# Impact of Legal Education Reform on Plastic and Reconstructive Procedure-Related Malpractice Litigation in South Korea

Daihun Kang and Seung Eun Hong *

Posted Date: 11 November 2024

doi: 10.20944/preprints202411.0730.v1

Keywords: malpractice litigation; legal education reform; law school; medicolegal issue; plastic surgery malpractice; reconstructive surgery litigation; medical liability; civil litigation; judicial outcomes

 doi:10.20944/preprints202411.0730.v1



*Article*

# Impact of Legal Education Reform on Plastic and Reconstructive Procedure-Related Malpractice Litigation in South Korea

**Daihun Kang and Seung Eun Hong ***

Department of Plastic and Reconstructive Surgery, Ewha Womans University Seoul Hospital, College of Medicine, Ewha Womans University, 260 Gonghang-daero, Gangseo-gu, Seoul 07804, Republic of Korea
* Correspondence: monkeyhong@hanmail.net

**Abstract: Background**: Legal education reform, particularly the introduction of law schools in South Korea in 2009, may have significant implications for malpractice litigation, particularly in specialized fields such as plastic and reconstructive surgery. This study aims to assess the impact of this reform on malpractice litigation related to these procedures. **Methods**: This retrospective study analyzed civil court decisions from 2006-2012 (pre-law school period) and 2017-2021 (post-law school period). Data were collected from legal databases using terms related to plastic and reconstructive procedures. Statistical tests such as the Mann-Whitney U test, Fisher's exact test, and Monte Carlo simulations were employed to assess changes in case frequency, litigation duration, plaintiff success rates, adjudicated damages, and liability attribution. **Results**: A significant increase was observed in the annual frequency of cases (from 3.28 to 15, $p < 0.001$) and litigation duration (median increase from 969 to 1,570 days, $p < 0.001$) in the post-law school period. No statistically significant changes were found in adjudicated damages or liability attribution rates. However, a decrease in median consolation money awards was noted ($p = 0.027$). **Conclusions**: The legal education reform led to an increase in the frequency and complexity of plastic and reconstructive procedure-related malpractice litigation, but did not significantly alter financial outcomes or liability assignment. This suggests that while the reform influenced the litigation process, case outcomes remained stable in terms of damages and liability.

**Keywords:** malpractice litigation; legal education reform; law school; medicolegal issue; plastic surgery malpractice; reconstructive surgery litigation; medical liability; civil litigation; judicial outcomes

## Background

The intersection of law and medicine often reveals complex societal changes. In 2009, South Korea implemented a significant reform in its legal education system by introducing law schools, aiming to enhance the quality and specialization of legal professionals [1,2]. This study specifically investigates the effects of this legal education reform on malpractice litigation concerning plastic and reconstructive procedures.

South Korea's prominent position in the global plastic surgery industry provides a unique context for this research [3]. The increasing popularity of various plastic and reconstructive procedures has led to a rise in legal disputes, presenting new challenges to the justice system [4]. These cases raise important questions about medical ethics, patient autonomy, and legal liability in an evolving healthcare landscape.

Our study focuses on first-instance civil court decisions in plastic and reconstructive surgery malpractice cases, comparing the periods before and after the introduction of law school graduates into the legal profession. By analyzing case frequency, litigation duration, plaintiff success rates,

 doi:10.20944/preprints202411.0730.v1



adjudicated damages, consolation money and the types of procedures involved, we aim to provide a comprehensive assessment of the changes in the legal landscape.

The scope of our research encompasses a wide range of procedures, from cosmetic surgeries to complex reconstructive operations such as breast reconstruction. This broad approach allows us to capture the full spectrum of plastic and reconstructive surgery-related malpractice cases and their legal outcomes, offering insights into how different types of procedures may be affected by changes in legal education and practice.

While our focus on first-instance decisions may not encompass the entire legal process, it provides crucial insights into the immediate impact of legal education reform on judicial decision-making at the primary level. This study contributes to the ongoing dialogue about the relationship between legal education and the practical application of justice in specialized areas of medical law.

Through this analysis, we aim to provide a comprehensive and balanced understanding of how legal education reform has influenced plastic and reconstructive surgery malpractice litigation, contributing to the ongoing discussion about the evolving relationship between law and medicine in modern society.

## Methods

### *Study Design and Data Collection*

This study did not involve clinical trials. Clinical trial number: not applicable.

This retrospective study analyzed civil court decisions related to plastic and reconstructive procedure-related malpractice in South Korea, focusing on changes before and after the introduction of law school graduates into the legal profession, including both attorneys and judges. Data were collected from multiple legal databases, including the Supreme Court of Korea's case database [5], LAWnB [6], BigCase [7], and Casenote [8]. The search strategy utilized specific terms such as "cosmetic surgery," “plastic surgery,” “reconstructive surgery,” "filler," "cosmetic procedure," "Botox," "liposuction," "breast augmentation," "cosmetic malpractice," "cosmetic surgery complications," “plastic surgery complications,” and "medical disputes."

