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Relationship between the American Board of Ophthalmology Maintenance of Certification Program and Actions Against the Medical License

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Purpose

To evaluate the likelihood of disciplinary actions against medical licenses of ophthalmologists who maintained board certification through successful completion of the American Board of Ophthalmology Maintenance of Certification program compared with ophthalmologists who did not maintain certification.

Methods

The study was a retrospective cohort study of ophthalmologists certified by the American Board of Ophthalmology from 1992 to 2012 with time-limited certificates. Rates and severity of disciplinary actions against medical licenses were analyzed amongst ophthalmologists who did and did not maintain certification.

Results

Of 9,111 ophthalmologists who earned initial board certification between 1992 and 2012, 8.073 (88.6%) maintained their certification and 1,038 (11.4%) did not maintain their certification. A total of 234 license actions were identified in the study group. Among ophthalmologists who did not maintain board certification, the risk of a license action was more than two times that of those who maintained board certification (HR 2.34, 95% CI, 1.73-3.18). License actions were significantly higher in men than in women (HR 2.02, 95% CI 1.43-2.86). Ophthalmologists who had a lapse in their certification had a higher severity of disciplinary actions ($\chi^2 = 9.21$, $p < .01$) than ophthalmologists who maintained their certification.

Conclusions

This study supports prior literature in other specialties demonstrating a higher risk of disciplinary licensure actions in physicians who did not maintain board certification as compared with those who did. Physicians who did not maintain certification were also more likely to have actions against their license reflecting a higher severity violation.

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INTRODUCTION:

Physicians have been afforded the societally uncommon professional privilege to self-regulate, on which the public relies to ensure that physicians are maintaining clinical competence throughout their careers. Although a state medical license allows a physician to practice in that state, the license is an undifferentiated license to practice medicine. Certification by one of the 24 member boards of the American Board of Medical Specialties (ABMS) is an additional credential intended to relay to the public and profession that a physician has voluntarily completed the training and acquired the skills, knowledge, judgment, and professionalism necessary to practice in a specific specialty. For more than two decades, all 24 ABMS member boards have developed maintenance of certification (MOC) programs, also known as continuing certification programs. MOC programs promote a career-long dedication to professional growth and excellence as well as a commitment to the core competencies developed by the ABMS and the Accreditation Council for Graduate Medical Education (ACGME).[1] MOC programs require periodic assessment of a physician's knowledge and skills in providing patient care in a specific specialty.

Numerous studies have been conducted to assess the value of board certification and maintenance of certification. Several investigations have demonstrated that board certification is associated with better outcomes of care, making initial board certification widely accepted by the physician community.[2-5] However, there is controversy regarding the value of maintenance of certification and its direct impact on patient care.

To further investigate the value of maintenance of certification on patient care, some medical specialties have studied the association of board certification with disciplinary actions taken against medical licenses as a method to ascertain physician performance. Disciplinary actions by state medical boards are taken against physicians who engage in unprofessional, improper, or incompetent medical practice.[6] Disciplinary actions reflect violations in practice standards that involve patient care (such as negligence or inappropriate prescribing) or can negatively affect patient care (such as substance abuse).[7] These studies have demonstrated that attaining initial board certification is associated with a lower likelihood of disciplinary actions.[2,7-15] Evidence has been accumulating that maintaining board certification is also associated with a decreased incidence of state medical board disciplinary actions.[16-20] To our knowledge, the relationship between disciplinary actions and maintenance of board certification in ophthalmology has not been previously reported.

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The American Board of Ophthalmology (ABO) certifies ophthalmologists who meet a series of accredited medical training requirements and successfully pass two examinations, a Written Qualifying Examination and an Oral Examination. Physicians who meet the requirements for initial certification become Diplomates of the Board and earn a certificate valid for ten years. Since 1992, all Diplomates have been required to actively maintain their certificate through a career-long learning, practice improvement, and knowledge assessment process through the ABO's Continuing Certification program (previously known as the MOC program).

