school graduate</td>
<td>238 (27)</td>
<td>604 (20)</td>
<td>842</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Values are number (percentage) unless otherwise indicated.
†Mean age of cases is age calculated to the date of the enforcement order. Mean age for controls is age calculated to the midpoint of the study period, January 1, 2000.
‡Includes all surgical specialties.
§Includes all specialties not specifically listed.

Table 2. Number of Medical Practice Violations by Discipline Imposed

<table>
<thead>
<tr>
<th>Violation</th>
<th>Revocation</th>
<th>Surrender</th>
<th>Suspension Only</th>
<th>Probation With Suspension</th>
<th>Probation</th>
<th>Public Reprimand</th>
<th>Other Action</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negligence</td>
<td>33</td>
<td>67</td>
<td>1</td>
<td>10</td>
<td>124</td>
<td>93</td>
<td>7</td>
<td>335 (38)</td>
</tr>
<tr>
<td>Inappropriate prescribing</td>
<td>11</td>
<td>18</td>
<td>0</td>
<td>7</td>
<td>18</td>
<td>24</td>
<td>0</td>
<td>78 (9)</td>
</tr>
<tr>
<td>Unlicensed activity</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>17 (2)</td>
</tr>
<tr>
<td>Sexual misconduct</td>
<td>14</td>
<td>25</td>
<td>0</td>
<td>3</td>
<td>23</td>
<td>3</td>
<td>0</td>
<td>68 (8)</td>
</tr>
<tr>
<td>Mental illness</td>
<td>17</td>
<td>19</td>
<td>1</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>3</td>
<td>51 (6)</td>
</tr>
<tr>
<td>Self-use of drugs/alcohol</td>
<td>20</td>
<td>29</td>
<td>0</td>
<td>1</td>
<td>36</td>
<td>1</td>
<td>0</td>
<td>87 (10)</td>
</tr>
<tr>
<td>Fraud</td>
<td>11</td>
<td>8</td>
<td>1</td>
<td>10</td>
<td>17</td>
<td>20</td>
<td>0</td>
<td>67 (8)</td>
</tr>
<tr>
<td>Conviction of a crime</td>
<td>19</td>
<td>13</td>
<td>1</td>
<td>9</td>
<td>32</td>
<td>7</td>
<td>0</td>
<td>81 (9)</td>
</tr>
<tr>
<td>Unprofessional conduct</td>
<td>12</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>21</td>
<td>43</td>
<td>0</td>
<td>88 (10)</td>
</tr>
<tr>
<td>Miscellaneous violations</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>18 (2)</td>
</tr>
<tr>
<td>Total (%)</td>
<td>142 (16)</td>
<td>190 (21)</td>
<td>4 (&lt;1)</td>
<td>44 (5)</td>
<td>301 (34)</td>
<td>199 (22)</td>
<td>18 (1)</td>
<td>890 (100)*</td>
</tr>
</tbody>
</table>

*Because of rounding, numbers do not add to exactly 100.

In univariate analysis, cases were more likely than controls to be male; not board certified; in the specialties of family practice, general practice, obstetrics and gynecology, or psychiatry; and an international medical school graduate.

OFFENSES AND DISCIPLINE

Table 2 shows the distribution of violations and discipline for the 890 cases. The most common violation was negligence (38%) followed by drug- or alcohol-related offenses (10%), unprofessional conduct (10%), conviction of a crime (9%), and inappropriate prescribing (9%) violations. The most common disciplinary actions were probation (34%), public reprimand (22%), license surrender (21%), or license revocation (16%).

MULTIVARIABLE ANALYSIS

Odds ratios, from the logistic regression model assessing risk of discipline, are displayed in Table 3. Relative to specialists in internal medicine, specialists in radiology and pediatrics were at significantly lower risk of discipline, while specialists in family practice, general practice, obstetrics and gynecology, and psychiatry were at significantly higher risk. The risk of discipline for physicians specializing in anesthesiology and surgery did not differ significantly from that for specialists in internal medicine. Increasing age in 20-year intervals and male sex were positively and independently associated with an increased likelihood of discipline. Board certification was associated with a significantly reduced risk of discipline. International medical education was
associated with a significantly elevated risk of discipline.

**COMMENT**

In our study, certain specialties, increasing age measured in 20-year increments, and male sex were associated with a higher risk of discipline. Board certification was associated with a lower risk of discipline. These associations are discussed in turn, below.