### *Study Period and Sample*

The study period was strategically divided into two segments to capture the impact of legal education reform:

- **Pre-Law School Graduate Period:** January 1, 2006 – December 31, 2012
- **Post-Law School Graduate Period:** March 1, 2017 – December 31, 2021

The post-law school graduate period was limited to December 31, 2021, to avoid potential biases introduced by the Coronavirus disease - 2019 (COVID-19) pandemic. During the pandemic, significant disruptions in court operations led to delays in legal proceedings, which could have skewed the data. Excluding this period helps maintain the integrity of the study by focusing on data unaffected by these external disruptions.

### *Inclusion Criteria*

Cases were included if they met the following criteria:

1. Civil lawsuits related to complications or dissatisfaction following plastic and reconstructive procedures
2. First-instance court decisions
3. Plaintiffs seeking damages for alleged medical malpractice
4. Cases involving allegations of breach of duty of care or duty to inform

### *Exclusion Criteria*

To ensure relevance and consistency, the following cases were excluded:

 doi:10.20944/preprints202411.0730.v1



1. Cases dated between January 1, 2013, and February 28, 2017, due to:
   - The requirement for law school graduates to gain 6 months of practical experience before establishing or joining a law practice (as stipulated in Article 21-2 of the Attorney-at-Law Act)
   - The initial employment and training period for law school graduates as judges, which began in 2015. Law school graduate judges underwent an 8-month training at the Judicial Research and Training Institute [9]. To allow for an adequate adjustment period after their initial appointment, we decided to exclude data up to February 2017. This exclusion period ensures that our analysis captures the legal landscape after both law school graduate attorneys and judges had sufficient time to acclimate to their new roles and potentially influence the litigation process.
2. Cases involving three or more types of procedures, to maintain focus on specific plastic and reconstructive procedures
3. Cases involving non-medical professionals (e.g., dentists, traditional Korean medicine practitioners, unlicensed individuals)
4. Cases where the defendant was a manufacturer rather than a medical professional
5. Small claims court decisions without documented reasoning
   - In the South Korean legal system, small claims court decisions (currently set at 30 million KRW, approximately 23,000 USD) do not require written explanations of the judgment rationale. This is stipulated in Small Claims Act, which aims to expedite proceedings for claims under a certain monetary threshold. As these decisions lack detailed legal reasoning, they were excluded from the analysis.
6. Non-civil cases and settled cases

*Data Analysis*

Statistical analyses were performed using SPSS version 29.0.2.0 (IBM Corp., Armonk, NY, USA) to assess differences between the pre- and post-law school graduate periods in plastic and reconstructive procedure malpractice litigation. The following analyses were conducted:

- **Shapiro-Wilk Test**: This test was used to assess the normality of continuous variables to determine the appropriate statistical methods. The distribution of cases across geographical regions (capital vs. provincial areas) was found to satisfy normality, allowing for the use of parametric tests such as the Chi-square test. However, other continuous variables including adjudicated damages, consolation money, percentage of liability assigned to physicians, and the duration from the incident to the court decision showed non-normal distributions, justifying the use of non-parametric tests for these variables.
- **Mann-Whitney U Test**: Employed to compare non-normally distributed continuous variables between the two periods, such as adjudicated damages, consolation money, percentage of liability assigned to physicians, and case duration. This non-parametric test was chosen as an alternative to the independent t-test due to the non-normal distribution of these variables.
- **Chi-Square Test**: Conducted to examine the association between the introduction of the law school system and the distribution of cases across different geographical regions (capital vs. provincial areas), testing for shifts in the location of litigation.
- **Fisher's Exact Test**: Used to analyze categorical variables, specifically the overall plaintiff success rates between the two periods. This test was chosen over the Chi-square test due to the small sample size and the binary nature of the outcome (success or failure).
- **Fisher's Exact Test with Monte Carlo Simulation**: Applied to evaluate the association between the study periods and the types of plastic and reconstructive procedure-related malpractice cases. This variation of Fisher's Exact Test was used due to the presence of multiple categories and small sample sizes in some categories, which can make the computation of exact p-values challenging. The Monte Carlo simulation provides an approximation of the exact p-value, making it particularly useful for larger contingency tables or when some cell counts are very small.

 doi:10.20944/preprints202411.0730.v1



A p-value < 0.05 was considered statistically significant for all analyses.

*Ethical Considerations*

This study was conducted in compliance with ethical standards for research. The study protocol was reviewed and exempted by the Institutional Review Board (IRB File No. SEUMC NON2024-006). All data used were publicly available court decisions, and no personal or sensitive information was collected or analyzed.