We hypothesized that ophthalmologists who achieved initial ABO board certification after 1992 and who maintained their certification by completion of the MOC program were less likely to have disciplinary actions against their license as compared with those ophthalmologists who achieved initial board certification after 1992 but did not maintain their certification. We further hypothesized that ophthalmologists who did not maintain certification were more likely to receive disciplinary actions reflecting a higher level of severity.

METHODS:

This study was reviewed and deemed not human subject research by the Medical College of Wisconsin Institutional Review Board (Milwaukee, Wisconsin) and did not require further review. The study adhered to the tenets of the Declaration of Helsinki and the Health Insurance Portability and Accountability Act.

The study was a retrospective cohort study that included ophthalmologists certified by the ABO with time-limited certificates from 1992 to 2012. Data from the ABO database were cross matched with data maintained by the Federation of State Medical Boards (FSMB) for validation. The deidentified data were analyzed for successful completion or lapse in maintenance of certification, rate of disciplinary actions, and severity of disciplinary actions.

Data used in this study adhered to the American Board of Ophthalmology's Data Collection, Use and Sharing Policy as outlined in the ABO's Rules, Regulations and Administrative Policies.[21]

Of the 35,191 ophthalmologists in the ABO database, data from 9,111 ophthalmologists certified from 1992 to 2012 were used in the analysis. 17,531 ophthalmologists who achieved ABO board certification prior to 1992 and 3,544 ophthalmologists who did not achieve initial ABO board certification were excluded from the analysis. 4,979 ophthalmologists who earned ABO board certification after 2012 were also excluded as these individuals would not have had the opportunity to complete or not complete the MOC program at the time of data analysis. An additional 13 ophthalmologists were excluded as they had missing data for variables deemed important for the analysis (birth date and/or gender) and 13 ophthalmologists were excluded because they had received and had rectified licensure actions before attaining initial board certification.

The study group was separated into two groups: Group 1 were ophthalmologists certified after 1992 and maintained their certification through successful completion of the MOC program and Group 2 were ophthalmologists certified after 1992 and did not maintain their certification due to lack of completion of the MOC program requirements. The following demographic variables were included for the study group: age and gender.

Disciplinary actions against medical licenses of our study group of ophthalmologists were obtained from the FSMB. The FSMB collects and maintains a comprehensive repository of disciplinary actions taken against physicians by all state medical boards and reports this information to ABMS member boards, including the ABO, through the Disciplinary Action Notification System. To facilitate the analysis of the disciplinary actions, the disciplinary actions were categorized into three groups based on the severity of the licensing board action, similar to prior studies[9]: "very severe" if the action resulted in the license being denied, revoked, surrendered, or suspended; "somewhat severe" if the license had conditions or restrictions imposed or if the physician was placed on probation; and "less severe" if the action was a reprimand, requirement for continuing medical education, or an administrative action (e.g., a fine or other formal action) (Table 1).

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The data were analyzed using a survival analysis model. Our goal was to model ophthalmologists' risk of receiving a license action after they received their medical license. Because the date of medical license was not available in the dataset, the ABO certificate date minus one year was used as a proxy for the medical license date (start date). For ophthalmologists who received one disciplinary action, their end date was the date of the action against their license. For ophthalmologists who received more than one license action, their end date was the date of the first action in the highest severity category. For ophthalmologists who did not receive an action against their license, their end date was the first of the following dates: the date the data were accessed (March 29, 2022), the date their status changed to "Deceased", "Retired", or "Deactivated", or their birthdate plus 85 years (as a proxy for a potential retirement date). The cumulative incidence of license actions was visualized for the two groups with Kaplan-Meier curves, with the x-axis representing number of years since attaining medical licensure and the y-axis representing the cumulative probability of individuals who have had a license action. In addition, Cox proportional hazard regression was used to examine the association between risk of receiving a license action by study group and by demographic characteristics. A chi-square test of independence was performed to examine the relationship between study groups and the severity of disciplinary actions.

RESULTS:

Demographic characteristics of ophthalmologists certified after 1992 who maintained versus did not maintain board certification through the MOC program are displayed in Table 2. The majority of ophthalmologists in both groups were male: 5,685 (70.4%) in the maintained certification group and 715 (68.9%) in the did not maintain certification group.

