

## **Original Research Article**

### **Specialist and Assistant Gynecologists' Views about Defensive Medicine: Cross-sectional Study**

**Giray Kolcu<sup>1</sup>, Aysel Başer<sup>2</sup>, Mukadder İnci Başer Kolcu<sup>3</sup>, Umut Gök Balcı<sup>4</sup>, Kurtuluş Öngel<sup>5</sup>**

<sup>1</sup>Spec. Dr., Konya Selçuklu Public Health Center, Konya, Turkey

<sup>2</sup>Spec. Dr., İzmir Karşıyaka Public Health Center, İzmir, Turkey

<sup>3</sup>Dentist, Faculty of Dentistry, Konya Selçuk University, Konya, Turkey

<sup>4</sup>Spec. Dr., Tepecik Education and Research Hospital, İzmir, Turkey

<sup>5</sup>Assoc. Prof. Dr., İzmir Katip Çelebi University Faculty of Medicine, İzmir, Turkey

#### **\*Corresponding author**

Kurtulus Ongel

Email: [kurtulusongel@gmail.com](mailto:kurtulusongel@gmail.com)

---

**Abstract:** Defensive Medicine, can be defined as the practice of diagnostic or therapeutic measures conducted primarily not to ensure the health of the patient, but as a safeguard against possible malpractice liability. Aim of the study is to evaluate the prevalence of perception about defensive medicine practice for gynecologists as a very high risks group about malpractice liability. This study was designed as a cross-sectional observation. It was performed in Obstetrics and Gynecology Training and Research Hospital, Izmir, Turkey, from May to October 2012. A questionnaire called "Defensive Medicine Practice Survey" which was made by researcher was applied. For data collection, face to face interview methods were used. 31 specialist physicians and 31 physician assistants, who were working in this hospital, were agreed to join the survey (n: 62). In agreement with the other recent studies, the results showed that most of the gynecologists practice defensive medicine. When the gynecologists' tendency level to practice defensive medicine was evaluated, score was found to be %24,2 and this score shows that they apply the defensive medicine at best level (n:15), the score %50 is good level (n:31) and score % 25,8 is medium level (n:16). Study shows that the defensive medical practices are being used commonly among the gynecologists.

**Keywords:** complication, defensive medicine, malpractice.

---

#### **INTRODUCTION**

Defensive medical practices are the practices which are preferred by physicians to avert the possibility of malpractice (faulty medical treatment) suits. The primary purpose of the defensive medical practices is not to ensure the health of the patient but to prevent possible malpractice liability [1]. The defensive medical practices are commonly defined as diagnostic tests, treatments and procedures conducted as a safeguard against possible lawsuits rather than diagnosis and treatment carried out by the physician [2]. To summarize, the defensive medical practices are deviations in medical practice conducted within the medical rules based on evidence in order to prevent lawsuits [3]. The defensive medical practice is an important issue discussed in the entire world, and high ratios have been found in various studies conducted on the physicians. Based on the studies, the ratios of defensive medical practices observed in various countries are as follows; 79-93% in the United States of America (USA) [4], 60% in Israel [5], most commonly

in Italy (80%) in Europe [6], 98% in Japan [7], and 78,38% in Turkey [8].

There are two main forms of defensive medical practices [4]. Assurance Behavior (positive defensive medicine) which is accepted by the service standards of the legal system and does not have a marginal utility or medical benefit to the patient involves additional services for faults which may result in medical practice claims [9]. Avoidance Behavior (negative defensive medicine) involves the physician's behavior to be protected from legal risks. Rejection of high risk procedures and cases, avoidance from invasive procedures and elimination of high risk patients from the operation lists are among such behaviors [9].

There are many studies indicating that the defensive medical practices are common in many branches such as specialties of emergency medicine, general surgery, gynecology and obstetrics, orthopedics, neurosurgery, gastroenterology and radiology [7, 9]. The defensive medical practices are also mentioned in

medium and low risk specialties such as family medicine, psychiatry and dentistry in addition to the specialties given above which are deemed to have high risks in terms of malpractice suits [8, 10, 11].

This study aims to evaluate the opinions of the gynecologists, obstetricians and physician assistants on the defensive medical practices which are included in a high risk group in terms of defensive medical practices.

#### **MATERIAL AND METHODS:**

This study was performed in the Aegean Obstetrics and Gynecology Training and Research Hospital in Izmir between May and October 2012. 31 specialist physicians and 31 physician assistant (62 in total) working in the said hospital were included in the study. First of all, the approval of the Research Ethics Committee of the Aegean Obstetrics and Gynecology Training and Research Hospital of the Ministry of Health of the Republic of Turkey was obtained through the decision numbered 2012/2 and dated 16.02.2012 for the study.