*Use of AI Tools*

In this study, the Claude 3.5 Sonnet AI tool was utilized for language translation. Specifically, Claude 3.5 Sonnet was employed to translate portions of the manuscript from Korean to English. The use of this AI tool was limited to translation tasks, and all final decisions regarding the content and accuracy of the translations were made by the authors.

## Results

### 1. Annual Frequency of First-Instance Civil Court Decisions Related to Plastic and Reconstructive Procedures: A Comparison Between 2006-2012 and 2017-2021

In the 2006-2012 period, 23 cases were identified, averaging 3.28 cases per year. During 2017-2021, there were 75 cases, averaging 15 cases per year (Table 1). This analysis suggests an increase in the average annual number of plastic and reconstructive surgery-related civil lawsuits in the latter period.

**Table 1. Comparison of Case Characteristics Before and After the Introduction of Law Schools.**

| Variable | Pre-Law School Period (2006-2012) | Post-Law School Period (2017-2021) | p-value |
|---|---|---|---|
| **Number of Cases** | 23 | 75 | |
| **Number of Cases Per Year (mean)** | 3.28 | 15 | < 0.001 |
| **Plaintiff success rate (%)** | 86.95 | 81.33 | 0.755 |
| **Adjudicated Damages (KRW)** | 57,314,193 (Mean) / 42,858 USD<br>12,682,749 (Median) / 9,483 USD | 34,980,344 (Mean) / 26,157 USD<br>3,069,767 (Median) / 2,295 USD | 0.155 |
| **Consolation Money (KRW)** | 18,173,913 (Mean) / 13,590 USD<br>15,000,000 (Median) / 11,216 USD | 13,060,000 (Mean) / 9,765 USD<br>5,000,000 (Median) / 3,738 USD | 0.027 |

 doi:10.20944/preprints202411.0730.v1



| | | | |
|---|---|---|---|
| **Liability Attribution (%)** | 43.6% (Mean)<br>50.0% (Median) | 37.0% (Mean)<br>30.0% (Median) | 0.539 |
| **Case Duration (Days)** | 1,016.74 (Mean)<br>969 (Median) | 1,594.68 (Mean)<br>1,570 (Median) | < 0.001 |

KRW refers to Korean Won, the currency of South Korea. USD refers to United States Dollar, the currency of the United States. The exchange rate used for conversion was 1 USD = 1,337.30 KRW, based on the exchange rate as of August 23, 2024.

Statistical analysis confirmed a significant difference in the number of cases per year between the two periods (Mann-Whitney U test, $U = 0.0$, $p < 0.001$).

**2. Types of Plastic and Reconstructive Procedures**

The plastic and reconstructive procedures involved in malpractice cases were classified into 12 distinct categories. This classification was based on the nature of the procedures described in the court decisions.

- Blepharoplasty (Eyelid Surgery)
- Rhinoplasty (Nose Surgery)
- Neck or Facial Lift
- Zygomatic or Mandibular Reduction Surgery
- Orthognathic Surgery
- Liposuction
- Mammoplasty or Breast Reconstruction (Breast Surgery)
- Scar Revision Surgery
- Filler and Thread Lifting
- Laser and Ultrasound Procedures
- Facial Fracture Reconstruction
- Others

Due to the small sample size and the presence of cells with expected frequencies less than 5, we employed a Monte Carlo simulation of Fisher's exact test in SPSS (10,000 samples, 95% confidence level). The test revealed no statistically significant association between the period (2006 - 2012 vs. 2017 - 2021) and the type of procedures involved in malpractice cases ($p = 0.216$, 95% CI [0.208, 0.224]).

Despite the lack of statistical significance, we observed some notable trends in the distribution of procedures between the two periods (Table 2):

1. Blepharoplasty cases increased from 8.69% in 2006 - 2012 to 16% in 2017 - 2021.
2. Filler and thread lifting cases increased from 8.69% to 20%.
3. Rhinoplasty cases decreased from 17.39% to 8%.
4. Breast surgery cases decreased from 17.39% to 13.33%.
5. Cases involving laser and ultrasound procedures (10.66%) and facial bone fracture reconstruction (4%) emerged in the 2017-2021 period, which were absent in 2006-2012.