Of the 9,111 ophthalmologists who earned initial board certification between 1992 and 2012, 8.073 (88.6%) maintained their certification and 1,038 (11.4%) did not maintain their certification due to lack of successful completion of the MOC program (Table 2). A total of 234 license actions were identified in ophthalmologists who received time-limited certificates from 1992-2012. There were 181 cases among ophthalmologists who maintained

their certification and 53 cases among those who did not (Table 2). Ophthalmologists who did not maintain their certification had a higher incidence rate of future license actions (incidence rate per 1000 person-years = 2.53, 95% CI 1.89-3.31) than ophthalmologists who maintained their certification (incidence rate per 1000 person-years = 1.09, 95% CI 0.94-1.26) (Table 2).

On Cox proportional hazards regression, male ophthalmologists were twice as likely to receive an action against their license as compared to female ophthalmologists (HR 2.00, CI 1.41-2.83, $p<0.001$) (Table 3).

Among ophthalmologists who did not maintain board certification, the risk of a license action was more than two times that of those who maintained board certification (HR 2.34, 95% CI, 1.73-3.18) (Table 4). License actions were significantly higher in men than in women (HR 2.02, 95% CI 1.43-2.86) (Table 4).

According to Kaplan-Meier analysis, the estimated cumulative incidence of license action over time for the two groups demonstrates that license actions began to increase within the first 10 years of initial certification for the physicians who did not maintain certification as compared to those who did maintain certification (Figure 1). The analysis further revealed that the proportion of physicians disciplined increased in those who did not maintain certification with each successive 10-year interval since receiving their medical license.

Ophthalmologists who did not maintain their certification were more likely to receive actions reflecting higher severity, as shown in Table 5. 79.2% of disciplinary actions received by ophthalmologist who did not maintain their certification were categorized as “very severe” or “somewhat severe”, whereas 58.6% of disciplinary actions received by ophthalmologists who maintained their certification were categorized as “very severe” or “somewhat severe”. A chi-square test of independence was performed to examine the relation between group and the severity of actions. The relation between the severity of action and having lapsed certification was significant, χ^2 (2, N = 234) = 9.21, $p < .01$ (Figure 2).

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The age at the time of the first disciplinary action in the highest severity category is shown in Table 6. Of the 234 disciplinary actions, 181 (77.9%) involved ophthalmologists older than 40 years.

DISCUSSION:

Our study adds to the growing evidence that maintaining board certification is associated with a decreased incidence of state medical board disciplinary actions.[16-20] Ophthalmologists who did not maintain their board certification because of lack of completion of the MOC program requirements were over two times more likely to have actions against their license. In addition, the incidence of disciplinary license actions was greater in the ophthalmologists who did not maintain certification and the incidence in this group increased with the number of years in practice.

Our finding of higher severity disciplinary actions in ophthalmologists who did not maintain certification has been reported in other specialties. Physical medicine and rehabilitation physicians who had a lapse in their board certification status had significantly higher licensure actions in the “very severe” or “somewhat severe” categories as compared to physicians who maintained their certification.[20] McDonald and coworkers found that general internists who passed the American Board of Internal Medicine MOC examination within the 10-year requirement window had disciplinary actions that were less severe than those who did not pass the examination.[16]

The estimated cumulative incidence demonstrating an increase over physicians’ careers may be attributed to increase in exposure and therefore increase in risk. However, another factor that can influence the estimated incidence curve is the physicians’ ability to maintain current knowledge and skills to provide ongoing optimal patient care. Studies have shown an increase in adverse license actions with increasing physician age and time since initial licensure.[12-13] Previous studies have reported that physicians who have been in practice greater than 20 years are more likely to have disciplinary actions against their license.[7] Some studies have suggested that physicians in practice for a greater number of years are at risk for providing a lower quality of care.[22] McDonald and coworkers reviewed the timely completion of the American Board of Internal Medicine MOC examination within 10 years of initial certification and MOC examination scores with disciplinary actions.[16] The researchers found that physicians who did not pass the MOC examination within the 10 year timeframe and those with lower MOC examination scores were more likely to have disciplinary actions, suggesting that the knowledge base a physician has acquired,

and maintains, is associated with better performance and care. Further research is needed to ascertain what factors influence licensure actions with age, including a decrease in knowledge base, a possible gradual deviation from practice standards, or an increase in practice exposure and risk over time.

