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Ethical Declaration

The editorial and publication processes of the journal are shaped in accordance with the guidelines of the International Council of Medical Journal Editors (ICMJE), the World Association of Medical Editors (WAME), the Council of Science Editors (CSE), the Committee on Publication Ethics (COPE), the European Association of Science Editors (EASE), and National Information Standards Organization (NISO). Helsinki Declaration 2013 [Ref: World Medical Association. World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. JAMA. 2013;310(20):2191-2194. doi:10.1001/jama.2013.281053] and other bioethical guides [Ex: International Guiding Principles for Biomedical Research Involving Animals issued by CIOMS. Vol. 8, Veterinary Quarterly. 1986. p. 350–2. doi: 10.1080/01652176.1986.9694068] are followed. The journal conforms to the Principles of Transparency and Best Practice in Scholarly Publishing (https://doaj.org/bestpractice).

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adli tıp uzmanları derneği 1992

The Bulletin of Legal Medicine

Adli Tıp Bülteni

CONTENTS

adli tıp uzmanları derneği 1992

The Bulletin of Legal Medicine

Adli Tıp Bülteni

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- Tübitak Ulakbim Türk Tıp Dizini
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The Bulletin of Legal Medicine, 2020; 25(3):

The Bulletin of Legal Medicine
Adli Tıp Bülteni

EDITORIAL

Dear Forensic Scientists,

We are here with the third issue of the Bulletin of Forensic Medicine in 2020. The year 2020 is quite challenging for humanity, especially the pandemic. With this issue you are reading, we are leaving 25 years behind. For the first time in our journal history, we published the special issue of "Covid 19" under the editorship of Ümit Ünüvar. When the corona epidemic started in April 2020, we made a call in the media to have a medical autopsy involving immunomolecular examination of the cases found. If our call had been reciprocated, today, the world would be talking about the series of autopsies in our country, and we would be able to make a significant scientific contribution to the treatment and vaccine discovery process of the disease. We welcome autopsies and similar studies, which are very limited in this field of study in our country, to our international Journal.

In this issue of our Journal, we are happy to share with you 12 articles from various disciplines from forensic science. Our Journal is published in Turkish this year as well as in English. While our Journal website is accessed from many countries, we are also pleased to see the citation of the articles by referring to them. With the increase in the number of articles coming to our Journal and from various disciplines, we are taking confident steps towards becoming the scientific platform of forensic medicine and forensic sciences.

Life continues to show us each day how important it is to make the quality of science that can open new horizons in literature and art visible and how significant merit is in the field of forensic sciences.

With the awareness that science is the only way in building the forensic sciences of the future, and with the hope to raise the scientific quality of our Journal even higher together, I wish that it will continue to be a common platform where the most up-to-date studies in the field of Forensic Medicine and Forensic Sciences are shared.

Prof. Dr. Halis Dokgöz

Editor

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The Bulletin of Legal Medicine
Adli Tıp Bülteni

RESEARCH ARTICLE

The Effect of Psychiatric Consultations on Forensic Reports Process

Orhan Meral*, Nusret Ayaz

Abstract:

Objective: In this study, it was aimed to draw attention to the importance of the effect on a forensic report of trauma-related mental health effects and their frequency revealed in psychiatric consultation requested by the Forensic Medicine Polyclinic for cases exposed to different kinds of trauma.

Methods: A retrospective examination was made of 192 cases data consulted to the Psychiatry Department for a report requested by the judicial authorities between June 2016 and September 2019. Psychiatric evaluation of the cases was made by psychiatrists according to the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5).

Results: In the study, 192 cases, 54 male (28.1%) and 138 female (71.9%) were evaluated. The average age of the cases was 39.44±13.84 years. In 164 (85.4%) cases, the diagnostic criteria of a psychiatric disorder according to DSM-5 were met. Of 164 cases with a psychiatric disorder, although the physical effects of the trauma in 147 (89.6%) cases were classified as "of a nature which can be eliminated with a simple medical intervention", the injuries of the mental effects were determined as "of a nature which cannot be eliminated with a simple medical intervention". When the relationship between the incident and gender was examined, 76.6% (n:118) of assault crimes were determined to have been perpetrated against females ($p<0.005$).

Conclusion: In this study, findings of mental trauma were revealed, and consequently, the effect on the forensic report was determined. A multidisciplinary approach to trauma cases will provide more robust judicial management.

Keywords: Trauma, Forensic Report, Psychiatry, Consultation

Öz:

Amaç: Bu çalışmada, farklı türden travmaya maruz kalmış olgulara Adli Tıp polikliniği tarafından istenen Psikiyatri konsültasyonun, olgularda travmaya bağlı ruhsal etkilenmenin varlığı ve sıklığının ortaya koyulması ile adli rapor üzerindeki etkisinin önemine dikkat çekilmesi amaçlanmıştır.

Gereç ve Yöntem: Haziran 2016 – Eylül 2019 tarihleri arasında adli rapor için gönderilen olgular arasından Psikiyatri bölümüne konsülte edilen 192 olguya ait veriler retrospektif olarak incelenmiştir. Olguların psikiyatrik değerlendirmesi psikiyatri uzmanları tarafından DSM-5'e (Diagnostic and Statistical Manual of Mental Disorders-5) göre yapılmıştır.

Bulgular: Çalışmada 54'ü (%28,1) erkek, 138'i (%71,9) kadın olmak üzere 192 olgu değerlendirilmiştir. Olguların yaş ortalaması 39,44 (± 13,84) olarak bulunmuştur. 164 (%85,4) olguda DSM-5'e göre bir psikiyatrik bozukluğu karşılayan tanı kriterlerinin mevcut olduğu belirlenmiştir. Psikiyatrik bir bozukluk saptanan 164 olgunun 147'sinde (%89,6) travmanın bedensel etkileri "Basit Tıbbi Müdahale ile Giderilebilecek Ölçüde Hafif Nitelikte" olmasına rağmen travmanın ruhsal etkileri de göz önüne alındığında mevcut yaralanmalarının "Basit Tıbbi Müdahale ile Giderilebilecek Ölçüde Hafif Nitelikte Olmadığı" tespit edilmiştir. Cinsiyet ile olayın türü arasındaki ilişki incelendiğinde; darp eyleminin %76,6'sının (n=118) kadınlara karşı işlendiği ($p<0,05$) belirlenmiştir.

Sonuç: Bu çalışmada; ruhsal travmanın bulguları ortaya konulmuş ve adli raporun sonucuna etki ettiği belirlenmiştir. Adli makamlar tarafından gönderilen olgular ruhsal açıdan mutlaka değerlendirilmeli ve ruhsal travmanın bulguları adli raporlarda belirtilmelidir. Travma olgularında multidisipliner yaklaşım daha sağlıklı bir yargılama yürütülmesini sağlayacaktır.

Anahtar Kelimeler: Travma, Adli rapor, Psikiyatri, Konsültasyon

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Permission for the study was obtained from Bozyaka Training and Research Hospital Clinical Research Ethics Committee with the letter dated 9 October 2019 and issued 01, and the Helsinki Declaration criteria were taken into consideration.
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1. Introduction

Forensic Medicine is the scientific branch that brings together the law and medicine as a multidisciplinary approach that investigates medical subjects related to the law. Points requested to be evaluated by the judicial authorities are examined with medical approaches and evaluated according to objective criteria (1).

In cases requiring expert, specific or technical knowledge, the judicial authorities may seek the opinions of experts (2). Opinions of physicians are also requested on health-related issues. The physician who is asked to prepare a forensic report is obliged to fulfil this duty as an expert (2). The majority of the reports prepared in forensic medicine practices in our country are forensic trauma reports evaluating the severity of trauma (3). These reports are prepared in line with the issues written in the articles under the heading of "Offences Against Physical Integrity" of the Turkish Criminal Code (TCC) and in a language that the judicial authorities can understand (4).

In 2005, a guide titled *"Evaluation of Injury Crimes Defined in the Turkish Criminal Code From the Perspective of Forensic Medicine"* was prepared in order to provide a nationwide standard while evaluating injury crimes from a forensic perspective. This guide was updated in 2013 and 2019, and it was emphasized that the physical effects of trauma as well as the mental effects of trauma should be taken into account in injury crimes (5).

Consultation, which is an integral part of today's medical practices, is requested from the relevant branch physician in case of a need for scientific knowledge in any area of specialization. The guideline used in forensic medicine practices also includes criteria for determining *"mental health damage caused by trauma"*. It is essential to establish a relationship between psychological complaints and trauma. Therefore, a psychiatric evaluation should be performed in order to reflect the presence of mental influence onto the forensic report (5, 6).

Although the psychological effects of trauma are accepted as concrete evidence in our country, it has been reported that physical findings are more important in the opinions of both the investigation and judicial authorities and physicians (7). The aim of this study was to draw attention to the importance of the psychiatric consultation requested by the Forensic Medicine outpatient clinic to the cases exposed to different types of trauma, in revealing the presence and frequency of traumatic psychological effects as well as their impact on the forensic report.

2. Materials and Methods

2.1. Data Collection

This study is retrospective in nature. Among the cases sent to Bozyaka Training and Research Hospital Forensic Medicine outpatient clinic for a forensic report request between June 2016 and September 2019, 192 cases consulted to the Psychiatry Outpatient Clinic were included in the study. Psychiatric evaluation was performed by psychiatrists in accordance with DSM-5 (Diagnostic and Statistical Manual of Mental Disorders-5) (8).

In addition to the demographic characteristics of the cases such as age and gender, the authority requesting the forensic report, the type and date of the incident/crime, the date of examination at Forensic Medicine outpatient clinic and psychiatric consultation, and the results of the consultation were examined and the effect of the results on the forensic report was investigated.

2.2. Statistical Analysis

The data were analysed with the SPSS program (version 22.0). Demographic data are expressed as mean value ± standard deviation and/or percentage. Fisher's exact test and Pearson's chi-square test were used in the analysis of the data determined by frequency, percentage and count. Comparison values were calculated at 95% confidence interval; p values below 0.05 were considered statistically significant.

Ethical Statement

Permission for the study was obtained from Bozyaka Training and Research Hospital Clinical Research Ethics Committee with the letter dated 9 October 2019 and issued 01, and the Helsinki Declaration criteria were taken into consideration.

3. Results

Of the 192 cases included in the study 54 (28.1%) were male and 138 (71.9%) were female. Their age ranged between 18 and 80. The mean age was 39.44 ± 13.84. When the distribution of the cases according to age groups was examined, it was found that the most cases were between the ages of 18-30 (n = 60, 31.3%), and the most frequently applied was in 2017 (n = 63, 32.8%). 90.7% (n = 174) of the judicial authorities requesting forensic reports were district police headquarters; when the types of crimes were examined, it was revealed that majority of forensic reports were requested due to the crime of deliberate injury with a rate of 85.9% (n = 165) and 80.2% (n = 154) of the cases were injured as a result of assault. The demographic data of the cases and incidents are as shown in Table 1.

Table 1. Demographics	
Gender	n (%)
Male	54 (28.1)
Female	138 (71.9)
Aged between	18 – 80
Mean age	39.44 ± 13.84
Male	41.91 ± 13.63
Female	38.48 ± 13.85
Age groups	
18-30	60 (31.3)
31-40	45 (23.4)
41-50	43 (22.4)
51-60	27 (14.1)
61 and above	17 (8.8)
Number of reports by year	
2016	36 (18.8)
2017	63 (32.8)
2018	47 (24.4)
2019	46 (24.0)
Requested by	
Police headquarters	174 (90.7)
Gendarmerie station command	7 (3.6)
Public prosecutor's office	7 (3.6)
Court	4 (2.1)
Type of crime	
Deliberate injury	165 (85.9)
Reckless (accidental) injury	27 (14.1)
Type of incident	
Physical assault	154 (80.2)
Traffic accident outside the vehicle	13 (6.8)
Traffic accident inside the vehicle	10 (5.2)
Penetrating injury	8 (4.2)
Firearms injury	3 (1.6)
Fall from height	2 (1.0)
Electric shock	1 (0.5)
Burn injury	1 (0.5)

It was found that a total of 158 (82.3%) patients, 92 (47.9%) in the first three days, applied to the forensic medicine outpatient clinic within the first month after the incident, and all of these patients were consulted to the psychiatry department within the first month following the incident. (Table 2).

In the medical histories of the cases, there was no information about whether they had previously been diagnosed with any mental disorder or not. As a result of the psychiatry consultation, no psychiatric effect was determined in 28 (14.6%) cases, and 164 (85.4%) cases were found to meet the diagnostic criteria of a psychiatric disorder according to DSM-5 (Table 3). In forensic reports prepared as a result of forensic medical evaluation made in line with this information; It was observed that the injuries of 28 patients without a mental disorder were *"of a nature which can be eliminated with a simple medical intervention"*, and that the injuries of 164 patients with any psychiatric disorder were *"of a nature which cannot be eliminated with a simple medical intervention"*.

Table 2. Time from the incident to Forensic Medicine examination and Psychiatry consultation		
Time from the incident to presentation at Forensic Medicine outpatient clinic	**n**	**%**
Within the first 3 days	**92**	**47.9**
4 - 30 days	**66**	**34.4**
1 - 6 months	**22**	**11.5**
More than 6 months	**12**	**6.2**
Time from the incident to Psychiatry consultation	**n**	**%**
4 - 30 days	**158**	**82.3**
1 - 6 months	**22**	**11.5**
More than 6 months	**12**	**6.2**

Table 3. Mental health findings determined as a result of psychiatric consultation		
	n	**%**
Acute Stress Disorder	**114**	**59.4**
No mental health disorder	**28**	**14.6**
Adjustment Disorder	**25**	**13.0**
Post-Traumatic Stress Disorder	**21**	**10.9**
Permanent Organic Mental Disorder	**4**	**2.1**

In 147 (89.6%) of the patients with mental disorders, although the physical effects of trauma were found to be *"of a nature which can be eliminated with a simple medical intervention"*, when the mental effects were considered, the current injury was then determined to be *"of a nature which cannot be eliminated with a simple medical intervention"*. In 17 (10.4%) cases, the physical effects of the injuries were *"of a nature which cannot be eliminated with a simple medical intervention"* due to the findings of bone fracture and / or life-threatening trauma and therefore, the psychiatric disorder determined according to the DSM-5 did not change the result of the forensic report (Table 4).

Table 4. The effect of the mental health findings determined as a result of consultation on the forensic report

	Changed to "of a nature which cannot be eliminated with a simple medical intervention"	**No changes occurred ***	**Total**
	n (%)	**n (%)**	**n**
Acute Stress Disorder	106 (93.0)	8 (7.0)	114
Adjustment Disorder	24 (96.0)	1 (4.0)	25
Post-Traumatic Stress Disorder	17 (81.0)	4 (19.0)	21
Permanent Organic Mental Disorder	0	4 (100.0)	4
Total	**147**	**17**	**164**

* Physical injuries were already considered as "of a nature which cannot be eliminated with a simple medical intervention", therefore the conclusion did not change when the mental health findings were considered as well.

Although there is no data on the gender of the person who committed the act in medical records, 75.8% (n = 125) of the crimes of intentional injury were committed against women ($p<0.05$), and 76.6% (n = 118) of the crimes of assault were also committed against women ($p<0.05$) (Table 5).

Table 5. Distribution of crimes causing injury by gender

Gender	**Deliberate Injury**			**Total**	**Reckless Injury**					**Total**
	Physical assault	**Penetrating Injury**	**Firearm Injury**		**TAIV**	**TAOV**	**FFH**	**Electric Shock**	**Burn injury**	
Male	36	3	1	40	2	8	2	1	1	14
	23.4%	37.5%	33.3%	24.2%	14.3%	57.2%	14.3%	7.1%	7.1%	51.9%
Female	**118**	5	2	**125**	8	5	0	0	0	13
	76.6%	62.5%	66.7%	**75.8%**	61.5%	38.5%	0.0%	0.0%	0.0%	48.1%
Total	154	8	3	165	10	13	2	1	1	27
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TAIV: Traffic accident inside the vehicle, TAOV: Traffic accident outside the vehicle, FFH: Fall from height.

When the relationship between the age group and the type of the incident and the nature (deliberate or reckless) of the incident causing injury was examined separately, no statistically significant difference was found, also no statistically significant correlation was found between the effect of the requested consultations on forensic medical evaluation and the age group, gender of the cases, the type of the incident, deliberate or reckless nature of the incident, the time from the incident to the request for consultation. ($p>0.05$).

4. Discussion

Psychiatry is reported to be the most frequently requested consultation in forensic medicine practices (6). In this study, 192 cases were consulted to the Psychiatry Department among the cases sent to the Forensic Medicine outpatient clinic of Bozyaka Training and Research Hospital between June 2016 and September 2019. The majority of the cases are women and are in the 18-30 age group and the mean age is 39.44 ± 13.84. Also most frequently; It was determined that the cases were sent by the district police headquarters, the crime of deliberate injury was committed, and the cases were injured as a result of an assault. The number of studies similar to this study is very limited in our country. In a study by Can et al. (7) where 56.3% of the cases were women, the average age was found to be 40.30 ± 17.17, the most frequent injuries were the result of traffic accidents (29.6%) and blunt trauma due to interpersonal violence (28.9%).