 doi:10.20944/preprints202411.0730.v1



**Table 2. Types of Procedures Involved in Malpractice Cases Before and After the Introduction of Law Schools (2006-2012 vs. 2017-2021).**

| Procedure Type | Pre-Law School Period (%) | Post-Law School Period (%) | Change (%) |
|---|---|---|---|
| **Blepharoplasty (Eyelid Surgery)** | 8.69 | 16 | 7.31 |
| **Rhinoplasty (Nose Surgery)** | 17.39 | 8 | -9.39 |
| **Neck or Facial Lift** | 10 | 15 | 5 |
| **Zygomatic or Mandibular Reduction Surgery** | 5 | 7 | 2 |
| **Orthognathic Surgery** | 4 | 6 | 2 |
| **Liposuction** | 12 | 14 | 2 |
| **Mammoplasty or Breast Reconstruction** | 17.39 | 13.33 | -4.06 |
| **Scar Revision Surgery** | 3 | 5 | 2 |
| **Filler and Thread Lifting** | 8.69 | 20 | 11.31 |
| **Laser and Ultrasound Procedures** | 0 | 10.66 | 10.66 |
| **Facial Fracture Reconstruction** | 0 | 4 | 4 |
| **Others** | 13.84 | 12.01 | -1.83 |

Statistical analysis was performed using Fisher's exact test with Monte Carlo simulation ($p = 0.216$).

### 3. Plaintiff Success Rate

Analysis of Fisher's exact test revealed that the plaintiff success rate in the pre-law school period (2006-2012) was 86.95% (20 out of 23 cases), while in the post-law school period (2017-2021) it was 81.33% (61 out of 75 cases). Despite this slight increase, the difference was not statistically significant ($p = 0.755$).

### 4. Adjudicated Damages

Adjudicated damages were analyzed for both periods (Table 1):

- **2006-2012 (n = 23):** The median award was 12,682,749 KRW (9,484 USD), with a mean of 57,314,193 KRW (42,858 USD). Awards ranged from 0 KRW to 340,693,767 KRW (254,762 USD), with an interquartile range (IQR) of 70,139,953 KRW (52,449 USD).
- **2017-2021 (n = 75):** The median award was 3,069,767 KRW (2,295 USD), with a mean of 34,980,344 KRW (26,157 USD). Awards ranged from 0 KRW to 631,449,765 KRW (472,183 USD), with an IQR of 28,102,400 KRW (21,014 USD).
    - The exchange rate used for conversion was 1 USD = 1,337.30 KRW, based on the exchange rate as of August 23, 2024.

 doi:10.20944/preprints202411.0730.v1



Notably, there was a substantial decrease in both median and mean adjudicated damages in the post-law school period (Table 1). The median award decreased by approximately 75.8% (from 12,682,749 KRW to 3,069,767 KRW), while the mean award decreased by about 39.0% (from 57,314,193 KRW to 34,980,344 KRW). Despite these apparent decreases, the Mann-Whitney U test indicated no statistically significant difference in damage awards between the two periods ($p = 0.155$), suggesting caution in interpreting these changes.

**5. Liability Attribution Rate**

Liability attribution rates were compared between two periods:

- **2006-2012 (n = 23):**
  - Mean: 43.6% (SD = 38.33%)
  - Median: 50.0%
  - Range: 0% to 100%
- **2017-2021 (n = 75):**
  - Mean: 37.0% (SD = 38.49%)
  - Median: 30.0%
  - Range: 0% to 100%

The analysis revealed a decrease in both mean and median liability attribution rates in the post-law school period (Table 3). The mean rate decreased by 6.6 percentage points (from 43.6% to 37.0%), while the median rate showed a more substantial decrease of 20 percentage points (from 50.0% to 30.0%). This suggests a trend towards lower liability attribution to physicians in more recent cases. However, a Mann-Whitney U test indicated no statistically significant difference in liability attribution rates between the pre-law school and post-law school periods ($p = 0.539$). The consistent range across both periods indicates that courts maintained a wide discretion (0% to 100%) in liability determinations throughout the study period.

**Table 3. Distribution of Plaintiff Success Rates and Liability Attribution Before and After the Introduction of Law Schools.**

| Metric | Pre-Law School Period (2006-2012) | Post-Law School Period (2017-2021) | p-value |
|---|---|---|---|
| **Plaintiff Success Rate (%)** | 86.95 | 81.33 | 0.755 |
| **Mean Liability Attribution (%)** | 43.6 | 37 | - |
| **Median Liability Attribution (%)** | 50 | 30 | 0.539 |

Plaintiff success rates were analyzed using Fisher's exact test and Liability attribution was analyzed using the Mann-Whitney U test.

**6. Consolation Money Awards**

**Consolation money awards were analyzed for both periods:**

- **2006-2012 (n = 23):**
  - Median: 15,000,000 KRW (11,217 USD)
  - Mean: 18,173,913 KRW (13,590 USD)
  - SD = 16,937,458 KRW (12,665 USD)
  - Range: 0 KRW to 50,000,000 KRW (0 USD to 37,389 USD)

 doi:10.20944/preprints202411.0730.v1



- Interquartile Range (IQR): 20,000,000 KRW (14,956 USD)

- **2017-2021 (n = 75):**
  - Median: 5,000,000 KRW (3,739 USD)
  - Mean: 13,060,000 KRW (9,766 USD)
  - SD = 23,150,209 KRW (17,311 USD)
  - Range: 0 KRW to 125,000,000 KRW (0 USD to 93,472 USD)
  - Interquartile Range (IQR): 12,000,000 KRW (8,973 USD)

Both periods exhibited right-skewed distributions, with the 2017-2021 period showing greater variability (higher SD) and a wider range of awards. The Mann-Whitney U test revealed a statistically significant difference in consolation money awards between the two periods ($U = 601.000$, $p = 0.027$).