Face to face interviews and questionnaires, which are the most commonly used methods, were used as a data collection method to determine whether such physicians conduct defensive medical practices or not, and if they do, how often they are engaged in such practices, and which possible factors such practices are in association with. The study was carried out as a cross sectional, definitive survey.

The survey prepared by the researchers in order to scale and evaluate the defensive medical practices was composed of the socio-demographic data and positive and negative defensive medical practice questions. Likert-type scale was used to arrange the responses to the psychometric questions [12]. For 14 questions scaling attitude, the following responses, each of which represents a 20% group were used: I strongly agree, I agree, neutral, I disagree, I strongly disagree. Such statements were scored as follows; I strongly agree (5 points), I agree (4 points), neutral (3 points), I disagree (2 points), I strongly disagree (1 point), and scores for each physician were calculated. Total scores were classified as below; best (56-70 points) good (42-55 points), medium (28-41 points), poor (14-27); and based on this classification, the physicians' behavioral level regarding the defensive medical practices were determined. For the questions scaling the level of knowledge, 'yes' and 'no' responses representing 50% groups were used.

The percentage distributions were calculated in the statistical analyses, and the tables were constituted; thereafter, chi-square test was used for non-numeric statements on crosstabs, so the p- and d-values (Somers's) were calculated; for the numeric values, the results were indicated in the analysis tables after the Somers's d values were calculated for the significant ones.  $p < 0,05$  was considered to be significant for chi-square test.

#### **RESULTS**

Sixty-two physicians were included in the study. 38 of the physicians (61,3%) were male, and the remaining 24 (38,7%) were female. The average age of the physicians evaluated within the scope of the study was  $36,61 \pm 8,87$  (min:26, max:62). The average period spent within the context of patient-physician was determined to be  $9,94 \pm 9,34$  (min:1, max:41) years for the physicians.

Thirty-one specialist physicians (50%) and 31 physician assistants (50%) were included in the study; the physicians' average score of attitude survey regarding defensive medicine practices was found to be  $48,22 \pm 10,24$  (min:29, max:66). The specialist physicians' average score of attitude survey was  $44,16 \pm 10,31$  (min:29, max:60), on the other hand, the physician assistants' average score of attitude survey was  $52,29 \pm 8,52$  (min:34, max:66). The distribution of the responses given by the physicians for the attitude survey regarding defensive medicine practices are presented in the table below (table 1).

It has been concluded that 15 (24,2%) of physicians included in the study practices defensive medicine at a best level, 31 (50) at a good level, and 16 (25,8%) at a medium level; also the male physicians (48,4%) act more defensive than the female physicians (25,8%); and the physician assistants act more defensive than (29,1%) the specialist physicians.

The questions scaling the level of knowledge on defensive medical practices namely 15, 16, 17 and 18 numbered questions were evaluated in the survey as well (table 2).

All questions included in the study were analyzed in terms of statistical significance among themselves, and those deemed to be significant were stated in the table (table 3).

**Table 1: The distribution of the responses given by the physicians for the attitude survey regarding defensive medicine practices according to the questions**

|          | I strongly agree | I agree    | Neutral    | I disagree | I strongly disagree | Total |
|----------|------------------|------------|------------|------------|---------------------|-------|
| Question | 6 (9.7%)         | 13 (21%)   | 25 (41.9%) | 12 (19.4%) | 5 (8.1%)            | 62    |
| Question | 11 (17.7%)       | 28 (45.2%) | 11(17.7%)  | 5 (8.1%)   | 7 (11.3%)           | 62    |
| Question | 19 (30.6%)       | 22 (35.5%) | 8 (12.9%)  | 8 (12.9%)  | 5 (8.1%)            | 62    |
| Question | 7 (11.3%)        | 12 (19.4%) | 9 (14.5%)  | 23 (37.1%) | 11 (17.7%)          | 62    |
| Question | 17 (27.4%)       | 23 (37.1%) | 16 (25.8%) | 6 (9.7%)   | 0 (0.0%)            | 62    |
| Question | 25 (40.3%)       | 17 (27.4%) | 8 (12.9%)  | 8 (12.9%)  | 4 (6.5%)            | 62    |
| Question | 11 (17.7%)       | 12 (19.4%) | 12 (19.4%) | 18 (29.0%) | 9 (14.5%)           | 62    |
| Question | 23 (37.1%)       | 25 (40.3%) | 6 (9.7%)   | 4 (6.5%)   | 4 (6.5%)            | 62    |
| Question | 27 (43.5%)       | 23 (37.1%) | 4 (6.5%)   | 4 (6.5%)   | 4 (6.5%)            | 62    |
| Question | 9 (14.5%)        | 19 (30.6%) | 12 (19.4%) | 12 (19.4%) | 10 (16.1%)          | 62    |
| Question | 14 (22.6%)       | 14 (22.6%) | 12 (19.4%) | 12 (19.4%) | 10 (16.1%)          | 62    |
| Question | 13 (21.0%)       | 19 (30.6%) | 16 (25.8%) | 11 (17.7%) | 3 (4.8%)            | 62    |
| Question | 12 (19.4%)       | 11 (17.7%) | 19 (30.6%) | 12 (19.4%) | 8 (12.9%)           | 62    |
| Question | 27 (43.5%)       | 19 (30.6%) | 6 (9.7%)   | 2 (3.2%)   | 8 (12.9%)           | 62    |