When the definition *"injury that inflicts pain on someone else's body / causes deterioration of their health or perception"* by TCC is examined; it can be understood that the physical and psychological findings related to trauma are piled under the same title and it is aimed to determine the severity of these injuries. Therefore, the psychological effects of trauma should be investigated as

well as the physical effects (5, 9). In this study, it is seen that 82.3% of the cases applied to the Forensic Medicine outpatient clinic within the first month after the incident and all of these cases were consulted to the psychiatry department within the first month after the incident. Since psychological effects mostly wear off over time, in the case of mental complaints in forensic cases, performing a psychiatric examination at the earliest possible period is of great importance in terms of revealing the psychological effects and establishing the causal relationship between the trauma and these findings. Those who suffer from a crime require a forensic psychiatric examination and a report (10).

Psychiatrists most frequently follow the DSM-5 Diagnostic Criteria Reference Manual published by the American Psychiatric Association in 2013 when evaluating the impact of trauma related to mental disorders that develop due to the trauma (8). They then assess whether the findings detected as a result of the psychiatric examination meet the criteria of one of the diagnoses in the *"Trauma and Stressor-related Disorders"* section of the DSM-5 handbook (Table 6). In this assessment, the decision is made by evaluating factors such as the severity of the trauma, the duration of the findings, the clinical condition and functionality of the patient, and the causality of the trauma (cause-effect relationship between the incident and the findings) (5).

Table 6. Trauma and Stressor-related Disorders

Reactive Attachment Disorder
Disinhibited Social Engagement Disorder
Post-Traumatic Stress Disorder
Acute Stress Disorder
Adjustment Disorders
Other Specified Trauma and Stressor-Related Disorder
Unspecified Trauma and Stressor-Related Disorder

Psychiatry physicians sometimes are concerned about forensic issues, and forensic issues take up little space in general psychiatry training. However every psychiatrist should have a general knowledge of this issue, so that both psychiatrists can be protected from judicial or administrative damages, and the patients they treat will not be at risk for loss of their rights (11). In a study involving 1084 patients admitted to the hospital due to trauma, a psychiatric disorder was found in 31% of them at the end of 12 months, and 22% of those reported a psychiatric disorder that they had never experienced before (12). Depression, generalized anxiety disorder and post-traumatic stress disorder were the most common in these patients (12). In another study, it was stated that at least one psychiatric disorder developed in 28% of the patients 72 months after a serious injury and it posed an increased risk for incapacity to work (13). In this study, it was determined that 85.4% of the cases who were consulted to the Psychiatry Outpatient Clinic met the diagnostic criteria for a mental disorder according to DSM-5. Acute stress disorder has been reported the most. In the study of Can et al., this rate was found to be 81% (7). Considering the contribution of revealing mental impairments to both the treatment process and forensic medical evaluation, we recommend that patients who describe mental complaints and / or who are thought to have mental impairment in the Forensic Medicine outpatient clinic should be referred for psychiatric consultation.

Mental health effects are important in determining whether an injury is *"of a nature which can/cannot be eliminated with a simple medical intervention"*. If the person is determined to have a disorder in accordance with DSM-5 as a result of this trauma, the forensic report states that the injury is of a "*of a nature which cannot be eliminated with a simple medical intervention"*. In this study, it was determined that 85.4% of the patients who requested psychiatric consultation were diagnosed with a psychiatric disorder according to DSM-5, and in 89.6% of these cases although the physical findings of the trauma were "*of a nature which can be eliminated with a simple medical intervention";* when the psychological effects of the trauma were considered, current injuries were determined to be "*of a nature which cannot be eliminated with a simple medical intervention"*. In this case, the result of the forensic report has changed and the effect of the trauma has gained a more severe character. Consequently, the course of the trial will be affected and the sentence will become more serious. In order not to create new grievances, it is crucial that the relationship between psychological findings and trauma is established in a scientific/evidence-based manner, and it is thought that a multidisciplinary approach in the arrangement of these reports may prevent possible medical practice errors.

5. Conclusion

This study is one of the rare studies on this subject in our country. In Forensic Medicine practice, the physical effects of trauma as well as the mental effects are of importance while evaluating *Offences Against Physical Integrity* (TCC articles 86, 87, 88, and 89) due the definitions such as "causing the deterioration of perception ability", "causing the function of one of his senses or organs to be constantly weakened or lost", "whether the effect of the act on the person is of a nature which can or cannot be eliminated with a simple medical intervention" (5).

The findings obtained are important in terms of emphasizing the importance of the existence and frequency

of the psychological effects of trauma in traumatized cases and its effect on the forensic report. A systematic and multidisciplinary approach should be adopted in forensic cases. Psychiatry consultation should be sought in case of mental complaints and / or findings, as well as consultations to other clinical branches related to physical trauma. In addition, in such cases; establishing multidisciplinary teams and obtaining medical data about their medical history and whether they have any previous mental disorders will provide a healthier assessment. Establishing psychological trauma is important not only for the health of the individual, but also for the protection of legal rights and a healthy judicial process.

Limitations

The absence of children under 18 years of age due to the lack of a Child and Adolescent Mental Health and Diseases department at Bozyaka Training and Research Hospital, where the study was conducted as well as cases who were recommended to follow-up as a result of consultation but did not follow the recommendation and did not apply again, constitutes the limitations of the study. Another limitation of the study is that there is no data on whether there is any mental disorder in the medical history of the patients.

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RESEARCH ARTICLE

The Evaluation of Perception and Approaches to Violence Against Women in Law Faculty Students

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Abstract:

Objective: It is known that violence against women is an important health problem. The aim of this study is to investigate the awareness, knowledge and attitudes of law faculty students about violence against women and offer solutions to this problem.

Materials and Methods: 192 students from Maltepe University Faculty of Law attended the study. Research data were collected by a questionnaire prepared by the researchers. The age range of students who participated in this study is 18-38 and the average age is 21.6.

Results: In the study, egalitarian views on social gender roles and equality vary between 70.9% and 90.7% of responses given to the propositions. The rate of students agreeing with the proposition of "In some cases women deserve to be beaten by their partners" is 9.9%. The rate of women who agreed with egalitarian propositions are significantly higher than in men ($p<0.005$). The awareness of physical, economic and sexual violence is significantly higher in women than men. Gender equality point of view among respondents whose mother is either a high school or university graduate and working has been found significantly higher. 52.1% of the participants stated that they knew "The Law of Protection of Family and Prevention of Violence against Women". Many disciplines act together, including lawyers, in the determination of violence against women, their treatment and rehabilitation, prevention of violence, protection of women's rights in the judicial process.

Conclusion: In this study, which was conducted with the students of the Faculty of Law, the rate of opinions defending social equality is high due to the high proportion of female students agreeing with the equitable approaches. It is very important to carry out studies that will raise awareness in this field, include courses related to all violence cases in the education program, keep the topic on the agenda and support it through in-service trainings.

Keywords: Woman, Violence, Awareness, Law, Violence Against Woman

Öz:

Amaç: Kadına yönelik şiddetin önemli bir sağlık sorunu olduğu bilinmektedir. Çalışmada hukuk fakültesi öğrencilerinin kadına yönelik şiddet hakkında farkındalıklarının, bilgi düzeylerinin ve tutumlarının araştırılması ve buna yönelik çözüm önerilerinin sunulması amaçlanmıştır.

Gereç ve Yöntem: Araştırmaya Maltepe Üniversitesi Hukuk Fakültesi'nde okuyan 192 öğrenci katılmıştır. Araştırma verisi araştırıcılar tarafından literatür taranarak hazırlanan anket formu ile toplanmıştır.

Bulgular: Çalışmaya katılan öğrencilerin yaşları 18-38 arasında olup ortalama yaş 21,6'dır. Çalışmada toplumsal cinsiyet rolleri ve eşitliğine ilişkin önermelere verilen yanıtlarda eşitlikçi görüşler %70,9 ile %90,7 arasındadır. Öğrencilerin "Bazı durumlarda kadınlar eşleri tarafından dayak yemeyi hak eder" önermesine katılma oranları %9,9'dur. Kadınların erkeklere göre eşitlikçi önermelere katılma oranları daha yüksek bulunmuştur ($p<0.005$). Fiziksel, ekonomik, cinsel şiddet ile ilgili farkındalık kadınlarda erkeklere göre daha yüksek bulunmuştur. Annesi lise ve üniversite mezunu olanlarda ve annesi bir işte çalışanlarda toplumsal cinsiyete yönelik eşitlikçi bakış açısı daha yüksek bulunmuştur. Katılımcıların %52,1'i "Ailenin Korunması ve Kadına Yönelik Şiddetin Önlenmesine Dair Kanun'u" bildiklerini ifade etmiştir.

Sonuç: Kadına yönelik şiddet olgularının saptanması, tedavisi ve rehabilitasyonu, şiddeti önleyici önlemlerin alınması, kadınların yargı sürecinde haklarının korunması sürecinde hukukçuların da içinde olduğu pek çok disiplin görev almaktadır. Hukuk fakültesi öğrencilerine yönelik yapılan bu çalışmada toplumsal eşitliği savunan görüşler yüksek oranlarda olsa da bu bulgu kadın öğrencilerin çok yüksek oranlarda eşitlikçi yaklaşımlara katılmaları ile ilgilidir. Bu alanla ilgili farkındalığı artıracak çalışmaların yapılması, üniversite eğitim programına bu alanla ilgili derslerin konulması, konunun gündemde tutulması, meslek içi eğitimlerle de desteklenmesi çok önemlidir.

Anahtar kelimeler: Kadın, Şiddet, Farkındalık, Hukuk, Kadına yönelik şiddet

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1. Introduction

Violence against women is one of the most common types of violence encountered at increasing levels in the world today (1). Violence against women was recognized by the United Nations General Assembly on December 20th, 1993 as any act of gender- based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women in public and private life (2).

Violence against women is a human rights violation crossing cultural, geographical, religious, social and economic frontiers that not only affects women but also men, children, family and society. All women in the world face the risk of being subjected to gender-based violence, regardless of country, ethnicity, class, religion, economic and/or social status (3-6). This problem not only negatively affects a woman physically, emotionally, psychosocially and economically, but also legally, socially, politically and economically (7).

Violence against women is known to be a major health issue. According to a 2013 report by the World Health Organization, approximately one in three women is reported to have suffered physical or sexual violence (8). When examining the level of violence against women in Turkey and looking at the results of the Domestic Violence Against Women survey conducted in Turkey in 2008 it reveals that four out of ten women have been subjected to physical and/or sexual violence (9). In the last 15 to 20 years, there has been a great deal of research on intimate partner violence all over the world. According to the data obtained from demographic and health surveys of 9 countries, intimate partner violence against women between the ages 15-49 varies between 18-48% whereas according to another study done in 48 countries physical violence against women inflicted by their partners varies between 10-69 % (10,11).

Violence is one of the major problems of today's society. Violence constitutes a major obstacle to the formation of healthy societies. In order to protect victims of violence and prevent violence against women in Turkey, some legal arrangements have been made and the necessary steps taken to fight against it through studies and projects, however violence against women still remains a major problem. The awareness, level of knowledge and attitude of those working in the field of law are very important for the recognition of this phenomenon and the protection of women's rights in the judicial process. Therefore, the aim of the study is to investigate the awareness, knowledge and attitudes of Law School students about violence against women and to offer solutions.

2. Materials and Methods

This descriptive study was prepared for students studying at Maltepe University Faculty of Law. 192 students from Maltepe University Faculty of Law participated in the study. The research data was collected via a questionnaire form prepared by the researchers by scanning the literature.

The participants were informed about the purpose and method of the research, their consent was obtained and they were asked to fill out the questionnaire forms. The questionnaire consists of three sections. In the first section, the age, gender, school class, place of residence until age 12, education status of the parents, monthly income of the family, whether the mother worked in an income-generating job, whether her income was higher than the father's if she worked, the number of individuals living at home were questioned. In the second section, propositions on the perspective and awareness of violence against women were included. The second section consists of 19 propositions concerning violence against women, which were prepared using the 5-Point Likert Scale. Students were asked to respond to the propositions by marking one of the following: "1: absolutely agree, 2: agree, 3: have no idea, 4: disagree, 5: absolutely disagree". Studies and reviews related to the subject were examined before the formation of propositions. A questionnaire was prepared containing propositions measuring awareness of emotional, physical and economic violence. The third section consists of questions about the methods and laws to apply when subjected to violence. SPSS version 18 was used to evaluate the data. Descriptive statistics and Chi Square were used in the data analysis and the statistical significance level was accepted as $p<0.05$.

Ethical Declaration

Permission letter dated 06/04/2017 and number 2017-6/2 was obtained from Acıbadem research ethics committee and Helsinki Declaration rules were followed to conduct this study.

3. Results

The students who participated in the study were between the ages 18-38 and the average age was 21.6 The monthly income of the family was between 800-60000 TL and the average income was 11353 TL. 48.4% (93) of respondents answered the question of the family's monthly income. 50% (96) of the respondents stated that their mother was working in an income-generating job. 12.5% (24) of the respondents stated that their mother's income was more than their father's. The number of individuals living at home is between 1-12 and the average number of individuals is 4. The students' sociodemographic characteristics are shown in Table 1.

Table 1. Sociodemographic characteristics of students		
	n	%
Gender		
Women	133	69.3
Men	59	30.7
Marital status		
Married	9	4.7
Single	183	95.3
Class		
1	64	33.3
2	38	19.8
3	30	15.6
4	48	25.0
Place of residence until the age of 12		
Village	6	3.1
District	46	24
Province	135	70.3
Abroad	3	1.6
Educational Status of Mother		
Elementary School	40	20.8
Junior High School Graduate	25	13
High School Graduate	66	34.4
University Graduate	51	26.6
Master's degree and above	9	4.7
Educational Status of Father		
Elementary School	27	14.1
Junior High School Graduate	31	16.1
High School Graduate	45	23.4
University Graduate	75	39.1
Master's degree and above	12	8.3

When the participants were asked whom they would contact when exposed to violence, 38% said a police station, 33.3% family elders and 17.7% friends. When they saw that a person had been subjected to violence, they stated they would first contact a police station with 68.8%, family elders with 14.1% and friends with 7.3%. 4.2% said they would not do anything. The participants answered the question of where they first learned about their legal rights with school by 56.8% and books by 15.6%. Other responses to this question were internet at 7.3%, media at 5.7%, family at 5.2%, and people talking at 1.6%. The question about the institution that cares most about personal rights was answered with 23.4% the courts, 13% police, 13% non-governmental organizations, 11.5% lawyers, 10.4% prosecutors, 0.5% politicians, 17.2% no one. 52.1% of respondents said they knew about the "Law on the Protection of the Family and the Prevention of Violence Against Women", while 39.6% said they did not know it and 8.3% did not answer this question. Participants ' responses to the propositions on domestic violence are shown in Table 2.

Table 2. Participants' responses to the propositions on domestic violence					
	I absolutely agree	I agree	I have no idea	I disagree	I absolutely disagree
Depriving a woman of her economic needs constitutes violence against women	149 (77.6%)	18 (9.4%)	6 (3.1%)	7 (3.6%)	8 (4.2%)
Intimidation, humiliation and degradation constitute violent behavior	160 (83.3%)	15 (7.8%)	1 (0.5)	-	13 (6.8%)
Domestic violence against women is an issue that should not be told anyone	18 (9.4%)	2 (1%)	7 (3.6%)	22 (11.5%)	138 (71.9%)
A woman deserves to be treated badly if she doesn't listen to her partner	17 (8.9%)	4 (2.1)	5 (2.6%)	12 (6.3%)	150 (78.1%)
A woman deserves to be treated badly if she comes home late at night	12 (6.3%)	8 (4.2%)	8 (4.2%)	20 (10.4%)	141 (73.4%)
If a woman spends too much money, she deserves to be treated badly	11 (5.7%)	6 (3.1%)	5 (2.6%)	23 (12%)	143 (74.5%)
In some cases women deserve to be beaten by their partner	16 (8.3%)	3 (1.6%)	4 (2.1%)	10 (5.2%)	155 (80.7%)
There is no justification for physical violence against women (beatings)	158 (82.3%)	10 (5.2%)	1 (0.5%)	5 (2.6%)	14 (7.3%)
Domestic violence against women occurs in low socioeconomic families	21 (10.9%)	31 (16.1%)	45 (23.4%)	41 (21.4%)	48 (25%)
Victims of violence experience mental disorders such as depression	126 (65.6%)	35 (18.2%)	11 (5.7%)	2 (1%)	12 (6.3%)
Women, men, children are equally likely to be exposed to domestic violence	25 (13%)	28 (14.6%)	43 (22.4%)	45 (23.4%)	39 (20.3%)

Respondents ' responses to propositions on gender roles are given in Table 3.