The median award decreased from 15,000,000 KRW in 2006-2012 to 5,000,000 KRW in 2017-2021, suggesting a general trend towards lower consolation money awards in more recent cases. However, the wider range and higher standard deviation in the 2017-2021 period indicate increased variability in awards.

These findings suggest a shift in the pattern of consolation money awards following the introduction of the law school system, with typically lower awards but greater variability in recent years. This change may reflect evolving legal standards, judicial practices, or the nature of cases being litigated during this period.

### 7. Capital Region vs. Provincial Court Case Distribution: Pre- and Post-Law School System

This study analyzed the distribution of first-instance civil litigation cases before and after the implementation of the law school system in South Korea (Table 4). The analysis compared the pre-law school period with the post-law school period, examining changes in case proportions between courts located in the capital region (Seoul, Incheon, and Gyeonggi Province) and provincial areas.

The analysis revealed an increase in the proportion of first-instance civil litigation cases in capital region courts following the implementation of the law school system. Specifically, prior to the introduction of law schools, 13 cases were processed in capital region courts and 10 cases in provincial courts. After the introduction, the number of cases increased to 52 in capital region courts and 23 in provincial courts.

**Table 4. Geographic Distribution and Case Duration of Malpractice Cases Before and After the Introduction of Law Schools.**

| Metric | Pre-Law School Period (2006-2012) | Post-Law School Period (2017-2021) | p-value |
|---|---|---|---|
| **Capital Region Cases (%)** | 56.52 | 69.33 | 0.255 |
| **Provincial Cases (%)** | 43.48 | 30.67 | 0.255 |
| **Mean Case Duration (Days)** | 1,016.74 | 1,594.68 | - |
| **Median Case Duration (Days)** | 969 | 1,570 | < 0.001 |

The geographic distribution of cases was analyzed using the chi-square test, which showed no statistically significant difference between the two periods ($p = 0.255$). Case duration was analyzed using the Mann-Whitney U test, and the p-value indicates a statistically significant increase in the median duration in the post-law school period compared to the pre-law school period.

 doi:10.20944/preprints202411.0730.v1



However, this change was not statistically significant. A chi-square test yielded a p-value of 0.255. This result indicates no statistically significant association between the implementation of the law school system and the distribution of cases between capital region and provincial courts.

**8. Case Duration**

The case duration was compared between the pre-law school (2006-2012) and post-law school (2017-2021) periods (Table 4):

- **2006-2012 period (n = 23):**
  - Median: 969 days
  - Mean: 1016.74 days (SD = 417.141 days)
  - Range: 487 to 2107 days
  - Interquartile Range (IQR): 571 days
- **2017-2021 period (n = 75):**
  - Median: 1570 days
  - Mean: 1594.68 days (SD = 758.453 days)
  - Range: 358 to 4235 days
  - Interquartile Range (IQR): 932 days

The Mann-Whitney U test revealed a statistically significant difference in case duration between the two periods ($U = 1292.000$, $Z = 3.600$, $p < 0.001$).

This analysis indicates a substantial increase in case duration from the pre-law school to the post-law school period. The median case duration increased by 601 days (from 969 to 1570 days), while the mean duration increased by approximately 578 days. The wider range and larger IQR in the post-law school period suggest greater variability in case durations during this time.

## Discussion

This study examines the impact of a significant reform in South Korea's legal education system — the introduction of law schools in 2009 — on litigation related to plastic and reconstructive procedures, encompassing both surgical and non-surgical treatments. The reform was designed to enhance the quality and specialization of legal professionals [3]. Our research presents one of the first empirical analyses of how this educational shift has influenced a specific area of medical law, focusing on malpractice cases related to plastic and reconstructive procedures.

### 1. Key Findings and Analysis

#### 1.1. Increase in Case Frequency

A significant increase in the average annual number of cosmetic procedure-related civil lawsuits in the first instance was observed from the 2006-2012 period to the 2017-2021 period. This trend is statistically significant ($p < 0.001$). This increase likely reflects a complex interplay of factors:

- Enhanced Legal Awareness: The introduction of law schools may have contributed to greater public understanding of legal rights in medical contexts, potentially lowering the threshold for litigation [10].
- Expansion of the Cosmetic Procedures Market: South Korea's growing cosmetic procedures industry naturally increases the potential for disputes [11].
- Increased Availability of Legal Services: The influx of law school graduates has likely made legal representation more accessible, possibly encouraging more patients to pursue litigation [12].