We found that physicians in the specialties of obstetrics and gynecology, general practice, psychiatry, and family practice were more likely, while those in pediatrics and radiology were less likely, to be disciplined than those in internal medicine, after adjusting for age, sex, board certification, and international education (Table 3). Similarly, Dehendorf and Wolfe reported that physician discipline was not distributed equally by specialty. In their national study of physicians disciplined for sex-related offenses, they found that 75 psychiatrists disciplined over a 30-month interval, 8% were women; although nationally, 27% of all psychiatrists were women. There are a number of possible differences between male and female physicians in practice styles and patient interaction including risk tolerance, aggressiveness, willingness of patients to file a complaint, communication, and patient satisfaction. Taragin et al suggested that these differences might explain their finding that malpractice rates for men were 2 to 4 times that of women. Such differences might also account for the elevated discipline risk seen for male physicians in our study. These potential hypotheses, however, should be formally tested by specific studies.

Board certification was associated with a lower risk of discipline (OR, 0.45; P < .001) in our study and that of Morrison and Wickersham. Consistent with these findings, Silber et al reported that board-certified anesthesiologists had better clinical outcomes, adjusted for case mix, than their non-board-certified counterparts. Their study used Medicare claims records for 144883 patients in Pennsylvania. In addition, Slogoff et al reported good correlation between the clinical skills rating of 1310 anesthesiology residents, assessed by their respective residency directors, and the subjects’ likelihood of subsequently becoming board certified in anesthesiology.

International medical graduates were significantly more likely to be disciplined than domestic graduates (OR, 1.36; P = .001). In contrast, Morrison and Wickersham found that international medical graduates were not more
likely than domestic graduates to be disciplined. Also, 2 other studies have failed to find significant differences in the quality of care delivered by domestic vs international medical graduates.24,25 These 3 studies, though, differed from ours in the variables selected for modeling and in the particular subset (eg, attending physicians) of international medical graduates chosen for study.

Our study has a number of limitations. In focusing on discipline of California-licensed physicians, the associations identified may not apply to other regions of the United States because of variations in practice styles, patient populations, and legal frameworks. For example, data regarding physician discipline in New York (1985-1988) showed a higher percentage of cases involving misuse of drugs and alcohol and a lower percentage of cases related to negligence and incompetence compared with our findings.26 Although this study addressed physician discipline in one state, California licenses about 13% of physicians in the United States.18

It is not known whether these associations apply to substandard practitioners, in general, since disciplined physicians represent a subset of a poorly defined universe of physicians with significant practice deficiencies. Also, as with other case-control studies, control of various unknown, extraneous variables may not have been achieved.27 For example, social and cultural factors related to physician-patient interactions may influence perceptions of practice deficiencies. Because of the limited number of available variables in our secondary data set, we were unable to explore additional physician-related factors that may affect the likelihood of medical board-imposed sanctions.

Because this study was exploratory, causal relationships with discipline should not be inferred and, therefore, an individual physician’s risk of discipline cannot be ascertained by the logistic regression model developed from this study. For example, we cannot exclude bias based on characteristics such as age, sex, or lack of board certification as at least a partial explanation for the observed relationships with discipline. Such bias could occur in the complaint reporting, investigation, prosecution, or adjudication processes leading to physician discipline. However, given the legal checks and balances and due process protections under California law,14 we believe that it is unlikely that bias is the predominant explanation for our findings.

Our study, however, used 2½ times as many cases and 8 times as many controls as the Morrison and Wickersham study.13 This allowed an assessment of 9 specialty categories with respect to the risk of discipline. In addition, the multivariable, logistic regression model simultaneously evaluated the association of age, sex, board certification, international medical school education, and specialty, with discipline. These associations have not been explored previously in this manner.18 There are potential policy implications for our findings. Board certification is an important credential used by medical groups, hospitals, health maintenance organizations, academic medicine, and health care consumers as an indicator of professional achievement and clinical ability.28-30 Our results and those of Morrison and Wickersham13 support the use of board certification as one benchmark of clinical quality, whether as a direct measure of specialty-relevant knowledge and skills, or as a visible indicator for other characteristics associated with good medical practice. In addition, the association of increasing age with discipline supports efforts by the American Board of Medical Specialties,31 professional societies,32,33 and researchers34-36 to enhance the development and assessment of continuing competence, professionalism, and lifelong learning among physicians.31

Additional research is needed to identify the underlying causes for the association of discipline with certain specialties, male sex, increasing age, international medical education, and lack of board certification. In addition, further work is needed to determine the factors that lead to the various types of violations. For example, it would be interesting to examine whether physician recertification affects the likelihood of medical board-imposed discipline. With a better understanding of the “pathophysiology” of discipline, ultimately, a systematic approach to the early identification and remediation of physician deficiencies might be developed to enhance patient safety. A number of physician remediation programs, in fact, have been developed to address concerns such as drug and alcohol abuse37 and incompetence.38-40 However, because significant performance problems have been identified prior to practice, in residency41 and even medical school,42 such a systematic approach will need to examine the full span of a physician's career from medical school admission through retirement from practice.

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