The agreement rate with the propositions 'Depriving women of their economic needs is violence against women', 'Intimidation, humiliation, degradation constitute violent behavior', 'a woman's choice of clothing is an issue for her to decide and not to be interfered with', 'household chores must be shared equally between husband and wife', 'Women can work in any job they want', 'Women can spend the money they have according to their own preferences', 'nothing can justify physical violence against women (beatings)', 'girls must complete compulsory basic education (4+4+4=12 years)', 'if all of the 12 years of basic education were compulsory formal education for boys this requirement should apply to girls as well' was higher in female students than male students. (p:0.000, p:0.003, p:0.000,p:0.000, p:0.000, p:0.000,p:0.000,p:0.004, p:0.000). (Table 4)

Table 3. Respondents ' responses to propositions on gender roles					
	I absolutely agree	I agree	I have no idea	I disagree	I absolutely disagree
Women's choice of clothing is a matter of their own decision and is not an issue that can be interfered with	126 (65.6%)	22 (11.5%)	12 (6.3%)	12 (6.3%)	17 (8.9%)
Household chores should be shared equally between husband and wife	127 (66.1%)	34 (17.7%)	9 (4.7%)	6 (3.1%)	11 (5.7%)
Women can work whatever job they want	126 (65.5%)	28 (14.6%)	8 (4.2%)	13 (6.8%)	10 (5.2%)
Women can spend their money according to their preferences	121 (63%)	35 (18.2%)	12 (6.3%)	10 (5.2%)	9 (4.7%)
Girls must also complete their compulsory basic education (4+4+4 = 12 years)	171 (89.1%)	3 (1.6%)	2 (1%)	-	11 (5.7%)
If all of the basic education for boys (12 years) is compulsory formal education, this requirement should also apply to girls	163 (84.9%)	11 (5.7%)	-	-	12 (6.3%)
Women should seek permission from their partner/boyfriend when going out	17 (8.9%)	22 (11.5%)	12 (6.3%)	36 (18.8%)	100 (52.1%)
A married woman should have sexual intercourse with her partner when he wants to, even if she doesn't want to	12 (6.3%)	2 (1%)	10 (5.2%)	18 (9.4%)	144 (75%)

The disagreement rate with the propositions 'Domestic violence against women is an issue that should not be told anyone', 'a woman deserves to be treated badly if she does not listen to her husband', 'a woman deserves to be treated badly if she comes home late at night', 'a woman deserves to be treated badly if she spends too much money', 'women in some cases deserve to be beaten by their partners', women should seek permission from their partners/boyfriends when they go out', 'a married woman should have sexual intercourse with her partner when he wants to, even if she does not want to' has been higher in female than male students. (p:0.001, p:0.000, p:0.000, p:0.000, p:0.000, p:0.000, p:0.000).

The agreement rate with the propositions 'Domestic violence against women is an issue that should not be told anyone', 'a woman deserves to be treated badly if she does not listen to her partner', 'in some cases women deserve to be beaten by their partner', 'a married woman should have sexual intercourse with her partner when he wants to, even if she does not want to' is higher in those who lived in the village until 12 years of age (p:0,001, p:0,000, p:0,000, p:0,000).

The agreement rate with the propositions 'Domestic work should be shared equally between husband and wife', 'women can work whatever job they want', 'if all basic education for boys (12 years) is compulsory formal education, this must also apply to girls' is higher in those who lived in provinces and districts until the age of 12 (p:0.000, p:0.000, p:0.000).

The rate of agreement with the proposition '*women can work whatever job they want'* is higher in those whose mother has graduated from high school and university. (p: 0.004).

The agreement rate with the proposition 'if all basic education for boys (12 years) is compulsory formal education, this requirement should also apply to girls' is higher in participants whose mothers work in income-generating jobs. (p.0,002).

Table 4. Distribution of female and male participants' agreement with some propositions concerning violence and egalitarian attitudes						
	I absolutely agree	I agree	I have no idea	I disagree	I absolutely disagree	p
	Depriving women of her economic needs constitutes violence against women					
Women	116 (88.5%)	8 (6.1%)	2 (1.5%)	1 (0.8%)	4 (3.1%)	0.000
Men	33 (57.9%)	10 (17.5%)	4 (7%)	6 (10.5%)	4 (7%)	
	Intimidation, humiliation and degradation constitute violent behavior					
Women	120 (90.9%)	6 (4.5%)	0	0	6 (4.5%)	0.003
Men	40 (70.2%)	9 (15.8%)	1 (1.8%)	0	7 (12.3%)	
	Women's choice of clothing is a matter of their own decision and is not an issue that can be interfered with					
Women	105 (79.5%)	10 (7.6%)	1 (0.8%)	5 (3.8%)	11 (8.3%)	0.000
Men	21 (36.8%)	12 (21.1%)	11 (15.3%)	7 (12.3%)	6 (10.5%)	
	Household chores should be shared equally between husband and wife					
Women	103 (79.2%)	19 (14.6%)	2 (1.5%)	2 (1.5%)	4 (3.1%)	0.000
Men	24 (42.1%)	15 (26.3%)	7 (12.3%)	4 (7%)	7 (12.3%)	
	Women can work whatever job they want					
Women	104 (80.6%)	14 (10.9%)	4 (3.1%)	2 (1.6%)	5 (3.9%)	0.000
Men	22 (39.3%)	14 (25%)	4 (7.1%)	11 (19.6%)	5 (8.9%)	
	Women can spend their money according to their preferences					
Women	101 (77.7%)	16 (12.3%)	5 (3.8%)	3 (2.3%)	5 (3.8%)	0.000
Men	20 (35.1%)	19 (33.3%)	7 (12.3%)	7 (12.3%)	4 (7%)	
	There is no justification for physical violence against women (beatings)					
Women	121 (92.4%)	3 (2.3%)	0	0	7 (5.3%)	0.000
Men	37 (64.9%)	7 (12.3%)	1 (1.8%)	5 (8.8%)	7 (12.3%)	
	Girls must also complete their compulsory basic education (4+4+4 = 12 years)					
Women	125 (96.2%)	1 (0.8)	0	0	4 (3.1%)	0.004
Men	46 (80.7%)	2 (3.5%)	2 (3.5%)	0	7 (12.3%)	
	If all of the basic education for boys (12 years) is compulsory formal education, this requirement should also apply to girls					
Women	122 (94.6%)	2 (1.6%)	0	0	5 (3.9%)	0.000
Men	41 (71.9%)	9 (15.8%)	0	0	7 (12.3%)	

4. Discussion

Violence against women is increasing every day both in the world and in Turkey. In Turkey, violence against women in the family can have serious consequences such as women's inability to participate effectively in social life, hindering the education of girls, women behaving violently toward their children, injury and even death (1).

Exposure to and witnessing violence as a child is reported to double the likelihood of women being exposed to violence and men subjecting violence. This so-called cycle of violence demonstrates the importance of socialization in a non-violent environment (12).

Preventing violence and combating violence is a far-reaching area. This problem can only be tackled by the co-operation of a large number of professional groups and organizations. Professional groups that are likely to encounter cases of violence against women in their fields of practice and profession who are aware and know about it will guide the person who is subjected to violence correctly. The awareness, level of knowledge and attitude of those working in the field of law are very important for the recognition of this phenomenon and the protection of women's rights in the judicial process.

Looking at responses to propositions on gender roles and equality in the study (Table 3), egalitarian views vary between 70.9% and 90.7%. In Altinay and Arat's study on married women, the rates obtained are between 80-86% (12). Güneri's study of university students found that the attitudes of students towards violence against women tend to be modern (6). In the research carried out by Kap-

lan et al. it was determined that the attitudes of nursing students towards domestic violence against women and gender roles tend to be more traditional (13). In the study by Kanbay et al. 64.9% of the students stated that they believed in equality between women and men, while 66.5% said that women should seek permission from their partner when going somewhere, 44.1% said that women should come home before their husband, 61.2% said that caring for the children is the duty of the woman rather than the man, and 26.1% said that women should be controlled by men (14). Egalitarian views in the study were higher than in Kanbay's study. However, the high level of these views is more related to the fact that female students approve of egalitarian approaches at very high rates. In the study, agreement rates with the propositions concerning gender roles and equality such as 'women's choice of clothing is their own decision and not an issue that can be interfered with', 'household chores must be shared equally between husband and wife', 'women can work in any job they want', 'women can spend the money they have according to their own preferences', 'girls must complete compulsory basic education (4+4+4=12 years)', 'if all of basic education (12 years) for boys is compulsory formal education, then this requirement has to be valid for girls, too' in female students were higher than in male students ($P<0.005$). This finding also suggests that women in the study adopt a more egalitarian view than men. In many studies on women's and men's views on gender roles, it is stated that women adopt more egalitarian views than men (15-18). It was emphasized that this phenomenon may be related to women's desire to have equal rights with men in social life and to change existing inequalities (19). It was also stated that women adapt more quickly to changes in gender roles and have a more positive attitude toward egalitarian roles than men (20,21). In their research Yilmaz et al. stated that male students have a more traditional perspective in areas related to work life, social life, marriage and family life (22). The fact that men have more traditional views on their gender roles can be explained by the fact that society supports this view and that it also benefits men (23,24).

In the study, the agreement rate with propositions on physical and economic violence such as 'Domestic violence against women is a topic that should not be told anyone', 'women deserve to be treated badly if they do not listen to their partner', 'women deserve to be treated badly if they come home late at night', 'women deserve to be treated badly if they spend too much money', 'in some cases women deserve to be beaten by their partners', has been found higher in male than female students. The agreement rate with propositions like 'depriving women of their economic needs is violence against women', intimidation, humiliation and degradation constitute violent behavior', 'there is no justification for physical violence against women (beatings)' is higher in female than male students. In the study of Kabasakal et al. 60.7% of women and 27.7% of men took the view that "there is no beating that can be justified" with regard to questions about physical violence. The proportion of women who disagree with the view that" in some cases men can beat their wives" is 62.8%, while the proportion of men is 29.8%. These rates show that men view physical violence as acceptable and feasible in higher rates (1). In his research Yiğitalp et al. observed that students were of the opinion that certain behaviors could be punished with violence (25). The Directorate General on the Status of Women (KSGM) conducted a multi-centred and comprehensive study of Domestic Violence Against Women in Turkey (KYAIS) throughout the country in 2008. According to the study, 86% of women in Turkey think that physical violence is unacceptable in any way. This ratio shows a significant increase in women's awareness of violence when compared with previous years ' research results (26).

Problems experienced in the family in Turkey are considered to be private and concern of the family, so it is difficult to tell even the closest people. A woman who is subjected to violence is reluctant to tell others about the violence she has suffered and does not want the situation to be known to others. When violence is exposed, it is often advised to remain silent in the name of continuing the family unity, rather than helping the victim of violence, or the woman is blamed. According to a public opinion survey, 22% of women in Turkey were subjected to physical violence by their partners, while 45% of women who were subjected to violence did nothing against it (27). In the study of Arat and Altinay (2008), 24% of married women stated that they would not do anything when violence was inflicted (12). A very small percentage (3.9%) of the participants in the study stated that they would not do anything if violence was inflicted on them. This result was influenced by the fact that law students, who may be more sensitive to seeking their rights, formed the population of the study and awareness of violence has increased through recent studies.

While 84.0% of the students reported that domestic violence against women was not more frequent at a low socioeconomic level (28), in the focus group interviews conducted by Gömbül et al (29) with a group of nurses, nurses stated that they believed that men with low levels of education were violent to their partners, violence would decrease as education level increased, there was less violence against women in our country today and in European countries that had a higher level of education there was less intimate partner violence. In the study, 46.4% of

respondents disagreed with the proposition that 'domestic violence against women occurs in low socioeconomic families'. 37% of emergency medical technicians in a US study and 50% of 685 healthcare workers in a UK study stated that domestic violence was not more frequent at a low socioeconomic level. (30,31). Studies have reported that a high socioeconomic level and a high education level and social support are important factors that reduce domestic violence (32).

The study found that the agreement rate with the proposition '*women can work whatever job they want'* was higher in those whose mother graduated from high school and college. The agreement rate with the proposition '*If all basic education for boys (12 years) were compulsory formal education, this requirement should also apply to girls*' was higher in participants whose mothers worked in income-generating jobs. There was no statistically significant association between the father's educational status and the propositions. In line with other studies, the egalitarian view on gender increases as maternal education levels increase.

52.1% of the participants in the study stated that they knew of the "Law on the Protection of the Family and the Prevention of Violence Against Women". Considering that the study was conducted with Law School students, this rate is low. It is especially important for this group who will provide legal support for women subjected to violence that legal arrangements related to violence against women are part of both their graduate studies and professional or in-service training.

Healthcare personnel, police force, lawyers, social workers and psychologists have a large and important role to play in the detection of cases of violence against women, in the taking of violence preventing measures, the protection of the rights of women in the judicial process and in the treatment and rehabilitation process. Although in the study conducted with jurists who have an important role in this multidisciplinary team, the rate of views advocating social equality is high, this is due to the fact that female students agree with egalitarian approaches at very high rates. The study shows that female students adopt a more egalitarian view than men. More studies are needed to raise awareness in this area and courses need to be included in the curriculum about how to approach all violence cases. However, increasing the level of awareness and knowledge alone is not enough to solve the problem. It is very important to keep the issue on the agenda and to support it with postgraduate in-service training.

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RESEARCH ARTICLE

The Components to Be Considered in The Evaluation of Disability Rate Related to Traffic Accident in The Light of The Supreme Court's Decisions

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Abstract:

Objective: Traffic accidents can cause liability in terms of both criminal and compensation law. Forensic medicine specialists have a great role in the assessment of permanent sequelae and disability rates associated with these sequelae. In this study, we aimed to evaluate the issues to be taken into consideration by examining the Supreme Court's decisions of reversals about disability reports related to traffic accidents.

Materials and Methods: The decisions were searched in Supreme Court Decision Search Portal by using the concepts of legal regulations which are used in the evaluation of disability rate and "traffic accident" as keywords. The Supreme Court of Decisions of Reversals for disrupting the Decisions about the disability rate reports related to traffic accidents taken by the first-instance courts were researched.

Results: 376 decisions of Reversal of 17th Civil Chamber of the Supreme Court were reached. The issuance of reports according to the statute/regulation which was not in effect at the date of the unjust act was the most frequent (n=262, 69.7%) ground. Then, contradictory rates among the received reports, uncertainty/impenetrability about which statute/regulation is based in the report, spelling errors, not taken a disability report for the basis of the provision and the problems related to the causal link were determined respectively.

Conclusion:: Disability reports should be understandable, reasoned and in accordance with the relevant legislation. Reports that are not prepared in accordance with the legislation in force, not justified properly, have the problems about causality, conflicting and unsuitable for inspection may cause loss of rights, prolongation of the trial process.

Keywords: Supreme Court, Decision of Reversal, Ground, Disability Report, Traffic Accident.

Öz:

Amaç: Trafik kazaları hem ceza hukuku hem de tazminat hukuku açısından sorumluluk doğurabilmektedir. Kalıcı sekellerin ve bu sekellere bağlı maluliyet oranlarının değerlendirilmesinde, Adli Tıp uzmanlarına büyük görevler düşmektedir. Bu araştırmada; trafik kazalarına bağlı maluliyet raporları hakkında Yargıtay'ın bozma kararları incelenerek, göz önünde bulundurulması gereken hususların değerlendirilmesini amaçladık.

Gereç ve Yöntem: Trafik kazası sonucu meydana gelen maluliyet oranı hesaplamalarında kullanılan yasal mevzuat ve "trafik kazası" kavramları anahtar kelime olarak kullanılarak, "Yargıtay Karar Arama İnternet" adresinden ulaşılan kararlar tarandı. Yargıtay'ın trafik kazasına bağlı maluliyet oranı raporlarında, ilk derece mahkemelerince alınan kararları bozma nedenleri araştırıldı.

Bulgular: Yargıtay 17. Hukuk Dairesi'nin 376 bozma kararına ulaşıldı. Haksız fiilin gerçekleştiği tarihte yürürlükte olmayan tüzüğe/yönetmeliğe göre rapor düzenlenmesinin en sık (n=262, %69,7) bozma nedeni olduğu görüldü. Bunu sırasıyla; alınan raporlar arasında çelişkili oranlar olması, hangi tüzüğün/yönetmeliğin esas alındığının belli olmaması/anlaşılamaması, yazım hatası olması, hükme esas alınacak maluliyet raporu alınmaması ve illiyet bağı ile ilgili sorunların izlediği saptandı.

Sonuç: Maluliyet raporlarının; anlaşılır, gerekçeli ve ilgili mevzuata uygun olarak düzenlenmesi esas olmalıdır. Yürürlükteki mevzuata uygun olarak düzenlenmemiş, uygun şekilde gerekçelendirilmemiş, illiyet bağı konusuna dikkat edilmemiş, çelişki bulunan ve denetime elverişli olmayan raporlar hak kayıplarına, yargılama sürecinin uzamasına neden olabilmektedir.