This increase in case frequency suggests that the legal education reform may have had broader societal impacts, potentially altering the dynamics between medical practitioners and patients. It raises important questions about the balance between patient rights, medical practice, and the role of legal professionals in mediating these relationships.

#### 1.2. Increase in Litigation Duration

Our analysis revealed a statistically significant increase in case duration from a median of 969 days in the 2006-2012 period to 1,570 days in the 2017-2021 period ($p < 0.001$). This substantial increase of approximately 601 days warrants careful consideration:

 doi:10.20944/preprints202411.0730.v1



- Complexity of Legal Strategies: Law school graduates may be employing more sophisticated, but time-consuming, legal approaches [13]. Their training might include comprehensive case analysis and extensive use of expert witnesses, contributing to longer litigation times.
- Systemic Inefficiencies: The increase in case numbers may be straining the judicial system, highlighting potential inadequacies in court resources and administration. The judicial infrastructure might not have evolved proportionally to handle the surge in litigation effectively [14].
- Implications for Stakeholders: Prolonged litigation can have substantial emotional and financial impacts on both patients and medical practitioners. For patients, delayed resolution can exacerbate financial and psychological stress. For medical professionals, extended litigation periods can lead to prolonged professional uncertainty and potential reputational damage.

This finding challenges the assumption that increasing the number of legal professionals would streamline the judicial process. Instead, it suggests that the reform may have introduced new complexities into legal proceedings, necessitating a re-evaluation of how the judicial system handles these cases.

### 1.3. Stability in Adjudicated Damages

Our analysis of adjudicated damages revealed a decrease in both median and mean values in the post-law school period. The median award decreased by approximately 75.8%, while the mean award decreased by about 39%. However, the Mann-Whitney U test indicated no statistically significant difference in damage awards between the two periods ($p = 0.155$).

This stability in adjudicated damages, despite the apparent decrease, suggests that:

- Judicial Consistency: Courts may be maintaining consistent standards in assessing these cases, implying that fundamental legal principles and precedents continue to guide judicial decisions, even as the process of litigation evolves.
- Complex Factors at Play: The observed decrease, though not statistically significant, might reflect changing judicial perspectives, societal attitudes towards plastic and reconstructive surgery complications, or shifts in legal strategies employed by law school graduates.

The lack of statistical significance, coupled with the high variability in the data, underscores the need for cautious interpretation of these trends.

### 1.4. Trends in Liability Attribution

The analysis of liability attribution rates showed a decrease in both mean and median values in the post-law school period. The mean rate decreased from 43.6% to 37.0%, while the median rate showed a more substantial decrease from 50.0% to 30.0%. However, the Mann-Whitney U test ($p = 0.539$) indicated no statistically significant difference between the two periods.

This observed trend, although not statistically significant, warrants further investigation:

- The consistent range (0% to 100%) across both periods indicates that courts have maintained wide discretion in liability determinations throughout the study period.
- The apparent decrease in liability attribution rates, while not statistically significant, may suggest subtle changes in case characteristics or legal arguments presented. However, without further data, it is premature to draw firm conclusions about shifts in judicial approach.

Further research would be necessary to determine whether there are genuine changes in liability attribution patterns and, if so, what factors might be driving these changes.

### 1.5. Emergence of New Procedure Types in Litigation

This study revealed a shift in the types of procedures involved in malpractice litigation. Cases involving laser and ultrasound procedures (10.6%) and facial bone fracture reconstruction (4%) emerged in the 2017-2021 period, while absent in 2006-2012.

This change may be attributed to:

1. Technological Advancements: Increased use of laser and ultrasound procedures in cosmetic treatments.

 doi:10.20944/preprints202411.0730.v1



2. Complexity of Reconstructive Procedures: Facial bone fracture reconstruction cases involve potentially severe complications.
3. Evolving Legal Landscape: The new law school system may have broadened understanding of medical malpractice law.
4. Changing Patient Expectations: Increased expectations for procedure outcomes.

It's unclear whether this represents an overall increase in litigation for these procedures or a shift in case types reaching courts. This trend underscores the need for legal and medical professionals to stay informed about emerging medical technologies and techniques.