Our study noted that male ophthalmologists were more likely to receive disciplinary actions as compared to women. Although a few studies have found that male sex was not a risk factor for disciplinary actions in physicians with prior unprofessional behavior in medical school[23-24], the majority of previously published studies have demonstrated that male physicians are more likely to receive disciplinary actions.[10,12,14-16,25] The lower rate of disciplinary actions in female physicians also matches the lower rate of malpractice claims in this group.[26-27] Communication problems have been cited as the most common reason for complaints against physicians and more effective communication by female physicians may be a contributing factor to their lower rates of disciplinary actions and malpractice claims.[26,28]

Although license actions taken by state medical boards serve as one marker of deficiencies in physician performance, it does not serve as a direct measure of physician performance and patient outcomes. The impact of board certification on patient outcomes has been better recognized with respect to initial board certification as compared to maintaining certification. Several studies have demonstrated that initial board certification has been associated with better outcomes of care.[2-5,29] In ophthalmology, board certification was associated with a lower risk of endophthalmitis after intravitreal injections.[30] In internal medicine, mortality rates in the treatment of patients with acute myocardial infarction were lower in board certified physicians.[3] Certification in general vascular surgery was a predictor of significantly better outcomes in carotid endarterectomy and abdominal aortic repair.[29]

The role of maintaining certification on physician performance and patient outcomes is not as well known. There is accumulating evidence that maintaining board certification and scoring higher on the MOC examination is associated with better adherence to process measures related to patient care.[31-34] However, not all studies have found that maintenance of certification leads to improved adherence to quality measures and patient care. One study found no difference in 10 performance measures between internists at four Veterans Affairs medical centers who held time-limited vs time-unlimited board certifications.[35] The number of internists in the study (n =104) was relatively small, however, and the results may not be similar in non-VA settings. Further studies are needed to ascertain the impact of maintaining board certification on patient outcomes.

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Subsequent research can review which component(s) of the MOC program were not successfully completed by the ophthalmologists who did not maintain certification and whether performance on the individual components of the MOC program may be related to physician performance. Several studies have reported that passing the MOC medical knowledge examination (formerly known as Part III), passing the exam on the first attempt, and obtaining higher scores on MOC examinations are associated with fewer disciplinary actions. The risk of disciplinary actions among physicians who did not pass the American Board of Internal Medicine MOC examination within a 10-year requirement window was more than double that of those who did pass the examination.[16] Failing the American Board of Surgery's recertification exam on the first attempt was associated with a higher rate of subsequent loss-of-license actions as compared to those who passed the exam on the first attempt.[36] A history of license actions was associated with lower scores on the American Board of Anesthesiology MOC examination as well as on the American Board of Physician Medicine and Rehabilitation MOC examination.[20,37] Negligence or incompetence have been reported as common causes for disciplinary actions, and these studies suggest that medical knowledge may be an important predictor of future licensure actions.[7]

Our study has several limitations, including the use of license actions as a measure of physician performance. Actions taken against a license vary amongst state medical boards as each state medical board is governed by its own laws and uses its own nomenclature.[38-39] Additionally, what behaviors constitute a severe action vary, which can affect the overall classification of licensure actions' severity. The Federation of State Medical Boards comprises 71 entities consisting of medical boards from all 50 states, the District of Columbia, U.S. territories, and the boards of osteopathic medicine in those states that have a separate board of osteopathic medicine. There is also variation in the criteria and processes used by the 24 ABMS specialty boards when evaluating disciplinary actions as regards decisions on board certification. The specialty boards are aware of the inconsistencies in state medical board actions and address this by reviewing all available information, rather than relying solely on the state's final disciplinary

action terminology. Another limitation of our study is that the groups of ophthalmologists studied have a variety of time exposures, as some physicians have been in practice for many years and therefore have an increased exposure to potential disciplinary actions, whereas other physicians may have been in practice for fewer years and have completed fewer maintenance of certification cycles.