Anahtar Kelimeler: Yargıtay, Bozma Kararı, Gerekçe, Maluliyet Raporu, Trafik Kazası

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1. Introduction

Disabilities caused by traffic accidents, which have been frequently encountered in Turkey, cause liability in terms of criminal and compensation law. In the Article 54 of the Turkish Code of Obligations numbered 6098, physical damages caused by injury, disablement, illness and/or mental disorder as a result of unlawful acts are classified either as the damages originating from treatment costs, loss of earnings and the decrease of work performance and/or incapacity to work, or as the damages driven by a downturn in economic outlook. In case of an alleged incapacity to work as a result of an unjust act and any demand created for it, it is required to identify whether there is any disability and, if any, at what ratio it is. In Turkey, those who lose their bodily functions due to a traffic accident and/or assert such a claim are in need of reports submitted by the Departments of Forensic Medicine, the Institutes of Forensic Sciences and/or forensic specialists for their claims to compensation by way of either courts or pre-court settlements (1-3). However, there occur some problems during the preparation of these reports. In accordance with the decision of the Grand National Assembly of the Supreme Court, which was published in the Official Gazette dated February 18, 2012 and numbered 28208, it appears that the 17th Civil Chamber of the Supreme Court conducts an appellate review particularly for the decisions of traffic accident-related (compensation-insurance) incidents. In this light, it is argued that the examination of the decisions taken within the scope of the seventeenth civil chamber seems to play a guiding role in the identification and resolution of problems.

The present research aims at identifying the key points that are supposed to be considered while compiling a disability report and thereby contributing to provide standardization by examining the diability reports-related decisions of reversal of the 17th Civil Chamber of the Supreme Court.

2. Materials and Methods

The corpus of all decisions of the Supreme Court regarding the the 17th Civil Chamber's reports of the ratio of disability caused by traffic accidents, which have been accessed and retrieved from "https://kararara ma.yargitay.gov.tr/YargitayBilgiBankasiIstemciWeb/" by filtering the search results between October 1 and 15, 2019, was investigated. During the examination, we searched for the key phrases of "Social Insurance and Health Care Code", "Regulation on the Determination of Work Force and Occupational Loss Ratio", "Regulation on the Disability Determination Services", "Regulation on Disability Criterion Classification and Health Board Reports to Be Issued to the Disabled", "Highway Motor Vehicles Compulsory Liability Insurance", "Disability Ratio", "Traffic Accident", "Disablement" and "Traffic Insurance Policy". Some other phrases such as a liability ratio in an accident, an actuarial calculation, immaterial compensation, a statute of limitation, a discount rate of compensation and insufficient research by a court were left out of the scope during the examination.

3. Results

It has been found out from the examination that there are 376 decisions of reversal that belong to the 17th Civil Chamber of the Supreme Court. All the decision that were retrieved by means of the abovementioned phrases were included in the scope. Considering the distribution of the decisions by year, it appeared that there is one decision of reversal (0.2%) in 2010, four (1.1%) in 2013, 30 (8.0%) in 2014, 33 (8.8%) in 2015, 49 (13.0%) in 2016, 83 (22.1%) in 2017, 112 (29.8%) in 2018 and 64 (17.0%) in 2019 (including the search results found out until the date of examination).

In 278 (73.9%) decisions out of a total of 376, it has been found out that the following statement of the Supreme Court General Assembly dated June 17, 2015, docked no. 2013/17-2423, decision no. 2015/1661 has been emphasized: "*In case of an alleged work force loss as a result of an unjust act and any kind of demand created for it, it is required to identify a temporary and permanent incapacity for work. This is supposed to be conducted by a specialists committee to be set up by the Institute of Forensic Sciences and/or the Departments of Forensic Sciences affiliated to university hospitals in consideration of the complaints of the person who asserts any reduction of incapacity for work and the provisions of the regulation in force at the time when an unjust act is performed…".* It has further turned out that, on the basis of this emphasis, disability reports are required to be delivered by a commitee of specialists formed of the Institute of Forensic Sciences and/or the Departments of Forensic Sciences affiliated to university hospitals in consideration of the complaints of the person who claims any reduction of incapacity for work.

The grounds indicated in the decisions of reversal have been given in Table 1. There were indicated several grounds for reversal in 79 (21.0%) decisions out of the total amount of decisions. Based on this, the most frequent ground in 262 (69.7%) decisions appears to be the preparation of the report by reference to a regulation not in force at the time. It appeared in 98 court judgements out of those 262 decisions of reversal that a medical board report

of disability was received on the basis of the judgement. However, it has also turned out that there is an emphasis made by the Supreme Court on this report that a disability report is required to be prepared by reference to the Social Insurance and Health Care Code, the Regulation on the Determination of Work Force and Occupational Loss Ratio and the Regulation on the Disability Determination Services. It has appeared in 103 decisions based on the judgement of the First Instance courts that the disability report was prepared in accordance with the Social Insurance and Health Care Code, whereas four decisions were given by reference to the Regulation on the Determination of Work Force and Occupational Loss Ratio. However, those decisions were reversed on the ground that the reports were prepared by reference to the regulations not in force at the time when a given unjust act was performed. There appeared no detailed explanation for the decision of reversal in 57 decisions. It has been found out that there is no decision that refers to the fact that the percentage of medical disability is supposed to be determined in consideration of the starting date of a given insurance policy.

The second most common ground for a decision of reversal, corresponding to a total of 88 (23.4%) decisions of reversal, concerns the presence of contradictory ratios presented in the reports. It has appeared in 57 decisions of reversal that the lower court made people to receive the medical board report of disability, whereas there appear at least two disability reports in 39 decisions of reversal, one of which is the medical board report of disability, which is considered as a basis by the First Instance Court. It has been further found in 7 decisions that there were two reports prepared by reference to the First Instance Court's "Medical Board Report of Disability" and "Social Insurance and Health Care Code" and/or "Regulation on the Determination of Work Force and Occupational Loss Ratio" (regulated at the time when the accident took place). However, it has been noticed that, although the report based on the judgement was prepared in accordance with the regulation/code in force on the accident date, the decision was reversed due to the incompatibility in the ratio of disability between it and the Medical Board Report of Disability that was previously received. It has been indicated in the decision of reversal of the Supreme Court that the report based on a judgement is supposed to be received by reference to the regulation in force at the time when an unjust act takes place. It has been further emphasized that there is a considerable incompability in the ratio of disability between the other reports and the report prepared in accordance with the regulation in force at the time when an unjust act takes place, and there is a need to explain the underlying reason behind such an incompability.

4. Discussion and Conclusion

In Turkey, the number of the accidents involving casualities or personal injury corresponded to 65,748 in 2002 and 186,532 in 2018, and it shows an increase over the years (4). Moreover, the existing literature on disability reports, which has been surveyed within the scope of this research, demonstrates, on the one hand, that traffic accidents constitute the most common reason for preparing a report and, on the other that disability reports keep increasing in number over the years (5, 6). As Kaya et al. point out, the number of applicants for the preparation of a disabilility report in 2011 was 50 cases, whereas it corresponded to 114 cases in 2014 (7). The increase in the number of the decisions of reversal regarding the disability reports of the Supreme Court's seventeenth civil court appeared to be in conformity with the rise in number of traffic accidents on the one hand and the number of disability reports on the other.

Disability reports are likely to be prepared upon official and individual requests. The fact that no disability report takes place in the decisions of the Supreme Court (n=23; 6.1%) is among the leading reasons underlying a decision of reversal. Therefore, it is deemed significant to determine a given case by reference to a disability report even if there appears no permanent disability in traffic accidents involving personal injury.

Another point to consider in the examined decisions relates to where to receive an aforementioned report and by whom it is supposed to be compiled. It has been found that those decisions most often emphasize to receive a disability report submitted by the Institute of Forensic Sciences and the specialists committee in the Departments of Forensic Sciences at universities (73.9%). This emphasis is also in line with the grounds which have been summarized in Table 1 as "*the submission of a report by an inappropriate/non-specialist expert*, *the use of a report prepared abroad and receiving a report submitted by a private company and prepared on an individual appeal by a plaintiff*". It appeared in the decision *numbered 2016/7686, decision no. 2016/8233* that the lower court's decision was reversed on the grounds that *"In regard to the conditions of a concrete case, a given health board report is inappropriate for being considered a basis for justification since a disability report is prepared by means of unilateral evidences upon an individual request by a plaintiff without considering the evidences submitted by a defendant"*. The abovementioned decisions put emphasis on the fact that, in place of scientific opinions delivered

upon an individual request, the reports that are submitted upon an official request by those who are entitled as experts in a given field and/or by the Expertise/Expert Institute are supposed to be taken a basis for justification by courts. This emphasis points out that the Institute of Forensic Sciences and the Departments of Forensic Medicine play assume a significant responsibility in respect of the submission of a disability report.

Table 1. Grounds in the Decisions of Reversal Regarding the Disability Reports of 17 th Civil Chamber of the Supreme Court

	Grounds	**n***	**%**
1	Preparation of the report by reference to the regulation/code not in force at the time when an unjust act is performed	262	69.7
2	Presence of incompatible ratios in the reports	88	23.4
3	Submission of a report in which there is vagueness about which code/regulation is considered as a basis and there is a typo in a regulation to which the report refers	37	9.8
4	Absence of a disability report to be based on	23	6.1
5	Presence of causality problems *(discrepancy among sequelae, on which reports are based, lack of justification about the ratio, lack of a causal link between the given sequelae and the incident, consideration of the disorders prior to the incident)*	22	5.9
6	Lack of any evaluation about permanence	5	1.3
7	Other Grounds *(preperation of a report without any medical inspection despite a demand for an inspection, preparation of a report without any medical document, unability to eliminate complaints against the reports, no indication of the duration of healing, a longer duration of temporary incapacity for work campared with the date of inspection on which permanent incapacity for work is calculated)*	5	1.3
8	Submission of a report inappropriate for a supervision due to such reasons as its being a certificate of inspection compiled by a private company and received on an individual appeal by a plaintiff	4	1.1
9	Submission of a report by an inappropriate/non-specialist expert	3	0.8
10	Consideration of a report prepared abroad as a basis	2	0.5
11	Preparation of a report without a medical examination/with regard to medical history	2	0.5
12	Incompatability of a report *(discrepancy between the right and left side)*	2	0.5

* Given that there appear several grounds in some decisions of reversal, the total number of decisions surpass the amount of decisions of reversal (n=376). So, the overall percentage turns out to be greater than 100%.

The most frequent reason behind a decision of reversal by the Supreme Court is the preparation of the report by reference to a regulation/code not in force at the time when an unjust act is performed (69.7%). Recurring legislative amendments following the Social Insurance and Health Care Code dated 22.06.1972 (such as Regulation on the Determination of Work Force and Occupational Loss Ratio dated 11.10.2008; Regulation on Disability Criterion Classification and Health Board Reports to be Issued to the Disabled dated 30.03.2013; Regulation on the Disability Determination Services dated 03.08.2013; the Highway Motor Vehicles Compulsory Liability Insurance dated 14.05.2015; Legislation on a determination of disability for adults/special needs for children 20.02.2019) usually make it challenging to follow up the legistation. Therefore, it is suggested that the Official Gazette is supposed to be skimmed through on a daily basis or regularly in order to make it simpler to follow the latest developments with regard to forensic medicine. This research further proposes that the presence of the statement about which regulation is to be considered as a basis while preparing a given report in the letter of request would

clear up many problems in this matter. However, there is most often no clause in a letter of request to refer to a certain regulation. That point is also indicated in a thesis where only 23 (11.2%) out of a total of 205 letters of intent for a disability report have a statement about the use of a given regulation as a basis during the preparation of a report (8). Though it is suggested that to refer to a given regulation to be taken as a basis on a cover letter makes it simpler to prepare a report, it seems not without its challenges. In some cover letters, in accordance with the lawyers of two parties, there appears a statement suggesting that "*a newly dated regulation should be taken into consideration"* and, thereby, an evaluation is supposed to be made in line with this regulation, even though it is evidently not in force at the time when a given case takes place. It contradicts the statement "*then-current*" suggested in the Supreme Court's decisions. Moreover, considering the reports as a basis, which were prepared by reference to the newly-dated regulation not in force at the time when a given case occurred, seems to give rise to some other disorders.

It seems obvious that there are some problems in the matter of which regulation should be taken into account while preparing a report where a ratio of traffic accident-related disability is calculated. In this sense, it can be suggested that the table compiled by the researchers of this study by means of the data obtained from the Supreme Court's decisions seems to make it easier to calculate a ratio of disability following a traffic accident (see Table 2) (9).

As was enforced by the Article A.5.c in the "General Conditions" part of the Highway Motor Vehicles Compulsory Liability Insurance (KMAZMSS), which came into force on June 01, 2015, and were published in the Official Gazette dated May 14, 2015, numbered 29355, the reports which used to be prepared for the permanent disability calculations had been issued by reference to the "Regulation on Disability Criterion Classification and Health Board Reports to be Issued to the Disabled". However, the Supreme Court's decision numbered 2019/40, published in the Official Gazette dated October 9, 2020 and numbered 31269, has given rise to a noticeable change in the field of Clinical Forensic Medicine in terms of the calculation of disability and the regulation of disability reports, which are significant constituents of the process. Even after the Supreme Court' decision entered in force, the clause taking place in the first sentence of the Article 90 in the Highway Traffic Law numbered 2918, which notes that *"...and in the general conditions prepared within the framework of this Article*", was deemed unconstitutional and were rescinded. Since then, the Regulation on the Disability Determination Services has become effective in the traffic accidents that took place between September 01, 2013 and February 20, 2019. Considering that the Article C.11 suggests that *"these general conditions are applied to the contracts drawn up after an enforcement date"*, it seems requisite to take into account the starting date of a given insurance policy while determining a disability ratio due to a traffic accident. However, among the examined decisions of reversal that belong to the Supreme Court's seventeenth civil court, there appears no decision of the Supreme Court, which informs us about whether to use the legal regulation in force at the time when a given case took place or the regulation in force at the time when a given insurance policy starts to prevail. Besides this, though there is no decision that suggests taking into account the starting date of a given insurance policy in determining the ratio of disability in the Supreme Court's decisions, the decision taken by İzmir Regional Court of Justice's eleventh civil chamber (dated June 27, 2019, File No. 2018/2685 and Decision No. 2019/850) points to issuing a disability report *"by reference to the regulation in force at the time when an insurance policy starts to prevail"*. Moreover, it turns out that the Supreme Court's decisions of reversal of the cases regarding the compensation for financial damage in a traffic accident and the compensation for loss of support stipulate the use of the legislation in force at the time when the Highway Motor Vehicles Compulsory Liability Insurance starts to prevail *(the Seventeenth Civil Chamber's decision dated June 19, 2017, numbered E.2016/13434 K.2017/6894; another decision dated May 31, 2017, numbered E.2016/13345 K.2017/6134; and the other decision dated October 31, 2017, numbered E.2017/1541 K.2017/9897).* Likewise, no decision of the Supreme Court has been detected with regard to the Legislation on a Determination of Disability for Adults, in force as of February 20, 2019 and *"The Legislation of a Determination of Special Needs for Children"* since both have recently entered into force.

Among the grounds for a reversal, the second place belongs to *"the presence of incompatible ratios in the reports"*. It can be argued that perhaps the most significant reason of it is the fact that a court file consists of several reports issued by reference to different regulations. Most particularly, the fact that the regulation related to a disability, utilized in order to benefit from social rights especially during the time slot when it first came into effect, was also employed in calculating the ratio of disability from traffic accidents following an legislative amendment, led to discperancies in the ratios given in the reports. Put it another way, the ratio calculation made by reference to different regulations may led to the calculation of diverse ratios of disability for the same sequelae a person has

from the same traffic accident. It also appears that a given sequela takes place in one regulation while it has no correspondence in another *(for instance; scar tissues, tibia/fibula fractures healed well without any complication, angulation of fibula, loss and fractures in bone tissues that form the backup structure of the face, displaced fractures in extensions of the spine, a risk of epilepsy and so on.)*. Moreover, there is a difference in the method of evaluation (*for instance;* a remarkable difference made by age and occupation in the ultimate evaluation). All these constitute other grounds related to a regulation.

Besides regulation-related grounds, several other underlying reasons behind the discrepancies among the reports examined constitute (i) the consideration of some disorders that have no causal link to the subject matter of a case, (ii) the disregard to whether the disorder caused by a given case is permanent or the preparation of a report during the healing process, (iii) not conducting a physical examination that shows a given person's latest situation, preparing a report in accordance with statements and a medical history , not doing the required examination. Each ground listed above also takes place in the Supreme Court's grounds for reversal (Table 1).

To summarize, in case that forensic specialists prepare their reports particularly by making reference to a particular regulation that they are based on while evaluating a given case, their reports become elaborate (their report should have no typo and no discrepancy between the right and left side), they declare their justification, they consider the matter of permanency and they consider the all causal links to a given case by conducting the patient's inspection and other required examinations, it can be surmised that all these will considerably contribute to the shortening of lawsuit processes. Just as the preparation of disparate reports due to such various reasons as pointed out above results in extending the prosecution process so it leds people lose their confidence in specialists. All things considered, it is of great importance to submit reports prepared in consideration of all kinds of components indicated in the present research.