**2. Legal and Medical Implications**

Our findings have several implications for both legal and medical practice:

1. Legal Education: Law schools may need to incorporate more specialized training in medical malpractice law, particularly focusing on emerging plastic and reconstructive surgery practices. This specialized training could enhance the preparedness of future legal professionals to handle the complexities malpractice cases.
2. Medical Practice: The increase in litigation duration emphasizes the need for robust risk management strategies in plastic and reconstructive surgery practices. Medical professionals should be proactive in managing patient expectations and maintaining high standards of care to minimize legal risks. Implementing comprehensive informed consent procedures and maintaining meticulous medical records can help mitigate potential legal issues.
3. Policy Considerations: Policymakers may need to consider measures to address the increasing duration of litigation, possibly through alternative dispute resolution mechanisms. Enhancing the efficiency of the judicial process is crucial to handle the growing caseload effectively. This could include:
    - Increasing the number of judges
    - Implementing advanced case management systems to streamline proceedings
    - Promoting the use of mediation and arbitration to resolve disputes more swiftly
4. Patient Education: There is a clear need for enhanced patient education about the risks of plastic and reconstructive surgical procedures and the potential complexities of related legal processes. Patients should be well-informed about their rights and the possible outcomes of legal action.

**3. International Context and Implications**

Our findings on the impact of legal education reform on plastic and reconstructive procedure-related litigation in South Korea gain additional significance when viewed in an international context.

South Korea's transition to a law school system in 2009 mirrors similar reforms in other countries, such as Japan's 2004 legal education overhaul [15]. However, South Korea's unique position as a global leader in plastic surgery procedures [16] provides a distinctive backdrop for this study. The observed increase in litigation frequency and duration following the reform raises questions about the universal applicability of such educational changes.

Compared to the United States, known for its high rates of medical malpractice litigation, our findings of stable adjudicated damages and liability attribution rates in South Korea present an interesting contrast. This stability might reflect cultural differences or varying legal systems, highlighting the need for cautious interpretation when comparing international trends.

The growing global recognition of specialized legal education in medical law [17,18] aligns with our findings on the complexities of plastic and reconstructive procedure-related litigation. Our study provides valuable insights for other countries considering similar legal education reforms or facing challenges in medical malpractice litigation.

However, differing cultural attitudes towards appearance, healthcare systems, and legal frameworks across countries highlight the need for country-specific studies to fully grasp the interplay between legal education, medical practice, and malpractice litigation.

**4. Limitations and Future Research Directions**

This study has several limitations that should be addressed in future research:

 doi:10.20944/preprints202411.0730.v1



1. Sample Size: The relatively small sample size, particularly in the pre-law school period (n = 23), limits the statistical power of our analyses. Future studies with larger datasets could provide more robust and generalizable findings. However, the availability of relevant court cases constrains sample size. This limitation should be acknowledged, and future research should strive to include additional cases as they become available.
2. Geographical Limitation: This study is centered on South Korea, and its findings may not be fully applicable to other legal systems. Comparative analysis with nations like the United States and Japan, which have implemented similar legal education reforms, could offer broader insights into both unique and shared impacts.
3. Influential Factors and Causality: This study did not fully account for factors such as advancements in medical technology, shifting societal attitudes towards plastic and reconstructive procedures, and broader legal reforms. These uncontrolled variables may have influenced the observed trends, complicating efforts to establish a direct causal relationship between legal education reform and changes in litigation patterns. Future research should aim to isolate these effects by incorporating data on additional variables and employing methodologies better suited to establishing causality.

## Conclusions

This study provides empirical evidence of the impact of South Korea's legal education reform on plastic and reconstructive surgery-related litigation. The key findings include a significant increase in both the frequency and duration of malpractice cases following the introduction of law schools. However, the analysis showed no statistically significant changes in adjudicated damages or liability attribution rates between the periods.

These findings suggest that while the legal education reform has contributed to an increase in the number and complexity of malpractice cases, it has not fundamentally altered the outcomes in terms of financial awards or the degree of liability assigned to medical professionals. This stability in legal outcomes indicates that the reform primarily affected the process and volume of litigation rather than the final judgments.

The increase in case duration highlights potential inefficiencies in the judicial system that may need to be addressed to handle the growing caseload effectively. Additionally, the unchanged liability attribution rates suggest that courts continue to apply consistent legal principles despite the influx of new legal professionals.

Overall, this study underscores the need for ongoing evaluation of legal education reforms to ensure that they enhance both the quality and efficiency of the legal process, particularly in specialized areas such as medical malpractice. Future research should explore whether these trends persist over time and whether additional reforms or interventions are necessary to support both legal and medical professionals in navigating this increasingly complex landscape.

**Author Contributions:** D.K. and S.E.H. conceived the study. Daihun Kang (D.K.) collected and analyzed the data, and drafted the manuscript. Seung Eun Hong (S.E.H.) supervised the project, reviewed the manuscript, and provided critical feedback. Both authors read and approved the final manuscript.

**Funding:** None.

**Ethics approval and consent to participate:** This study was reviewed and exempted by the Institutional Review Board (IRB) of Ewha Womans University Seoul Hospital (IRB File No. SEUMC NON2024-006) as it involved publicly available court decisions and did not include any personal or sensitive information. This study did not involve clinical trials. Clinical trial number: not applicable.