**Table 2: The distribution of the responses scaling the level of knowledge on defensive medical practices according to the titles**

| Questions scaling knowledge | Specialist physician |            | Physician assistant |            | Total      |            |
|-----------------------------|----------------------|------------|---------------------|------------|------------|------------|
|                             | Yes                  | No         | Yes                 | No         | Yes        | No         |
| Question.15                 | 5 (8.1%)             | 26 (41.9%) | -                   | 31 (50%)   | 5 (8.1%)   | 57 (91.9%) |
| Question.16                 | 31 (50%)             | -          | 27 (43.5%)          | 4 (6.5%)   | 58 (93.5%) | 4 (6.5%)   |
| Question.17                 | 21 (33.9%)           | 10 (16.1%) | 30 (48.4%)          | 1 (1.6%)   | 51 (82.3%) | 11 (17.7%) |
| Question.18                 | 13 (21%)             | 18 (29%)   | 5 (8.1%)            | 26 (41.9%) | 18 (29%)   | 44 (71%)   |

**Table 3: The statistical significance among 18 survey questions and title of the physician, age of the physician, period spent within the scope of patient-physician, gender and attitude questions**

| Question no. | Title              | Age of physician    | HHİİGS*             | Gender              | 15. Question       | 16. Question       | 17. Question       | 18. Question        |
|--------------|--------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|---------------------|
| 1            | p:0.001<br>d:0.036 | p:0.000<br>d:-0.157 | p:0.000<br>d:-0.187 |                     |                    | p:0.000<br>d:0.204 |                    | p:0.000<br>d:0.352  |
| 2            |                    |                     | p:0.000<br>d:-0.136 |                     |                    |                    |                    |                     |
| 3            |                    | p:0.000<br>d:-0.213 | p:0.000<br>d:-0.217 |                     |                    |                    |                    | p:0.000<br>d:-0.144 |
| 4            |                    |                     |                     |                     |                    |                    |                    |                     |
| 5            | p:0.002<br>d:0.374 |                     |                     |                     |                    |                    |                    |                     |
| 6            |                    | p:0.000<br>d:-0.353 |                     |                     | p:0.000<br>d:0.169 |                    |                    |                     |
| 7            | p:0.000<br>d:0.065 | p:0.000<br>d:-0.032 | p:0.000<br>d:-0.068 |                     |                    |                    | p:0.000<br>d:0.198 |                     |
| 8            |                    | p:0.000<br>d:-0.407 |                     | p:0.002<br>d:-0.191 | p:0.000<br>d:0.180 |                    |                    | p:0.000<br>d:0.272  |
| 9            |                    | p:0.000<br>d:-0.415 | p:0.000<br>d:-0.335 |                     | p:0.000<br>d:0.198 |                    |                    | p:0.002<br>d:0.217  |
| 10           | p:0.000<br>d:0.246 | p:0.003<br>d:-0.382 | p:0.000<br>d:-0.427 |                     |                    |                    |                    |                     |
| 11           | p:0.001<br>d:0.193 |                     | p:0.001<br>d:-0.432 | p:0.003<br>d:-0.378 |                    |                    |                    |                     |

|    |                     |                     |                     |                     |  |  |  |                    |
|----|---------------------|---------------------|---------------------|---------------------|--|--|--|--------------------|
| 12 |                     | p:0.001<br>d:-0.353 | p:0.000<br>d:-0.451 | p:0.000<br>d:-0.375 |  |  |  |                    |
| 13 |                     | p:0.002<br>d:-0.443 | p:0.003<br>d:-0.517 | p:0.000<br>d:-0.392 |  |  |  | p:0.000<br>d:0.319 |
| 14 |                     | p:0.003<br>d:-0.293 | p:0.003<br>d:-0.381 |                     |  |  |  | p:0.000<br>d:0.263 |
| 15 |                     | p:0.001<br>d:-0.175 |                     |                     |  |  |  |                    |
| 16 |                     |                     |                     |                     |  |  |  |                    |
| 17 | p:0.003<br>d:-0.367 | p:0.003<br>d:0.107  |                     |                     |  |  |  |                    |
| 18 |                     | p:0.000<br>d:-0.434 | p:0.000<br>d:-0.516 |                     |  |  |  |                    |