Table 2. Legislations to be Considered While Determining the Disability Ratio Due to a Traffic Accident

Date of the Accident	**Legislation**
Before 11.10.2008	Social Insurance and Health Care Code
11.10.2008 – 31.08.2013	Regulation on the Determination of Work Force and Occupational Loss Ratio
01.09.2013 – 19.02.2019	Regulation on the Disability Determination Services
As of 20.02.2019 until now	Legislation on a determination of disability for adults/ Legislation of a Determination of Special Needs for Children (one of them is applied in consideration of being either an adult or child at the time of the accident)

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RESEARCH ARTICLE

Comparison of the Regulations Used in the Assessment of Vocational Permanent Disability Rates and Disability Rates

İbrahim Eroğlu*, Ahmet Küpeli

Abstract:

A significant part of the regulations on health and health conditions classification in our country has lost currency. This study aims to compare vocational permanent disability rates and disability rates recalculated according to guidelines for disability rates of the patients who applied to the Department of Forensic Medicine between 2015-2016 with disability rate determination request, to emphasize scale and guideline deficiencies in the scope of present regulations, to evaluate problems and determine solutions. In this study, 94 disabilities were observed in 49 cases with detected vocational disability rates, with orthopedic disabilities prevailing. No significant difference was detected among the scales in pelvis-lower extremity, head, face, spine, internal organ and ear concerning disabilities (p:0.241, 0.117, 0.083, 0.285, ~1, 0.317, respectively). There was a significant difference among the ratios calculated with two scales in the upper extremity and eye disabilities (p:0.002, 0.034, respectively). In conclusion, it was evaluated that the formation of a single guideline -functional and updateable, in line with current medical improvements, meeting international standards- to be used by all institutions is required since the use of different regulations, scales and guidelines cause medical and legal problems and arrangements in age and profession can be made in the regulations and guidelines used in disability ratio determination and guidelines used in disability ratio calculation in appreciation-requiring conditions can be used for calculating vocational permanent disability rates.

Keywords: Forensic medicine, disability ratio, vocational permanent disability ratio, appreciation ratio.

Öz:

Ülkemizde sağlık ve sağlık ile ilgili durumların sınıflandırılmasına yönelik yapılan düzenlemelerin önemli bir kısmı güncelliğini yitirmiştir. Bu çalışmada; Adli Tıp Anabilim Dalına 2015-2016 yılları arasında maluliyet oranı belirlenmesi istemi ile başvuran olguların "Meslekte Kazanma Gücü Kayıp Oranı Tespit Cetvelleri" kullanılarak saptanmış meslekte kazanma gücü kayıp oranları ile engel oranı belirlenmesinde kullanılan cetvel ve kılavuzlara göre yeniden hesaplanan engel oranlarının karşılaştırılması, yürürlükte olan yönetmelik kapsamındaki cetvel ve kılavuzların eksikliklerinin vurgulanması, karşılaşılan sorunların değerlendirilmesi ve çözüm yollarının tespiti amaçlanmıştır. Meslekte kazanma gücü kayıp oranı saptanan 49 olguda toplam 94 arıza olduğu ve ortopedik arızaların ön plana çıktığı görüldü. Arıza bazında karşılaştırmada pelvis-alt ekstremite, baş, yüz, omurga, iç organ ve kulak arızalarında cetveller arasında anlamlı farklılık saptanmadı (sırasıyla; p:0.241, 0.117, 0.083, 0.285, ~1, 0.317). Üst ekstremite ve göz arızalarında ise iki cetvel arasında hesaplanan oranlar arasında anlamlı farklılık saptandı (sırasıyla; p:0.002, 0.034). Sonuç olarak birçok farklı yönetmelik, cetvel ve kılavuzun kullanımı tıbbi ve hukuki zorluklara neden olduğundan tüm kurumların kullanabileceği -günümüz tıp gelişimine uygun, uluslararası standartlarda, işlevsel ve güncellenebilir- tek bir kılavuzun oluşturulması gerektiği, bu kapsamda engel oranı belirlenmesinde kullanılan yönetmelik ve kılavuzlara, yaş ve meslek gibi düzenlemelerin yapılabileceği ve bu süreçte meslekte kazanma gücü kayıp oranı hesaplamasında takdir gereksinimi olduğu durumlarda engel oranı hesaplamasında kullanılan kılavuzlardan faydalanılabileceği değerlendirilmiştir.

Anahtar Kelimeler: Adli tıp, arıza, engel oranı, meslekte kazanma gücü kaybı oranı, takdir oranı.

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Ethical Declaration
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This article is English version of the manuscript entitled as "Meslekte Kazanma Gücü Kaybı Oranı ve Engel Oranı Değerlendirmesinde Kullanılan Yönetmeliklerin Karşılaştırılması"

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1. Introduction

"Maluliyet", which is the word used for disability is originated from the Arabic rooted word "illet" meaning insecure, disease and disability (1). The concept of disability is defined as the partial or complete loss of an individual's capacity to work due to an external effect, disease or accident in legal terminology (2). Vocational permanent disability is the proportional equal to permanent incapacities of an insurance holder due to work accidents and occupational diseases (3).

"Capacity to Work and Vocational Permanent Disability Rates Detection Operations Regulations" and attached "Vocational Permanent Disability Rates Scales" (VPDRS), including a total of five scales, are used to calculate "vocational permanent disability rate." 4/a and 4/b insurance holder -detected to have minimum 10% decreased vocational permanent disability rate by the Institution Health Board based on the reports given by health boards of health service providers authorized by Social Security Institution- is eligible for temporary incapacity benefit and permanent incapacity income due to the disease and disabilities formed due to work accident or occupational disease. In case of any objection against Institution Health Board reports, the disease and disabilities of the insurance holder are re-evaluated by Social Security High Health Board and concluded. Although this resolution is binding, the insurance holder can object to the Labour Courts or Civil Courts of First Instance in case of any loss of right and Forensic Medicine 3rd Specialized Board or Faculties of Medicine Forensic Medicine Department Branches determined as an expert by legal authorities issue report on the subject. In case of any contradiction among the reports, the opinion of the Forensic Medicine Board Supreme Board is asked for the final decision.

"Disability Detection Operations Regulations" are used to determine disability conditions. In case the Institution Health Board detects that the 4/a and 4/b insurance holder lost at least 60% of working capacity or at least 60% of vocational permanent disability rate due to work accident-occupational disease according to the Appendix-1 Disease List or in case the Institution Health Board detected that 4/c insurance holder lost at least 60% of working capacity or lost profit loss rate in the profession. Thus, the duties cannot be performed (based on health conditions stated in "Turkish Armed Forces Health Ability Regulations" for military and civilian personnel working in Turkish Armed Forces and men obliged to perform military service, "Police Department Health Conditions Regulations" for Ministry of Internal Affairs General Directorate of Security, "health conditions stated in the Regulations on the Application of Private Security Services Law" for the security personnel working under Private Security Services Law and Public Services Law No 657 and "Regulations on Types and Degrees of Disabilities on Duty" in case of disability on duty), the insurance holder is regarded as disabled (4). In case of an objection against the Institution Health Boards' decision, a resolution is provided by Social Security High Health Board and although this decision is binding, Forensic Medicine 3rd Specialization Board is asked for an opinion in case the insurance holder appeals to judicial authorities (5).

While "Capacity to Work and Vocational Permanent Disability Rates Detection Operations Regulations" with reference to the provisions of Turkish Code of Obligations Article No 15 were used for traffic accidents before the change performed in Article No 90 of Highway Traffic Law No 2918 on 14.04.2016, "Regulations on Health Board Reports to be Issued for the Disabled" was started to be used for the reports to be issued within the concept of permanent disability guarantee of "Highway Motor Vehicles Compulsory Liability Insurance General Conditions" coming into force on 01.06.2015 with the change performed. To resolve the date conflict between the Regulations and General Conditions, Supreme Court 17th Civil Chamber decided to use General Conditions for the traffic accidents occurring after it comes into force on "01.06.2015". Finally, "Regulations on Health Board Reports to be Issued for the Disabled" were abolished on 20.02.2019 and "Regulations on Disability Evaluation for Adults" and "Regulations on the Evaluation of Special Needs of Children" came into force and the references to the Regulations on the Health Board Reports to be Issued for the Disabled" were considered to be on the new regulations (6-11). Also, a direct reference was made to Regulations on Disability Evaluation for Adults and Regulations on the Evaluation of Special Needs of Children and Highway Motor Vehicles Compulsory Liability Insurance General Conditions issued on the official gazette on 20.03.2020 (12).

The provisions of Article 54 in the Turkish Code of Obligations were referred for other body injuries following torts. Body injuries that may follow torts were specified in this article. While VPDRS was used to determine the loss rate depending on "losses caused by decreased or lost capacity to work" mentioned in the third clause of the article, the reports to be issued for torts (terror, injury and accidents other than traffic accidents) after 20.02.2019 were covered under "Regulations on Disability Evaluation for Adults" and "Regulations on the Evaluation of Special Needs of Children" with the final regulation made on 20.02.2019 (3, 8, 10, 11).

While Disability Rates Scale within "Regulations on Impairment Criterion, Classification and Health Board Reports being Issued for the Disabled" was used to determine the disability rate before 20.02.2019, Disability Rates Area Guidelines for Health Board Reports of Disabled Adults within the scope of "Regulations on Disability Evaluation for Adults" and "Special Need Areas Guidelines" within the scope of "Regulations on the Evaluation of Special Needs of Children" was started to be used. "Disability Rates Scale" and "Disability Rates Area Guidelines for Health Institution Board Reports of Disabled Adults" includes 15 sections grouped based on organ and body systems and Special Needs Area Guidelines includes 23 special need areas. Some changes were made in report formats with the new regulations coming into force and while a single format titled "Health Institution Report for Disabled" was available within the concept of the abolished regulation, separate report formats with the titles "Disability Health Board Report" and "Terror, Accident and Injury Related Situation Reporting Health Board Report" for adults and "Special Need Report" and "Terror, Accident and Injury Related Situation Reporting Health Board Report" for children were defined. The ways the reports for terror, accident and injury situations are going to be issued were explained separately in the related articles of the regulations and it was stated that these reports would be issued when an official writing is demanded by the institutions and the function losses without any causality connection with the related incidence will not be concerned (9-11).

ICD-10 (International Statistical Classification of Diseases and Health-Related Problems) and ICF (International Classification of Functioning, Disability and Health) are among international classification systems that were developed by WHO to develop a common language. ICD-10 was prepared to classify the diagnosis and health condition of the individual, while ICF was prepared to evaluate the health-related functionality and disability and to provide the participation of the individual in life (e.g., social communication, work and education). These two classification systems complement each other, and WHO suggests their use together (13-14). ICD-10 is used to define the health conditions of individuals in our country and scales and guides based on ICF (Disability Rates Scale, Disability Rates Area Guidelines for Health Institution Board Reports of Disabled Adults, Guidelines for Pediatric Special Need Areas) are used to determine the health-related disability rate formed (9-11).

One of the most important scales used to determine disability rate, workforce loss (disability) and material indemnity for traumatic or disease-caused permanent pathologies (Guides to the Evaluation of Permanent Impairment, Sixth Edition by American Medical Association) (15). This guide was first published as the article titled "Guide to Evaluate the Extremities and Spinal Impairment" in the Journal of American Medical Association by American Medical Association in 1958 and was started to be used to calculate the rate of permanent impairments in individuals experiencing measurable medical loss due to trauma or disease in the United States of America. With the additions in years, the sixth edition of the guide was published in 2007 and the ICF model was the basis of the last edition (16).

Although a significant part of the regulations made on the classification of health and health-related conditions has lost its currency, they are still continued to be used. To evaluate health and health-related conditions, it is necessary to form an up-to-date, international, common framework that is easy to understand in medical, legal and social terms. The present study aims to evaluate the reports issued using VPDRS for the cases referring with the request for reports on disability rate, compare the detected disability rates and vocational permanent disability rates by recalculating based on the scales and guides used for disability rate determination, emphasize the deficiencies of the scales and guides within the concept of the regulations in force, evaluate the problems encountered due to these deficiencies and to detect solution ways.

2. Materials And Methods

The reports issued by the SDU Faculty of Medicine Research and Application Hospital Forensic Medicine Department between 2015 and 2016 were retrospectively examined, and the cases with the demand for disability rate determination were included in this study. Disorder data detected through VPDRS for the cases and data acquired after the recalculation of these disorders using the "Disability Rates Scale were compared. Recalculations for disorders were performed according to "Disability Rates Scale" within the scope of "Regulations on Impairment Criterion, Classification and Health Board Reports to be Issued for the Disabled" which was in force when this study was carried out and "Disability Rates Area Guidelines" and "Special Need Areas Guidelines" within the concept of regulations in force were included in this study because of the changes made in regulations on 20.02.2019.

Statistical data examination was made using SPSS 22.00 statistics program. Accordance of variables to normal distribution was checked with the Kolmogorov Smirnov test. Definitive statistics for acquired data were given as mean ± standard deviation, number and percentage. Mann-Whitney U test Wilcoxon Signed-Rank Test, Pearson chi-square test and Fisher's exact chi-square test

were used for data analysis. The significance level was accepted as $p<0.05$.

Ethical Declaration

This study was conducted with 13.04.2017 dated decree (No. 60) of Süleyman Demirel University (SDU) Faculty of Medicine Clinical Researches Ethics Board Directorate.

3. Results

In this study, 78 cases whose reports were demanded to be issued between 2015 and 2016 were included in this study. 60 (76.9%) of the cases were male, and 18 were (23.1%) female and the mean age was 38.78±18.38. The mean age was 39.13±18.35 for males and 41.94±18.82 for females and four cases were under 18 years of age.

It was observed that the report claim was mostly performed by judicial authorities (Commercial Court of First Instance, Civil Court of First Instance, Offices of Chief Public Prosecutor) (n:72, 92.3%) and the private applications constituted 7.7% of all applications (n:6).

When the professions of the cases detected to have permanent fault were examined, it was observed that information on the profession did not exist on present judicial records for 44 of the cases (89.7%) and four (8.1%) out of five private applications were accepted as plain workers, and the other (2.1%) was a woodsman.

Traffic accident was the most common cause for admittance (n:70, 89.7%) and injuries (n:5, 6.4%), medical application mistake (n:2, 2.6%) and work accident (n:1, 1.3%) followed it in order.

Clinics in which consultation was demanded most commonly in the clinical evaluations of the cases were observed as Physical Treatment and Rehabilitation (n:32, 23.4%), Mental Health and Diseases (n:24, 18.3%) and Orthopedics and Traumatology (n:18, 13.7%) and the views of a total of 14 different clinics were taken together with other clinics the consultations were demanded from and the consultations coming from the clinics were responded according to the ICD-10 diagnosis codes detected in the cases.

Disability rate was detected in 49 cases (62.8%) and two of the cases with detected disability were under 18 years of age. In this study, 37 of these cases were male (75.5%) and 12 were female (24.5%). When disability rates were compared according to genders, no statistically significant difference was detected (p:0.700).

A total of 94 disorders were present in cases whose disability rates were determined (n:49). When the distribution of the disorders was examined, it was observed that pelvis and lower extremity disorder (n:37, 39.4%) were detected mostly and upper extremity (n:23, 24.5%), head (n:17, 18.1%), eye (n:6, 6.4%), face (n:4, 4.3%), spine (n:3, 3.2%), internal organ (n:3, 3.2%) and ear disorders (n:!, 1.1%) followed it, respectively.

Disorder rates were re-calculated using the scale and guidelines used for calculating the disability rate. The descriptions in "Disability Rates Scales" and "Disability

Table 1: Estimation distribution in the calculations performed according to the D scale and Disability Rate Scale.

Disorder groups based on D Scale		D scale.		Disability Rates Scale	
		Estimation (%)		Estimation (%)	
	n	present	none	present	none
Pelvis and lower extremity	37	64.9	35.1	0	100
Upper extremity	23	100	0	0	100
Head	17	41.2	58.8	0	100
Eye	6	16.7	83.3	0	100
Face	3	33.3	66.7	0	100
Spine	3	33.3	66.7	0	100
Internal organ	3	0	100	0	100
Ear	1	0	100	0	100
Total*	94	60.6	39.4	0	100

*One person may have multiple disorders.

Rates Area Guidelines" were completely the same for the disorders in cases over 18 years of age and disability rate was detected for two cases under 18 years of age and although disability rate was given in one of these cases, no impairment rate and special needs were detected, one case had post-traumatic stress disorder diagnosis with recovering functionality after treatment, the disability rate was 25% based on "Disability Rates Scale, this definition was equal to "Has special need" definition based on the "Guidelines of Special Need Areas" and this definition was equal to 20-39% disability rate when accordance was searched between this definition and the previous regulation.