**Consent for publication:** Not applicable.

**Availability of data and materials:** The raw data for this study consists of publicly available court decisions related to plastic and reconstructive procedure-related malpractice in South Korea. These decisions can be accessed through the following legal databases:

1. Supreme Court of Korea's case database (https://www.scourt.go.kr/portal/main.jsp)
2. LAWnB (https://www.lawnb.com/)

3. BigCase (https://bigcase.ai/)
4. Casenote (https://casenote.kr/)

The specific search terms used to identify relevant cases are detailed in the Methods section of the manuscript.

The analyzed dataset derived from these public records is available from the corresponding author upon reasonable request and subject to approval. This dataset does not contain any personally identifiable information and is anonymized in compliance with ethical standards.

**Acknowledgements:** Not applicable.

**Competing interests:** The authors declare that they have no competing interests.

## List of Abbreviations

- COVID-19: Coronavirus Disease 2019
- KRW: Korean Won
- USD: United States Dollar
- SPSS: Statistical Package for the Social Sciences
- n = Number
- IQR: Interquartile Range
- SD: Standard Deviation
- CI: Confidence Interval
- U: U statistic (The U statistic is the test statistic for the Mann-Whitney U test.)
- Z: Z - score (The Z-score represents the standardized test statistic, which is a transformation of the U statistic.)
- p: p – value (Probability Value)

## References

1. Moon, J., *The Influence of US Legal Education on South Korean Legal Education*. 2021, Waseda University.
2. 양선숙, *로스쿨에서의 전문법률과목교육과 학점이수제의 도입-도산법 사례를 통해서 본 선택과목시험의 개선안 마련을 중심으로.* 법학연구, 2024. **35**(1): p. 463-494.
3. Kang, D. and S.E. Hong, *Legal analysis of South Korean cosmetic filler litigations for safer medical practices.* Scientific Reports, 2024. **14**(1): p. 13272.
4. Reisman, N.R., *Commentary on: Factors influencing judicial decisions on medical disputes in plastic surgery.* Aesthetic Surgery Journal, 2015. **35**(4): p. 484-485.
5. Center, N.L.I. *Korean Law Information Center*. [cited 2024 April 12]; Available from: https://www.law.go.kr/.
6. Korea, T.R. *Thomson Reuters LAWnB*. [cited 2024 August 23]; Available from: https://www.lawnb.com/Info/ContentMain/Case.
7. case, B. *Searching with the word "Filler"*. 2024 March 29, 2024 [cited 2024 March 30]; Available from: https://bigcase.ai/.
8. Casenote. *Casenote - Legal Case Database*. [cited 2024 April 12]; Available from: https://casenote.kr/.
9. 신소영. *대법원, 로스쿨 출신 판사는 '8개월 연수'*. 2015 [cited 2024 August 23]; Available from: https://www.lawtimes.co.kr/news/91076.
10. Spencer, A.B., *The law school critique in historical perspective.* Wash. & Lee L. Rev., 2012. **69**: p. 1949.
11. Park, B.Y., et al., *A legal analysis of the precedents of medical disputes in the cosmetic surgery field.* Archives of Plastic Surgery, 2016. **43**(03): p. 278-283.
12. Norris, J.W. and C.J. Mumford, *Should medicolegal medicine be part of the medical school curriculum?* Practical Neurology, 2015. **15**(2): p. 131-134.
13. Galloway, K., et al., *The legal academy's engagements with lawtech: Technology narratives and archetypes as drivers of change.* Law, Technology and Humans, 2019. **1**: p. 27-45.
14. Peyrache, A. and A. Zago, *The inefficiency of courts of justice: industry structure, capacity and misallocation.* Journal of Productivity Analysis, 2024: p. 1-22.
15. Maxeiner, J.R. and K. Yamanaka, *The new Japanese law schools: Putting the professional into legal education.* Pac. Rim L. & Pol'y J., 2004. **13**: p. 303.
16. Holliday, R. and J. Elfving-Hwang, *Gender, globalization and aesthetic surgery in South Korea.* Body & Society, 2012. **18**(2): p. 58-81.

 doi:10.20944/preprints202411.0730.v1



17. Chen-chen, Z., H. Ye-xun, and W. Yan-bo, *Analysis of the Importance of Incorporating Legal Education in Medical Education in the Context of the New Medicine Strategy.* JOURNAL OF SICHUAN UNIVERSITY (MEDICAL SCIENCES), 2022. **53**(1): p. 58-62.
18. Beran, R.G., *Legal Medicine in the 21st Century Australia-How Things Are Changing.* Med. & L., 2019. **38**: p. 547.