## DISCUSSION & CONCLUSION

Many publications mention that the defensive medical practices are common; however, its prevalence and characteristics are disputable [4, 9]. The defensive medical practices are not peculiar to the developed countries; they are common in the developing and least developed countries [5, 7]. In parallel with the prevalence in Turkey, the ratio has been found relatively high in the studies [8, 13].

Since the defensive medical practices are behavioral patterns, they are hard to measure. The physicians may have various behaviors to avoid from litigation [2]. For example, while the physicians in a country may prefer positive defense to avoid from litigation, those in a different country may choose negative defense to do the same. For this reason, both aspects should be evaluated in order to determine the behaviors of the physicians. Otherwise, a misleading outcome stating that there is no tendency towards to the defensive medical practices can be obtained in the relevant population [2]. In order to avoid from such a mistake, questions containing positive and negative defensive medical practices were compiled from the international publications in the study. Most of the questions for scaling the behavioral level regarding the defensive medical practices given in the survey were found to be statistically significant with each other ( $p < 0,005$ ). Based on this result, it can be said that the survey composed in a period in which the effect of the defensive medical practices on the medical service costs in the world are discussed conforms to the literature.

Since the physicians stating that they agree any of the responses given for the questions on the defensive medical practices are considered to be applying defensive medicine, relatively high ratios were detected [7,9,14]. This study is differentiated from other studies, because it is the first time the behavioral level is determined in a study. In line with the current studies, it has been concluded in this study that most of the physicians use defensive medicine, and 24, 2% of the physicians use defensive medicine at a best level (n:15),

50% at a good level (n:31), 25,8% at a medium level (n:16). The findings indicate that the concept of defensive medical practice is clearly stated by the physicians in an ongoing discussion environment [15].

In the study, it turned out that the physician assistants (45,1%) act more defensive than the specialist physicians (29,1%). There was a statistical significance between the physicians' age and most of the questions as well ( $p < 0,005$ ). In addition to this data, 71% of the physicians responded to the question "Do you have sufficient knowledge about the content of the defensive medical practices' concept?" negatively, 41, 9% of which was physician assistants. Similar results were observed in another study conducted on the physician assistants in 2010.

It is stated in the study that the physician assistants and young physicians are tended to defensive medical behaviors. These points out the importance of the increase in the level of knowledge of the physician assistants and young physicians. 45, 2% (n: 28) of the physicians agreed on "patient admission due to the non-indicative reasons (social indications) in order to avoid from legal issues" which is a positive defensive medical practice at a medium level and above; 54, 8% (n: 34) of the physicians disagreed. This outcome can be interpreted as that the physicians practice defensive medicine for relatively less costly procedures, on the other hand, they act less defensive when it comes to the high costly services such as patient admission.

80, 6% (n: 50) of the physicians included in the study have stated that they explain the medical procedures in a more detailed way for their patients; 56,5% (n:35) allocate more time for them; 87,1% (n:54) keep more detailed records; 87,1% (n:54) pay more attention to the informed consent forms. Since the increase in the ratios of taking consent, maintaining the documents regularly, communicating with the patients in a more concerned attitude, and similar behaviors are associated with the avoidance from legal issues, they are evaluated within the scope of the defensive medical

practices. Despite this, it can be evaluated positively in terms of the medical ethics since it contributes to the relationship between the patients and physicians [13].

The negative defensive medical practices are discussed not due to the cost, but due to its adverse consequences on the patient; and it is thought that the defensive medical practices make the patients suffer from unnecessary risks [1, 4]. For negative defensive medical practices, it was stated in the study that the physicians agree in the following matters at a medium level and above: 64,6% (n:40) "I avoid from the patients having a high possibly of litigating"; 77,4% (n:48) "I avoid from the patients having complex medical problems"; 77,4% (n:48) "I avoid from treatment protocols having high complication ratios"; 67,7% (n:42) "I prefer to choose non-invasive protocols over invasive treatment protocols". 58 (93,5%) of the physicians responded to the question "Are you of the opinion that the malpractice lawsuits would affect the professional performance?" positively, on the other hand, the remaining 4 (6,5%) answered negatively in the study. This situation can be regarded as an indicator that the physicians are at unease. Furthermore, how much the defensive medical practices protect the physicians from malpractice lawsuits is another question to be answered.