It was observed that the closest disorder in the list was determined because 57 out of 94 disorders (60.6%) were milder compared to the disorder mentioned on A scale of the related regulations and making an explanation on the character of the disease, estimation was performed through certain decreases in the "disorder rate for ages of 38-39" detected through D scale. Disability ratio was detected without the estimation need in the recalculation of disorders according to the scales and guidelines used for disease rate calculation. Examining the disorders concerning estimation application, it was applied in all upper extremity disorders while it was applied in 64.9% of pelvis and the lower extremity disorders and 41.2% of head disorders (Table 1). Findings on "disability rates based on the ages of 38-39" detected through D scale on disorder basis and the rates acquired through the recalculation of Disorder Rates Scale are given in Tables 2 and 3.

Table 2: Comparison of rates calculated according to the D scale and "Disability Rates Scale".

Disorder groups based on the D scale		D scale.	Disability Rates Scale	p*
	n	Mean±SD	Mean±SD	
Pelvis and lower extremity	37	12±13.61	10.89±14.74	0.241
Upper extremity	23	12.78±11.70	8±13.44	**<0.002**
Head	17	41.53±24.65	37.59±25.14	<0.117
Eye	6	33±12.83	24.83±9.30	**0.034**
Face	3	14.67±1.15	15.67±1.15	0.083
Spine	3	16±5.19	11.33±2.88	0.285
Internal organ	3	65.67±43.31	51.67±32.53	~1
Ear	1	17	12	0.317

Min: minimum, Max: maximum, Mn: Mean, SD: Standard deviation, *Wilcoxon T-test

Table 3: Comparison of rates calculated with D scale and Disability Rates Scale for the disorders which were applied and not applied estimation according to the D scale.

				D scale.	Disability Rates Scale	p*
			n	Mean±SD	Mean±SD	
According to the D Scale	Estimation is present	Pelvis and lower extremity	24	6.21±4.14	6.04±6.36	0.586
		Upper extremity	23	12.78±11.70	8±13.44	**0.002**
		Head	7	32.29±16.73	30.57±16.40	0.400
		Eye	1	35	22	0.317
		Face	1	16	17	0.317
		Spine	0	-	-	-
		Internal organ	0	-	-	-
		Ear	0	-	-	-
	Estimation is missing	Pelvis and lower extremity	13	22.69±18.22	19.85±20.98	0.272
		Upper extremity	0	-	-	-
		Head	10	42±27.94	42.5±29.65	0.213
		Eye	5	32.60±14.31	25.40±10.28	**0.046**
		Face	2	14	15	0.157
		Spine	2	19	10.5±3.53	0.180
		Internal organ	3	65.67±43.31	51.67±32.53	~1
		Ear	1	17	12	0.317

Mn: Mean, SD: Standard deviation, *Wilcoxon T-test

Temporary incapacity duration was not detected as disability rate was 100% in two out of 49 cases with detected disability rate and permanent incapacity duration was not available in three out of 29 cases without detected disability rate. It was also observed that the scales and guidelines used in disability rate calculation did not cover the temporary incapacity concept.

4. Discussion

In our study, 76.9% of the cases were male and 23.1% were female and 5.1% of 78 cases (n:4) were under 18 years of age and the mean age was 39.13±18.35 for males, and 41.94±18.82 for females, and 89.7% of the cases were admitted to our Forensic Medicine Department for disability rate detection due to traffic accident, 6.4% with injuries, 2.6% with medical application mistake and 1.3% with a work accident. Similar to the sampling of our study, 59.6-74.3% of the cases were male when the gender distribution was checked in studies in which traffic accidents constituted the majority (17-22). As also reported in literature, the high value of this rate was related to that the males in the adult age group use motor vehicles and are present more in professional life.

Two separate regulations came into force for adults and children with the final arrangements and "Special Need Areas Guidelines" was started to be used for the pediatric age group. In "Special Need Areas Guidelines" was formed so that the evaluation for children can be carried out due to the difference of children from adult period due to their development phase, "special need" concept is terminologically used instead of "disability" concept and the special need level of the child is classified without stating disability rate percentage. Since it is necessary to state the disability rate concerning accordance with legislation in the reports issued due to terror, accident and injury, it is converted to percentile band for disability rate as mentioned on the table (Table 4) present in regulations Appendix-3 on the reports (11). Although disability rate was given in one of the cases below 18 years of age with determined impairment rate, disability rate and special need were not detected and the other case had post-traumatic stress disorder with recovering functionality through treatment and the disability rate was 25% according to "Disability Rates Scale" and this definition was equal to "Special need present" definition according to "Special Need Areas Guidelines" and this definition was equal to 20-39% disability rate when accordance to the previous regulation was searched. In this new regulation made for children, it was considered that the stated percentage ranges might cause conflicts and related objections in the calculation of damages in conditions which might constitute the basis of damages.

Table 4: Special Need Areas Guidelines-Table to be used when accordance with legislation is searched.

Special Need Code	Special Need Level	Disability Rate (%)
1	Has special need (HSN)	20-39
2	Low HSN level	40-49
3	Average HSN level	50-59
4	High HSN level	60-69
5	Very high HSN level	70-79
6	Has significant special need (HSSN)	80-89
7	Has special condition need (HSCN)	90-99

With the new regulations coming into force, it is stated that the reports to be issued on terror, other accidents (excluding work accident) and injuries in addition to traffic accident will be issued by boards to be formed by authorized health institutions following the request of the institutions through an official letter (10, 11). It was observed that 92.3% of the report requests came from judicial authorities and 7.7% included private requests. In the study conducted by a Forensic medicine Department, it was reported that most of the cases (86.5%) were private requests and this condition was related to the increase in private damage consultancy firms (21). While the regulations highly decreased the problems in the reporting phase started through government agencies, lack of explanations on the way to be followed in private application conditions was evaluated as a deficiency of these regulations.

Disability rate determination requires a multidisciplinary approach. Based on the disorders in our study, the cases were consulted to 14 different clinics and it was observed on the responses of the related clinics that the disorder diagnoses were performed according to ICD-10 classification. While some of the disorder diagnoses were included in A scale, all of these diagnoses were observed to have their equivalents in the scales and guidelines used for

disability rate calculation. Use of ICD-10 in clinical diagnosis, in accordance with A scale to ICD-10 and other clinics not using this scale make disorder detection harder in the reports of consulted cases issued according to VPDRS.

It is stated in the regulations that in case the disorder causing anatomic or function loss is milder/more severe than the disorder stated in the related A scale in the calculation of vocational permanent disability rate or does not have a complete equivalent, the closest disorder in the list will be determined, and an explanation will be made according to the disorder characteristic and certain rates of decrease/increase will be made through the estimation of "the disorder rate for the ages of 38-39" calculated through D scale (4). However, in the literature, it is reported that different estimation rates are present even in the same sequel and same clinical condition and the conflicts in the reports cause the extension of the legal process and forfeitures (17-19, 21).

While the estimation rate changed between 20.6-35.8% in the studies using VPDRS, it was observed that estimation was applied in 60.6% of the disorders in our study (17-19, 21). Estimation application distribution of disorders was as upper extremity (100%), pelvis and lower extremity (64.9%), head (41.2%) and spine (33.3%). It was evaluated that high estimation application rates arose from the limited scope of the disorder diagnosis in A scale according to the current diagnosis classification system. No explanation was available for the estimation application in the scales and guidelines used for disorder rate calculation, and all disorders diagnosed in our study had a complete equivalent in these scales and guidelines. To our knowledge, although no study comparing the vocational permanent disability rate and the disability rate is available in the literature, the findings of our study suggest that the use of scales and guidelines used in disorder rate calculations was more functional for the provision of standardization in the same sequel and clinical conditions.

A significant difference was not detected among the rates determined according to the scales and guidelines used in the calculation of estimation applied and unapplied pelvis and lower extremity, head, face, spine, internal organ and ear disorders disability rate calculation in our study ($p>0.05$). This condition was evaluated to be caused by the similarity of the rates detected for the evaluation of the anatomic and function losses of both scales in disorder groups without any detected difference. A statistical difference was found among the rates acquired from the scales and guidelines used for the calculation of D scale and disability rate of the upper extremity and eye disorder rates ($p<0.05$, $p<0.05$, respectively). It was observed that estimation was applied in all upper extremity disorders in the calculation based on D scale, and also, a significant difference was not detected among the compared ratios in other disorders excluding upper extremity disorders among the disorders, which were applied estimation ($p>0.05$). Since the upper extremity motor functions cover finer motor skills in the body, they should be more sensitively evaluated compared to the motor functions in other disorders. It was observed that detailed information on all disorders that could be seen in extremities, including joint motion range, was given in the scales used for disability rate calculation. The disability rates could be calculated without the need for estimation application, including fine motor skills. Detection of a significant difference among upper extremity disorder rates in our study could be related to the high estimation application rate in these disorders, wrong evaluation of estimation rate and/or the difference in the values corresponding to these disorders in the scales.

As permanent psychiatric disorders can also form in cases due to experienced traumas, an extensive mental evaluation and diagnosis should also be performed. Psychiatric disorders may both accompany physical disorders or occur as permanent disorders by themselves. While psychiatric disorders were covered in a few places in the head disorders of A scale, they were defined in detail under a separate disorder title in Disorder Rates Scale. In Disorder Rates Area Guideline and Special Need Areas Guidelines, the psychiatric disorder title was covered in more detail based on age and case. Scales and guidelines used in disorder rate calculation in the mental evaluations of the cases were evaluated to be more functional compared to A scale.

To determine the disability rate, workforce loss (disability) and material indemnity in many countries (such as USA, Canada, Australia, South Africa, Holland), the sixth edition of Guides to the Evaluation of Permanent Impairment based on the ICF model is used (15, 16). Although the regulations used for disorder rate determination in our country were based on ICF module, use of regulations, such as "Vocational Permanent Disability Rate Detection Operations Regulations", "Regulations on Types and Degrees of Disabilities on Duty", "Turkish Armed Forces Health Ability Regulations" and "Police Department Health Conditions Regulations" is still continued. It was evaluated that a single guideline covering all occupation groups, meeting international standards and forming a common language for public and legal areas could be formed through regulations, such as occupation and age, in the regulations used for disability rate evaluation.

Limitation of the generalizability of the findings due to the study sampling formed by cases referring to Süleyman Demirel University Faculty of Medicine Forensic Medicine Department between 2015 and 2016 with disability rate determination demand. Being able to pioneer the development of the scales used for the calculation of vocational

permanent disability rate or the formation of new scales because of findings with detected statistical significance in line with the aim constitutes the strength of this study.

Based on the results of our study, it was detected that all estimation applied and unapplied disorders had equivalents in the scales and guidelines used for disability rate calculation and the disorder rates in scale A (Pelvis and lower extremity, head, face, spine, internal organ and ear) apart from upper extremity and eye disorders were similar to the scales used in the disorder rate calculation. With the last regulations made in February 2019, terror, other accidents (excluding work accident) and injuries in addition to the traffic accidents were included in the same regulations and two separate regulations came into force with a new regulation covering individuals under 18 years of age considering the special needs of children. Although these new regulations were regulated in line with current medical applications based on the ICF model, they are not suitable for the calculation of vocational permanent disability rate since they do not cover age and occupational evaluation. On the other hand, regulations in force used to determine vocational permanent disability rates and disability condition are not in line with ICF model. As a result, when it is considered that the use of different regulations, scales and guidelines may cause medical and legal aggrievement in addition to the difficulties in the stages of disorder detection and reporting and the evaluation of the reports, the formation of a single guideline which can be used by all institutions -in line with current medical developments, meeting international standards, functional and updateable- is necessary. Within this concept, it was evaluated that regulations, such as age and occupation, can be made on the regulations and guidelines used to determine disability rate and the guidelines used to calculate disability rate in conditions requiring estimation in the calculation of vocational permanent disability rate could be used within this period.

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RESEARCH ARTICLE

Investigation of the Emergency Physicians' Exposure to Violence and Forensic Events

Erhan Kaya*, Ferdi Tanır

Abstract:

Objective: The aim of this study is to determine the exposure of the emergency department physicians to violence and forensic events and related factors.

Materials and Methods: The population of this cross-sectional study was 248 emergency service physicians working at 31 different health institutions in Adana city center. Between 01 July and 31 December 2016, 202 emergency department physicians were interviewed face-to-face. Data collection tools were; the sociodemographic knowledge of the doctors, the history of violence and their approach to forensic events.

Results: The mean age of the participants was 38.3±9.6 years and mean working time in emergency departments was 8.9±7.7 years and 75.7% of the emergency physicians in our study were male. The rate of exposure to violence during working life was 88.1%. The most common types of violence were verbal violence with 88.1% and physical violence with 30.7%. It was determined that physicians were mostly violated by patients and their relatives, also it was determined that half of the physicians went to court at least once during their professional life due to medical practices. Statistically, significant relationship was found between physicians being violent and being plaintiff ($p<0.05$). It was stated that 20.8% of the doctors had a forensic investigation and 85.6% were concerned about the malpractice.

Conclusion: Emergency physicians, who are faced with violence and forensic events very often and undertake great medical and legal responsibilities, can feel anxious and lonely. Legal sanctions on violence against health workers need to be increased.

Keywords: Health Workers, Workplace Violence, Forensic Medicine

Öz:

Amaç: Acil servis hekimlerinin şiddet ve adli olaylara maruziyet durumlarını ve ilişkili olabilecek faktörleri belirlemektir.

Gereç ve Yöntem: Kesitsel tipte olan çalışmanın evrenini Adana il merkezinde 31 farklı sağlık kurumunda çalışan 248 acil servis hekimi oluşturmaktadır. 01 Temmuz-31 Aralık 2016 tarihleri arasında 202 acil servis hekimine yüz yüze tekniği ile anket yapıldı. Veri değerlendirmesinde frekans analizi ve Ki Kare testi uygulandı.

Bulgular: Araştırmaya katılanların yaş ortalaması 38.3±9.6, acil servislerde çalışma süresi ortalaması 8.9±7.7 yıl olup acil hekimlerinin %75.7'si erkekti. Çalışma yaşamı boyunca şiddete uğrama oranı %88.1'di. En fazla maruz kalınan şiddet türleri %88.1 ile sözel şiddet ve %30.7 ile fiziksel şiddet idi. Hekimlere şiddetin en fazla hasta ve hasta yakınları tarafından yapıldığı çalışmamızda hekimlerin yarısının meslek hayatı boyunca tıbbi uygulamalar nedeniyle en az bir kez mahkemede bulunduğu saptandı. Hekimlerin şiddete uğrama durumları ile davacı olmaları arasında istatistiksel olarak anlamlı ilişki görüldü ($p<0,05$). Hekimlerin %20.8'i adli soruşturma geçirdiğini, %85.6'sı malpraktis kaygısı yaşadığını belirtti.

Sonuç: Şiddet ve adli olaylar ile çok sık karşılaşan, tıbbi ve hukuki yönden büyük sorumluluklar yüklenen acil servis hekimleri kendilerini tedirgin ve yalnız hissedebilmektedir. Sağlık çalışanlarına şiddet ile ilgili hukuki yaptırımların artırılması gerekmektedir.

Anahtar Kelimeler: Sağlık Çalışanları, İş Yeri Şiddeti, Adli Tıp

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Conflict of Interest
The authors declare that they have no conflict of interests regarding content of this article.

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Ethical Declaration
* Ethical approval was obtained from Çukurova University Clinical Research Ethical Committee with date 04.12.2015, and Helsinki Declaration rules were followed to conduct this study.

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1. Introduction

Violence is defined as "Coercion, using of threat or physical force to oneself, another, group or community in a way that it can lead to or cause death, injury, mental injury, a developmental disorder." (1). Violence in Health Institution is a verbal or behavioral threat, physical or sexual assault from a patient, relatives of the patient or another individual who pose a risk to the health care worker (2).

Violence negatively affects the quality of service offered by employees. It can cause problems by negatively affecting both the physical and psychological health of the employees and cause them to be unable to work, decrease in trust in management and employees, even their death. Violence against physicians and health workers in the health environment has been showing an increase in recent years. Hospitals are becoming more and more dangerous for health workers. Violent acts, which are widespread in society, affect health institutions seriously and cause burnout and inefficiency in employees (3-6).

The health care sector has about 10 times more risk of attack within other professions. Especially, emergency services are under the greatest risk for these incidents. Emergency department personnel are victims of violence, often from visitors and patients (7). Violence in the field of Health is significantly more common and less recorded than violence in other workplaces. Although there are many reasons for this, the common belief is that legal arrangements are not sufficient to defend the rights of employees, especially in our country (4).

Violence against health workers is now accepted as a common situation in Turkey. Subsequently, as a result of the Ministry of Health Communication Center (SABIM) violence and executive attitudes, physicians disincline from their professions (8). In emergency treatment, the physician is expected to do many things in a short period of time, well-disciplined, also being very knowledgeable and also to act in a way that will save life first. At the same time, the physician is asked not to compromise his/her legal responsibilities and to fully comply with the rules of law (9). Violence and forensic incidents applied to emergency physicians lead to the formation of defensive medicine in the provision of treatment services and lead to anxiety (10). Writing of forensic report, forensic examinations and expertness pose problems for physicians (11).

The aim of the study; investigation of the emergency physicians' exposure to violence and forensic events and their factors that may be related.