In summary, this study supports prior literature in other specialties demonstrating a higher risk of disciplinary licensure actions in physicians who did not maintain board certification as compared with those who did. Physicians who did not maintain certification were also more likely to have actions against their license reflecting a higher severity violation. As with prior research, a causal relationship cannot be established between maintenance of certification and reduced rates of licensure actions. Further studies are needed to determine whether the association of reduced licensure actions in physicians who maintain their certification is related to their participation in the MOC program or if their participation is serving as a marker of other physician characteristics that reduce the risk of disciplinary actions by state medical boards.

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Table 1: Levels of Severity for Each Disciplinary Action

Action Category	Severity of Action
Administrative	Less Severe
CME Required	Less Severe
Fine	Less Severe
Irregular Behavior	Less Severe
Reprimand	Less Severe
Other	Less Severe
Conditions	Somewhat Severe
Probation	Somewhat Severe
Restricted	Somewhat Severe
Denied	Very Severe
Revoked	Very Severe
Surrendered	Very Severe
Suspension	Very Severe

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Table 2. Demographic Characteristics and License Action Incidence Rates (N = 9,111)

	No. (%)	
Characteristics	**Group 1: Certified after 1992 and Maintained Certification n = 8,073 (88.6%)**	**Group 2: Certified after 1992 and Did Not Maintain Certification n = 1,038 (11.4%)**
Gender		
Female	2,388 (29.6%)	323 (31.1%)
Male	5,685 (70.4%)	715 (68.9%)
Number of actions	181	53
Less Severe	75	11
Somewhat Severe	62	20
Very Severe	44	22
Person-years at risk	166,121.00	20,971.10
Group, Incidence per 1,000 person-years (95% CI)	1.09 (0.94-1.26)	2.53 (1.89-3.31)

CI=confidence interval

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Table 3. Cox Proportional Hazards Regression Predicting Risk of Receiving a License Action by Demographic Characteristics (N = 9,111)

Variable	**Hazard Ratio (95% CI)**	***P* Value**
Gender		
Female	1 [Reference]	NA
Male	2.00 (1.41, 2.83)	<0.001

CI=confidence interval

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Table 4. Cox Proportional Hazards Regression Predicting Risk of Receiving a License Action by Group (N = 9,111)

Variable	**Hazard Ratio (95% CI)**	***P* Value**
Group		
Group 1: Certified after 1992 and Maintained Certification	1 [Reference]	NA
Group 2: Certified after 1992 and Did Not Maintain Certification	2.34 (1.73, 3.18)	<0.001
Gender		
Female	1 [Reference]	NA
Male	2.02 (1.43, 2.86)	<0.001

CI=confidence interval

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Table 5: Association of Severity of Action with Certification History

Certification History	Very Severe	Somewhat Severe	Less Severe
Maintained Certification (Group 1)	44 (24.3%)	62 (34.3%)	75 (41.4%)
Did Not Maintain Certification (Group 2)	22 (41.5%)	20 (37.7%)	11 (20.8%)

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Table 6. Age at Time of First License Action in the Highest Severity Category

Age	*n*	Percent of Actions
< 30	1	0.4%
30 - 39	52	22.2%
40 - 49	86	36.8%
50 - 59	86	36.8%
60 +	9	3.8%
Total	234	