There is a statistical significance among the question of "Has any malpractice lawsuit been filed?" and the followings "I explain the medical procedures in a more detailed way for my patients (p: 0,000, d: 0,169), "I keep more detailed records" (p: 0,000, d: 0,180), "I pay more attention to the informed consent forms" (p: 0,000, d: 0,198). This outcome can be interpreted as that the physicians who explains the medical procedures in a more detailed way for the patients, keep more detailed records, and pays more attention to the informed consent forms encounter less lawsuits. However, the real accurate result will only be obtained only when the behavioral levels of the sufficient number of physicians who conduct defensive medical practices and are charged with medical malpractice are compared with the behavioral levels of the physicians against whom no lawsuit have been filed.

The fact that 51 physicians (82, 3%) responded to the question "Have you heard of the concept of defensive medical practices before?" positively, and 44 physicians (71%) responded to the question "Do you have sufficient knowledge about the content of the defensive medical practices' concept?" negatively indicates that the concept of defensive medical practices is not sufficiently known yet, and there is a need to arrange training programs for the occupational future of the physicians.

## REFERENCES

1. Kesler D, McClellan M; Do Doctors Practice Defensive Medicine? The Quarterly Journal of Economics, 1996; 111(2):353-390.
2. Hermer L, Brody H; Defensive medicine, cost containment and reform. Journal of General Internal Medicine, 2010; 25(5):470-473.
3. Kumar P; The myth of inexpensive defensive medicine. Health Affairs, 2010; 29(11):2126.
4. Definition of Defensive Medicine. Available from [http://en.wikipedia.org/wiki/Defensive\\_medicine](http://en.wikipedia.org/wiki/Defensive_medicine)
5. Asher E, Greenberg-Dotan S, Halevy J, Glick S, Reuveni H; Defensive Medicine in Israel - A Nationwide Survey. PLoS ONE, 2012; 7(8):e42613.
6. Traina F; Medical Malpractice: The Experience in Italy. Clin Orthop Relat Res, 2009; 467:434-442.
7. Hiyama T, Yoshihara M, Tanaka S, Urabe Y, Ikegami Y, Fukuhara T et al.; Defensive Medicine Practices Among Gastroenterologists in Japan. World Journal of Gastroenterology, 2006; 12(47):7671-7677.
8. Aynacı Y; Hekimlerde Defansif (Çekinik) Tıp Uygulamalarının Araştırılması. Konya Selçuk Üniversitesi Meram Tıp Fakültesi Adli Tıp Anabilim Dalı, Konya, 2008.
9. Studdert MD, Mello MM, Sage WM, DesRoches CM, Peugh J, Zapert K et al.; Defensive Medicine among High-Risk Specialist Physicians in a Volatile Malpractice Environment. JAMA, 2005; 293:2609-2617.
10. Sadock B; Kaplan & Sadock's Comprehensive Textbook of Psychiatry. 19. edition, Lippincott Williams & Wilkins Wolters Kluwer, Philadelphia, 2009: 3969.
11. Hancocks S; Defensive Dentistry. British Dental Journal, 2005; 199(9):12.
12. Başer A, Kolcu MIB, Kolcu G, Balcı UG; Defansif tıp uygulamaları tutum ölçeğinin Türkçe formunun geçerlilik ve güvenilirliği: Ön çalışma. Tepecik Eğitim Hast Derg, 2014; 24(2):99-102.
13. Tümer AR; 1995-2000 yılları arasında yüksek sağlık şurası tarafından değerlendirilen cerrahi vakalarının komplikasyon ve malpraktis yönünden araştırılması. Ankara Üniversitesi Tıp Fakültesi Adli Tıp Anabilim Dalı, Ankara, 2002.
14. Nahed BV, Babu MA, Smith TR, Heary RF; Malpractice liability and defensive medicine: A national survey of neurosurgeons. PLoS ONE, 2012; 7(6):e39237.
15. Yıldırım A, Aksu M, Çetin İ, Şahan AG; Tokat ili merkezinde çalışan hekimlerin tıbbi uygulama hataları ile ilgili bilgi, tutum ve davranışları. Cumhuriyet Tıp Dergisi, 2009; 31:356-366.
16. O'Leary KJ, Choi J, Watson K, Williams MV; Medical students clinical and educational experiences with defensive medicine. Acad Med, 2011; 20:PMID22189882.