2. Materials and Methods

248 physicians working in the emergency departments of 31 health institutions in Adana city center formed the universe of our study. In our cross-sectional study, we aimed to reach the entire universe by not selecting samples for the physicians working in the emergency department. July 01 December 31, 2016, 216 physicians were reached by all emergency departments and 202 physicians were surveyed by the researcher using a face-to-face interview technique, while 14 physicians did not want to participate in the study.

In addition to their demographics, physicians were asked about their status of violence during their professional lives, their attitudes about judicial events, their concerns about judicial events, their presence in court due to their professions and practices. Cases of complaints reached to physicians by calling the phone line 184 of the Ministry of Health Contact Center (SABIM) or via the Prime Ministry Contact Center (BIMER) were also questioned.

The data were evaluated using the SPSS version 19 program. Descriptive statistics were used in the analysis of the data and Chi-square testing was used in the comparison of variables. $P<0.05$ was considered as an indicator of significant difference.

Ethical Declaration

The study was conducted by the decision of the non-interventional clinical research ethics committee of Çukurova University Faculty of Medicine dated 04.12.2015 and the necessary permits were obtained from public and private institutions.

3. Results

153 (75.7%) of the emergency physicians in our study were men and 49 (24.3%) were women. 168 (83.2%) of physicians work at their own request in emergency departments. In our study, the mean age of the physicians was 38.3±9.6 years and the mean duration of work in the emergency department was 8.9 ±7.7 years.

Table 1. Types of violence applied to physicians and distribution of people who practice violence		
	n*	**%**
Kinds of Violence		
Verbal	178	88.1
Psychical	62	30.7
Psychological	45	22.3
Sexual	1	0.5
Violent Person		
Patient Relative	179	88.6
Patient	146	72.3
Physician	6	3.0
Other Medical Personnel	6	3.0
*More than one answer has been given.		

In our research, when emergency physicians are questioned about the situation of violence during their professional life; 178 (88.1%) of physicians were found to have suffered at least one type of violence. 178 (88.1%) of physicians were exposed to verbal violence and 62 (30.7%) to physical violence. The people who are most frequently violent to their emergency physicians are the patient and the patient's relatives. 179 (88.6%) of our physicians reported violence by their relatives, 146 (72.3%) by their patients, 6 physicians (3%) and 6 (3%) by other medical staff (Table 1). When the relationship between physical and verbal violence in physicians and gender and the demand to work in the emergency department is analyzed; while there was no statistically significant association between gender and violence. It was statistically significant that physicians who want to work in the emergency room at their own request, suffered more verbal violence (p = 0.021) (Table 2).

Table 2. Gender and the relationship between violence and the demand to work in the emergency department						
		Physical Violence			**Verbal Violence**	
Variance	**n:62**	**%***	**p**	**n:178**	**%***	**p**
Gender						
Male (n:153)	48	31.4	0,711	135	88.2	0,928
female (n:49)	14	28.6		43	87.8	
Request to work in the emergency department						
Own request (n:168)	51	30.4	0,818	152	90.5	**0,021**
Off-demand assignment (n:34)	11	32.4		26	76.5	
* Row percentage						

Emergency physicians have been questioned about some cases related to forensic events in their professional lives. 101 of the physicians (50.0%) stated that they had been in court at least once in any way due to medical practices. 109 of the physicians (54.0%) received complaints about themselves at least once during their working life through the SABIM-BIMER channel, while 42 (20.8%) received criminal investigations. 173 (85.6%) of emergency physicians experienced malpractice anxiety (Table 3).

Table 3. Distribution of the status of physicians related to forensic events		
	n:202	**%**
Present in court due to medical practices		
Yes	101	50.0
No	101	50.0
Having complaints about BIMER -SABIM		
Yes	109	54.0
No	93	46.0
About forensic investigation		
Yes	42	20.8
No	160	79.2
Experiencing malpractice anxiety		
Yes	173	85.6
No	39	14.4

In our research, when the way physicians were present in court regarding the practice of medicine in their professional life was questioned; 55 (27.2%) of physicians were present in court as plaintiffs, 37 (18.3%) as defendants, 9 (4.4%) as witnesses, and 32 (15.8%) as experts. The distribution of the present in court is shown in Table 4.

Table 4. Distribution of the way physicians are present in court			
	n	**%**	
Present in Court as:	55	27,2	
Complainant	37	18,3	
Defendant	9	4,4	
Witness	32	15,8	
Expert			
*Multiple responses have been given.			

102 (50.5%) of emergency physicians stated that they had problems moving their complaints about the aggressor to the judicial office. When physicians are questioned about their attitudes and behavior regarding forensic events; in forensic cases, the number of physicians who say they do not submit their clothes and belongings to safety with a report is 50 (24.8%). On the other hand, the number of physicians who say they do not pay attention to keeping blood and urine samples in the refrigerator is 82 (40.6%).

When the relationship between the violence suffered by physicians working in emergency departments and their presence in court is analyzed; There was no statistically significant relationship between verbal, physical violence or exposure to any type of violence at least once and being a plaintiff. On the other hand, there was no statistically significant relationship between being a defendant. Furthermore, the meaningful relationship between physicians who are subjected to verbal violence and being present in court has been shown in the analyses ($p<0.05$) (Table 5). In our study, there was no statistically significant relationship between malpractice anxiety and being in court as a defendant ($p>0.05$).

Table 5. Comparison of cases in court by type of violence suffered by physicians									
	Complainant			Defendant			Presence in court		
Kinds of Violence	**n:55**	**%***	**p**	**n:37**	**%***	**p**	**n:101**	**%***	**p**
Verbal									
Yes (n:178)	54	30.3	**0.007**	36	20.2	0.056	94	52.8	**0.030**
No (n:24)	1	4.2		1	4.2		7	29.2	
Physical									
Yes (n:62)	27	43.5	**0.001**	12	19.4	0.800	36	58.1	0.127
No (n:140)	28	20.0		25	17.9		65	46.4	
Exposed to violence (at least once)									
Yes (n:178)	54	30.3	**0.007**	35	19.7	0.178	93	52.2	0.082
No (n:24)	1	4.2		2	8.3		8	33.3	
* Row percentage									

4. Discussion

In our research, when emergency physicians were questioned about violence during their professional life, 88.1% of physicians suffered violence at least once in any way. 88.1% of physicians were subjected to verbal violence, 30.7% to physical violence, and 22.3% to psychological violence.

Many studies on violence and violence to health workers have been found in national and international literature. In some of these studies, violence suffered during a certain period of time was questioned, while in some studies, as in our study, violence suffered during professional life was investigated.

In Turkmenoglu and et al study in Sivas (6), 49.8% of health workers are exposed to at least one type of violence in the last year and 96.2% at any time during their time working in the health sector. It stated that the most frequently exposed type of violence was verbal violence with 73.7%. Gökçe and Dündar (12) stated that in their study in Samsun, 59.4% of physicians and nurses were subjected to verbal and 26,5% to physical violence within a one-year period. According to the study of Ilhan and et al (13) in Ankara, 60.9 % of physicians faced with violence at work during their working life. Sucu et al's (5) survey of health workers in Antalya showed that 94,5% of hospital emergency services and 112 emergency ambulance workers were exposed to verbal, 62,3% were exposed to physical violence, and only 23.4% of those exposed to violence which were reported. Baykan et al's (14) survey of 597 doctors found that 86,4% of doctors have experienced at least one type of violence during their career, 27.5% have experienced physical and 68.6% have experienced verbal violence in the last year. Bayram et al's (15) Study of 713 Emergency Physicians found that 65.9% of physicians, including more than one, and 78,1% had been subjected to violence within one year. In Cheung et al's (16) study of doctors and nurses, these rates were 53.4% for verbal violence and 16.1% for physical violence. In the study of Winstanley and Whittington (17) in England, the rate of physical assaults on physicians in the last year was 13.8%.

In this study, physicians firstly were described as verbal, physical and psychological violence in order not to perceive violence as physical violence, and then asked face-to-face about detailed history of violence. We believe that the high rates of violence in our research compared to other studies can be explained by this attentive inquiry and regional differences.

In the study by Gülalp et al (18), male sex and being an emergency physician were indicated to be risk factors for physical assault. In our study, a significant relationship between gender and violence was not found in the study of Hamdan and Hamra (19). In our study, 88.6% of physicians reported violence by their relatives while 72.3% reported violence by their patients and 3% reported violence by their physician friends. The UK study showed that 23% of health workers in a General Hospital were abused by patients and 15,5% by their relatives (17). In Özdemir et al's (20) study, the most violent group of health workers was the relatives of patients with 40.8%, Baykan et al. (14) in the study, it was stated that the physical violence was performed by the relatives of the patients with 63%. In our study, we found that the most violent people were the relatives of the patients and the patients. In our study, there was no proportional comparison to emergency room physicians because violence was inflicted many times and by more than one person.

It was found that the rates of verbal violence were high in the physicians who worked in emergency depart-

ments at their own request. It was thought that this may have been due to the concern of physicians to make specialized expertise, to accept the task more and to explain themselves to the patients better.

Emergency physicians were also investigated for exposure to violence, as well as for cases of prosecution, complaint, investigation, prosecution, malpractice concerns and presence in court. In our study, 54% of physicians received complaints via BIMER-SABIM, 20.8% had a judicial investigation, and 50% had been in court at least once for medical reasons. 27.2% of physicians were in court as plaintiffs and 18.3% as defendants. Furthermore, 85.6% of physicians experience malpractice anxiety.

There was a significant relationship between the state of physicians being engaged in verbal, physical or any kind of violence and the state of being a plaintiff. There are studies that emergency room physicians do not adequately report the violence inflicted on them and report it to their institution to a very small extent (14,19,21). However, in some studies in which the violence in the last year and the cases of suing after the violence were questioned; Aydin et al. (21) 522 physicians stated that 5.7% of physicians who suffered verbal violence and 14.8% of physicians who suffered physical violence defended themselves by going to court. Carmi Iluz et al's (22) study of 177 physicians sued for violence was 9.4%, while Sheikhazadi et al's (23) study of 118 physicians sued for violence was 5.9%. In our study, the claimant rate was 27.2%, which was proportionally higher only because it was not asked in relation to violence and because it covered the duration of the professional life. A study has not been found to be associated with physicians being plaintiffs during their professional life or being in court for medical reasons.

In addition to violence, emergency physicians also face complaints, lawsuits, criminal investigations and malpractice problems. In our study, 54% of physicians received complaints via BIMER-SABIM and 20.8% received judicial inquiries. In a study that examined the complaints received by the SABIM line (24), it was shown that the most frequently complained institution was the hospital (34.2%), the most frequently complained professional group was the physician (24.9%) and the specialist physician (29.8%), and the most frequent cause of complaint was malpractice (43.5%). In Zengin et al's (25) study of emergency department complaints, emergency physicians (38.9%) identified the most frequent complaints and medical care (29.7%) identified the most frequent complaints. Regarding the forensic investigation of physicians, in the study of Yıldırım et al (26), 16% of the physicians who participated in the study stated that there was a forensic investigation. This ratio is similar to the proportion of physicians undergoing forensic investigations in our study.

Our literature review examined studies involving defendant physicians related to malpractice. In the United States (27), 5% of malpractice cases were related to emergency room physicians, with the highest proportion of emergency medicine physicians facing malpractice cases. Jena et al. (28) to 7.4% of all physicians in the study each year, Carlson et al. (29) study found that malpractice lawsuits were filed against 9% of emergency physicians in 4.5 years period. In the (30) study of Juo et al, about 27.5% of surgical physicians had previously been sued, while 70.0% stated that they were worried about malpractice. In our study, the proportion of physicians who reported having malpractice anxiety was 85.6%. In Tunç and Kutanis (31) study, malpractice anxiety was found in 57.8% of assistant physicians, while in Summerton (32) study, 30.3% of physicians stated that they were concerned about being sued or complained.

Weaknesses and strengths of the study: it is a weakness of our study that physicians have difficulty remembering events as they investigate the violence and forensic events they have been exposed to throughout their lives. However, the strong side of the study is that we carry out multi-center work in a large province that hosts many different health institutions such as Adana.

5. Conclusion

The emergency physician, who are the most often faced with violence and judicial incidents within the healthcare personnel, have great responsibilities in terms of medical and legal aspects, may feel anxious and alone. Law enforcement on violence against healthcare workers needs to be enacted or increased. At the same time, emergency physicians should be given adequate training on legal responsibilities and legislation, and physicians should be supported legally in these matters.

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RESEARCH ARTICLE

The Effect of Traumatic Life Events on Traffic Tickets: An Evaluation of Driving Under the Influence of Alcohol

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Abstract:

Objective: The aim of this study is to determine the frequency of lifetime traumatic experiences, traffic punishment information and the relationship between traumatic history and criminal information of drivers who are intoxicated with alcohol.

Materials and Methods: The study was performed with 295 participants who participated in the Bursa Health Directorate's Driver Behavior Development Training Program from November 2015 to June 2016. A driver information form that includes demographic and traumatic life event information was used to obtain the data. Driver's license criminal information was also requested from the police department with an official letter.

Results: The participants were 9 females and 286 males. The mean age of the drivers was 40.47±9.48. Of them, 11.2% (n: 33) had experienced a life-threatening illness or injury, 10.8% (n: 32) had had a serious accident or been injured, and 9.5% (n:28) had been threatened with physical violence or weapons. Of them, 21.4% (n: 63) had lost a family member, lover, spouse or very close friend by accident, murder or suicide, and 6.1% (n: 18) said that they had been threatened with death or serious injury. A relationship was found between seat belt violations and those who were physically harmed by kicking, beating, slapping or in other ways ($\chi^2(2)=7.19$, $p<.00$).

Conclusion: This study of drivers with a history of driving under the influence of alcohol found a significant relationship was found between history of trauma and traffic violations.

Keywords: forensic sciences, traumatic life events, crime

Öz:

Amaç: Bu çalışmada alkollüyken araç kullanımı olan sürücülerin yaşam boyu travmatik yaşantı sıklıklarını tespit etmek, trafik ceza bilgilerini incelemek, travmatik öykü ve ceza bilgileri arasındaki ilişkiyi incelemek amaçlanmıştır.

Gereç ve Yöntem: Çalışma, Kasım 2015- Haziran 2016 tarihleri arasında Bursa Sağlık Müdürlüğü tarafından yürütülen "Sürücü Davranışları Geliştirme Eğitimi"ne katılan 295 katılımcıyla gerçekleştirilmiştir. Sürücülere araştırmacılar tarafından hazırlanan travmatik yaşantıların ve demografik bilgilerin yer aldığı "Sürücü Bilgi Formu" uygulanmıştır. Ayrıca sürücülerin sürücü belgesi ceza bilgileri İl Emniyet Müdürlüğü'ne resmi yazı ile başvurularak talep edilmiş, gerekli izinler alındıktan sonra trafik ihlal bilgilerinin yer aldığı sürücü belgesi ceza bilgileri ve yaşam boyu travmatik yaşam öyküsü arasındaki ilişki incelenmiştir.

Bulgular: Sürücülerin 9'u kadın, 286'sı erkektir. Sürücülerin yaş ortalaması 40,47±9,48'tir. Sürücülerin 33'ü (%11.2) hayatını tehdit eden bir hastalık ya da yaralanma geçirdiğini, 32'si (%10.8) ciddi bir kaza geçirme ya da ciddi bir şekilde yaralandığını, 28'i (%9.5) kendisine fiziksel şiddet ya da silah kullanıldığını belirtmiştir. Sürücülerden 63'ü (%21.4) ailesinden birini (sevgili, eş, ya da çok yakın arkadaş) bir kaza, cinayet ya da intihar sonucu kaybettiğini, 18'i (%6.1) ölümle ya da ciddi yaralanmayla tehdit gördüğünü belirtmiştir. Tekmelenme, dövülme, tokat atılma ya da başka yolla fiziksel zarar görme ile 78/1-a ihlal maddesi arasında istatistiksel olarak anlamlı ilişki bulunmuştur ($\chi^2(2) =7.19$, $p<.00$).

Sonuç: Alkollüyken araç kullanma öyküsü olan sürücülerle yapılan bu çalışmada, yaşam boyu travmatik öykü ve trafik ihlalleri arasında anlamlı bir ilişki bulunmuştur.

Anahtar Kelimeler: Adli Bilimler, Travmatik Yaşam Olayı, Suç

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Ethical Declaration
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1. Introduction

Driving under the influence of alcohol is a risky behavior and a significant traffic problem that not only causes harm to drunk drivers, but also to other people, and even to society. Globally, 1.2 million people die each year as a result of traffic accidents. Traffic accidents that involve drunk drivers cause 30-40% of all traffic accident deaths (1). Driving under the influence of alcohol, drugs or stimulants is prohibited in Turkey and in the rest of the world. In Turkey, it is punishable by administrative sanction in accordance with item number 48 of the Road Traffic Act (2). Courts can rule that causing the injury or death of third parties while driving under the influence of alcohol involves conscious negligence, which means that such drivers will be sentenced severely.In addition, drivers whose driver's licenses are temporarily suspended are given rehabilitation and counseling. Risk, in a dictionary of psychology, is defined as "the potential or possibility of unwanted, adverse consequences of a human behavior to life, health, the environment, relationships, etc." (3). It is defined in a dictionary of psychiatry as "the possibility of danger or harm, all possibilities that might be harmful as a result of any process or event" (4). Drug abuse, reckless driving, speeding, driving without a license, interpersonal aggression, sexual harassment and the use of sharp objects are defined as risky behaviors (5-8). Some forms of these behaviors are crimes that can incur severe penalties. Traumatic experiences affect risk-taking behavior (5, 6, 9-13). The human or natural causes of trauma, threats to life, physical injuries and losses after trauma, the length of the trauma and exposure to traumatic images are considered risk factors in the emergence of risky behaviors (14).