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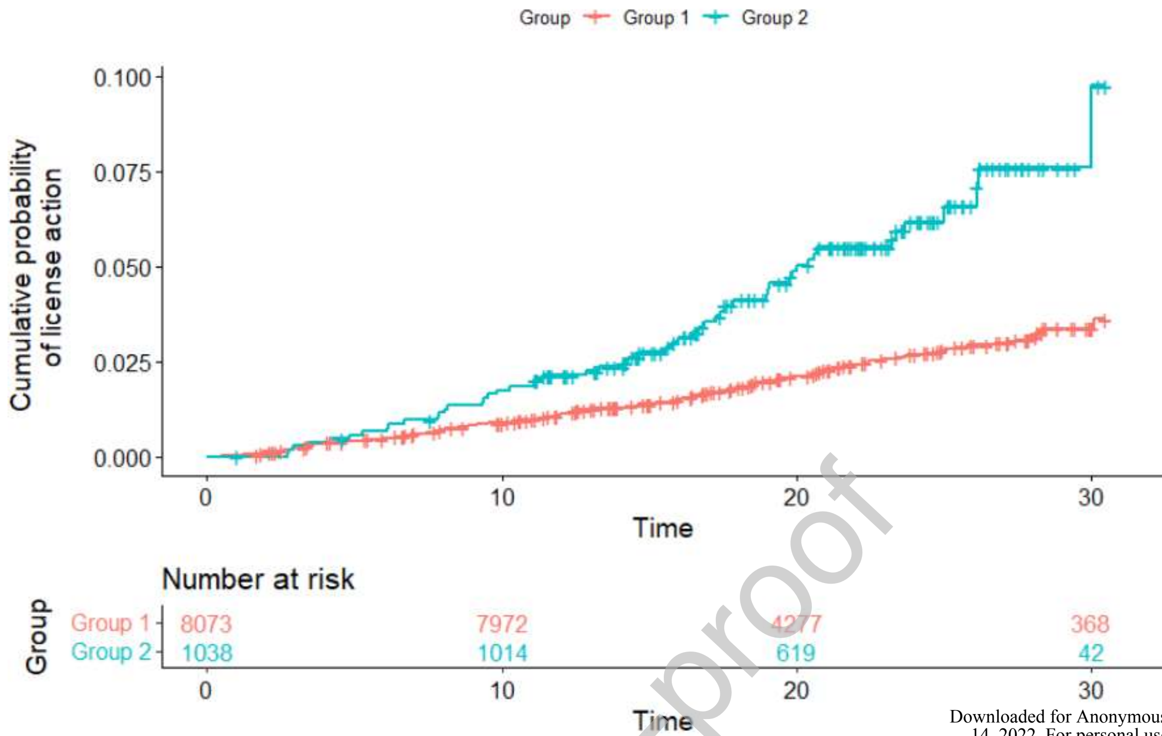

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Figure 1: Adjusted cumulative probability of risk of license action for ophthalmologists with time-limited certificates who did (Group 1, n=8073) and did not (Group 2, n=1038) maintain their certification through successful completion of the MOC program, as estimated with Kaplan-Meier method. Shown below the abscissa are the numbers of physicians at risk for each Group.

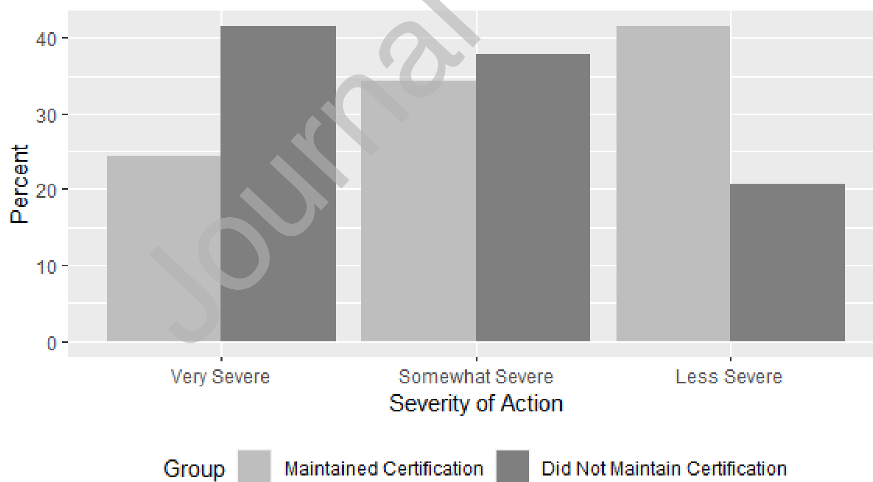

Figure 2. Ophthalmologists who did not maintain their certification have a greater likelihood of higher severity actions [χ^2 (2, N = 234) = 9.21, p < .01]

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