The aim of this study is to determine the relationship between driving under the influence of alcohol as defined by item number 48 of the Road Traffic Act and lifetime traumatic experience, and to examine the other traffic violations of drivers whose driver's licenses were suspended for drunk driving.

2. Materials and Methods

This study was conducted with 295 participants who attended the Bursa Health Directorate's Driver Behavior Development Training program from November 2, 2015 to June 9, 2016. This program is conducted by a psychiatrist, a physician, a psychologist and a traffic instructor. Drivers who have been convicted of driving under the influence of alcohol twice (blood alcohol content of 0.05% for private automobile drivers and 0.02% for commercial vehicle drivers) must attend the program to get their driver's licenses back. Approval to conduct the research was obtained from the Ethics Committee of Istanbul University's Cerrahpaşa Faculty of Medicine on March 13, 2017 with decision number 99895. The participants were administered a driver information form prepared by the researchers, which includes questions about the drivers' demographic information as well as traumatic life event information. Their driver's license criminal information was requested from the police department with an official letter. After the official letter was approved, the drivers' traffic violations were examined. The research participation rate was 89.93%.

*TheDriver Information Form:*This form has questions aboutdemographic information such as age, gender, marital status and education level, and about smoking, chronic disease and history of psychiatric treatment.

The Driver's License Criminal Information: The driver's license criminal information was examined in two categories: violations of driver's license obligations and traffic rule violations. The traffic violations are shown in two separate tables to make easier reading.

The statistics were evaluated using SPSS version 20.0 for Windows. Descriptive analyses and the chi-square test were used.

3. Results

The questionnaire was administered to 328 people, of whom 33 failed to complete the questionnaire and were thus excluded from the assessment. The remaining 295 participants ranged in age from 23 to 68. Their mean age was 40.47±10.46. Of the drivers, 9 (3.1%) were female, and 286 (96.6%) were male. Of them: 81 (27.6%) were single, 195 (66.3%) were married, 1 (0.3%) was separated, 15 (5.1%) were divorced, and 2 (0.7%) were living unmarried with a partner. Of the drivers, 255 (86.7%) were smokers, and 39 (13.3%) did not smoke. Of them, 22 (7.5%) had chronic diseases, and 271 (92.5%) did not. Of the drivers, 47 (16%) had a history of psychiatric treatment, 63 (21.4%) had lost a family member, lover, spouse or very close friend by accident, murder or suicide, and 42 (14.2%) said that someone had physically harmed them by beating them, slapping them or in other ways. The drivers' traumatic experience information is shown in Table 1.

Table 1. The Drivers' Traumatic Experience Information		
Traumatic experience	Prevalence (n=295)	Percentage (%)
Have you ever had a life-threatening disease or physical injury?		
No	262	88.8
Yes	33	11.2
Have you had a serious accident or a serious injury?		
No	263	89.2
Yes	32	10.8
Have you ever been exposed to physical violence or use of a weapon?		
No	267	90.5
Yes	28	9.5
Have you ever lost a family member, lover, spouse or very close friend because of an accident, murder or suicide?		
No	232	78.6
Yes	63	21.4
Has anyone ever coerced you into watching or doing sexual things against your will?		
No	291	98.6
Yes	4	1.4
During your childhood, did your parents, babysitter or someone else continuously smack, beat, attack or physically harm you in other ways?		
No	269	91.2
Yes	26	8.8
Has anyone else kicked, beaten, smacked or physically harmed you in other ways? (your spouse, a sibling, a family member, an acquaintance or a stranger.)		
No	253	85.8
Yes	42	14.2
Has anyone threatened you with death or serious injury?		
No	277	93.9
Yes	18	6.1
Have you ever been present when someone was killed, seriously injured or exposed to sexual or physical attack?		
No	255	86.4
Yes	40	13.6
Have you ever been in any other situation when you were seriously injured or close to death?		
No	265	89.8
Yes	30	10.2
Have you ever had a close relationship with someone who tried to intimidate you by threatening you, for instance, with a weapon?		
No	283	95.9
Yes	12	4.1
Have you ever been humiliated, teased, insulted or made to feel bad by your family or your close friends?		
No	278	94.2
Yes	17	5.8
During your childhood (before 18 years old), were you separated from an adult with whom you were close?		
No	280	94.9
Yes	15	5.1
Have you ever experienced any other frightening or horrible events?		
No	274	92.9
Yes	21	7.1

Information about the drivers' traffic violations was evaluated in two categories. The first is shown in Table 2 as the Violation of the Obligations for the Driving Licenses. Table 2 shows that the number of violators of item number 36/3-b, which prohibits driving with a driver's license that is temporarily or preventively revoked by the courts, public prosecutors, or the authorities identified in the Road Traffic Act, was 65 (23.6%). The number of people who violated item number 39/1-a was 16 (5.8%), and the number of people who violated item number 44/1-b was 38 (13.8%).

Table 2. Violations of Driver's License Obligations

Violations	Prevalence [n, (%)]			
	None	Once	Twice	Three or more times
36/3-b: Driving with a driver's license that is temporarily or preventively revoked by the courts, public prosecutors or the authorities identified in the Road Traffic Act	210 (76.4)	53 (19.3)	8 (2.9)	4 (1.5)
39/1-a: Driving vehicles unauthorized by the driver's license class	259 (94.2)	13 (4.7)	2 (0.7)	1 (0.4)
44/1-b: Not carrying a driver's license while driving and not showing it to the authorities when asked	237 (86.2)	25 (9.1)	9 (3.3)	4 (1.5)

The second category, traffic rule violations, is divided into Tables 3 and 4 to make easier reading. It was determined that the drivers most frequently violated item number 47/1-d, which prohibits violating the rules, codes, obligations or requirements indicated in the regulations on traffic safety and order. This item is followed by item number 47/1-c, which prohibits violating the rules represented on traffic signals and road signs.

Table 3. Traffic Rule Violations

Violations	Prevalence [n, (%)]			
	None	Once	Twice	Three or more times
46/2-c: Disturbing or endangering traffic when changing lanes	272 (98.9)	3 (1.1)	-	-
46/2-d: Obstructing traffic by driving continuously in the left lane	273 (99.3)	2 (0.7)	-	-
47/1-a: Not obeying traffic regulation and supervision by traffic police officer or other authorized persons with special outfit or warning signs and markings	249 (90.5)	21 (7.6)	4 (1.5)	1 (0.4)
47/1-b: Violating a red traffic light	234 (85.1)	37 (13.5)	4 (1.5)	-
47/1-c: Violating the rules indicated by traffic signals and road signs	218 (79.3)	47 (17.1)	8 (2.9)	2 (0.8)
47/1-d: Violating the rules, codes, obligations or requirements indicated in the regulations on traffic safety and order	203 (74.1)	50 (18.2)	12 (4.4)	9 (3.3)
48/4: Smoking on public transportation	273 (99.6)	-	1 (0.4)	-
48/9: Refusing to be tested for drugs or alcohol	272 (98.9)	2 (1.1)	-	-
49/3: The use of commercial cargo and passenger vehicles after the legal expiration of their use	271 (98.5)	2 (0.7)	-	2 (0.7)

Table 4 shows that the drivers most frequently violated item number 51/2-a, which prohibits exceeding speed limits by 10% to 30%. This item is followed by item number 78/1-a, which prohibits seat belt violations, and it is also followed by item number 51/2-b, which prohibits exceeding speed limits by more than 30% (Table 4).

Table 4. Traffic Rule Violations, Continued

Violations	Prevalence [n, (%)]			
	None	Once	Twice	Three or more times
51/2-a: Exceeding the speed limit by 10% to 30%	149 (54.2)	61 (22.2)	31 (11.3)	34 (12.4)
51/2-b: Exceeding the speed limit by more than 30%	190 (69.1)	50 (18.2)	19 (6.9)	16 (5.8)
52/1-a: Failing to slow down when entering a turn, approaching a hill top, driving on a curvy road, or approaching intersections, pedestrian walkways and crossings, tunnels, bridges and culverts, and construction or repair work	269 (97.8)	6 (2.2)	-	-
52/1-b: Driving inappropriately, driving at inappropriate speeds, and driving with inappropriate vehicle loads, technical features or visibility for the weather and traffic conditions	272 (98.9)	2 (0.7)	1 (0.4)	-
53/1-a: Violating the rules of turning right	273 (99.3)	2 (0.7)	-	-
53/1-b: Violating the rules of turning left	269 (97.8)	6 (2.2)	-	-
54/1-a: Not obeying the passing rules when passing a vehicle	270 (98.2)	5 (1.8)	-	-
54/1-b: Passing a vehicle where passing is prohibited	249 (90.5)	20 (7.3)	5 (1.8)	1 (0.4)
56/1-a: Not obeying the rules for lane use and lane changes	265 (96.4)	10 (3.6)	-	-
56/1-c: Tailgating	252 (91.6)	21 (7.6)	1 (0.4)	1 (0.4)
57/1-a: Not slowing down as appropriate for intersections, or not yielding first right of way to vehicles with the right to pass	263 (95.6)	12 (4.4)	-	-
61: Parking where it is prohibited	250 (90.9)	17 (6.2)	7 (2.5)	1 (0.4)
61/1-b: Parking where it is prohibited by signs	267 (97.1)	8 (2.9)		
73: Reckless driving that disrupts the peace or harms people, throwing trash from vehicles, using mobile phones, car phones or similar communication devices while driving, splashing water and mud on pedestrians while driving	243 (88.4)	27 (9.8)	4 (1.5)	1 (0.4)
78/1-a: Seat belt violations	170 (61.8)	68 (24.7)	22 (8)	15 (5.4)
78/1-b: Drivers and passengers not using protective helmets and goggles on motorcycles, motorbikes and electric bicycles	270 (98.2)	2 (0.7)	1 (0.4)	2 (0.7)

The relationship between the traffic violations and the traumatic experiences of the drivers was analyzed using the chi-square test. A significant relationship was found between item number 47/1c (violating the rules indicated by traffic signals and road signs), and a history of severe accident or serious injury ($\chi^2_{(2)}$=103.95, p<.000), a history of exposure to physical violence or the use of a weapon ($\chi^2_{(2)}$=26.931, p<.000), and a history of being threatened with death or serious injury ($\chi^2_{(2)}$=4.09, p<.05).

A significant relation was found between violating item 78/1-a (seat belt violations) and a history of the death of a family member, lover, spouse or very close friend by accident, murder or suicide ($\chi^2_{(2)}$=5.71, p<.05). Another significant relationship was found between violating item 78/1-a and a history of being kicked, beaten, smacked or physically harmed in another way by someone else, be it a spouse, sibling, family member, acquaintance or a stranger ($\chi^2_{(2)}$=7.19, p<.00).

4. Discussion

Our research was conducted with the drivers who were convicted of drunk driving twice. In addition to dri-

ving under the influence of alcohol, the drivers' other traffic violations were also evaluated. Our study found that 87.7%of the drivers were smokers, 7.5% had a chronic disease, and 16% had a history of psychiatric treatment. Similar findings have been obtained by other researchers (11, 15, 16).

In our study, the most common trauma (21.4%) was the loss of a family member, lover, spouse or very close friend) by accident, murder or suicide. Being physically harmed by kicking, beating, slapping or in other ways by someone else ranked second at 14.2%. The prevalence of witnessing someone's murder, serious injury, sexual or physical violence was 13.6%. The prevalence of having a life-threatening illness or injury was 11.2%, the prevalence of having a serious accident or injury was 10.8%, and the prevalence of exposure to physical violence or the use of weapons was 9.5%. There are several findings in the literature regarding traumatic events. Karancı et al. (16) found that 52.5% had experienced the unexpected death of a loved one or close friend, 25.6% had experienced a serious accident, fire or explosion, and 11.8% had a life-threatening disease.Neupane et al. (19) found that the prevalence of serious traffic accidents of 46.5%, the prevalence of witnessing murder, or serious injury or violence was 24.1%, and the prevalence of violent assault was 19.8%. The prevalence of being threatened with a weapon, kidnapped or held captive was 17.6%. Other serious traumas had a prevalence of 29.9%, and the sudden, unexpected death of a relative or friend had a prevalence of 13.3%. Dutcher et al. (10) found that physical assault had a prevalence of 62.2%, traffic accidents had a prevalence of 62.2%, and childhood physical abuse had a prevalence of 53.2%. Serious accidents at home or work had a prevalence of 45%, assault with a weapon had a prevalence of 39.6%, and witnessing a sudden violent death had a prevalence of 32.4%. Witnessing the serious injury or death of someone else had a prevalence of 28.8%. O'hare et al. (20) found that the prevalence of witnessing serious injury or murder was 31.6%, the prevalence of the sudden, unexpected death of a loved one was 72%, and the prevalence of being diagnosed with a serious or deadly disease was 33.5%. Dalbudak (21) found that the prevalence of exposure to physical assault (being beaten, kicked or punched) was 4%, the prevalence of attacks with knives or guns was 6%, and the prevalence of serious accidents at home, work or elsewhere was 4%. The prevalence of transportation accidents involving cars, trains, ships or airplanes was 14%, the prevalence of witnessing homicide or suicide was 14%, and the prevalence of the sudden, unexpected death of a loved one was 2%. Our study's finding concerning the prevalence of life-threatening disease or injury is similar to the corresponding finding in the study by Karancı et al., "Traumatic Life Events in Turkey and Their Psychological Effects," (16). Our other findings differed with theirs.For instance, our study found that the prevalence of losing a family member, lover, spouse or very close friend by accident, murder or suicide was 21.4%. Karancı et al. asked a broader question about "the death of a loved one or close friend" and thus found a higher prevalence of 52.5%.

In addition to driving under the influence of alcohol, our research evaluated the drivers' other traffic violations. No research that examines drunk drivers' other traffic violations was found in the literature. In the research, the most common traffic violations are speeding and seat belt violations.Erel and Gölge (6) determined that people who had experienced physical, emotional or sexual abuse drive faster and drive under the influence of alcohol. Eker and Yılmaz (5) found a positive relationship between childhood traumas and driving under the influence of alcohol. Dalbudak's study (21) of a group diagnosed with post-traumatic stress disorder found that, of those who suffered childhood abuse, 28% had a history of suicide attempts, and 50% had a history of self-injury. Donley et al. (22) found a highly significant relationship betweenhistory of childhood trauma and violent criminal offenses, being arrested and imprisonment. Sudden, unexpected traumas paralyze their victims' ability to control themselves, to form social bonds and to makesense of things. They also make people feel the threat of annihilation. The symptoms that emerge after traumatic stress are ordinary reactions to the stress of extraordinary situations, and their purpose is getting used to extraordinary situations. Zoroğlu et al. (23) studied the traumatic experiences of adolescents. The adolescents said that they exhibit more self-harming behaviors when they have abreaction due to remembering their painful experiences, and that they do so to replace the severe pain caused by the traumatic event with another form of pain that is under their control. This result indicates that adolescents engage in self-harming as a coping method. This negative coping method from adolescence persists into adulthood and can become a danger to community health in the form of drunk driving. During interviews with the drunk drivers, some said that their acquaintances had lost their lives or were seriously injured while driving under the influence of alcohol (2). Driving under the influence of alcohol, speeding and driving without using the seat belt may be negative coping methods that they unconsciously use to manage the symptoms of re-experiencing trauma, or drunk driving may be a result of a predisposition. Experiencing a violent traumatic event with loss may also have an environmental effect on this predisposition. If there is a predisposition, there may be signs of it in adolescence

as well. Our study found a significant relationship between violating the traffic rules indicated by traffic signals or road signs and a history of having severe accidents, being seriously injured, and being threatened with physical violence, weapons, death or serious injury. A significant relationship was found between seat belt violations and a history of experiencing the accidental death, murder or suicide of a family member and a history of being kicked, beaten, smacked or physically harmed by anyone else. Seat belt violations and violations of the rules indicated by traffic signals and road signs may be examples of conscious self-harming behavior. Thus, our study findings are compatible with the findings of several other studies(9, 11-13, 22) of the relationship between self-harming behavior (drunk driving, driving dangerously, history of substance use, insecure sexual relationships, etc.) and lifelong traumatic experience.

5. Conclusion

This study compared the lifelong traumatic histories of drivers and traffic violations. It only examined these histories, and the possible effects of other factors (disease, road and weather conditions, etc.) that can cause traffic violations were not considered. This is a limitation of our research. The findings obtained in this research were evaluated as factors that may cause traffic violations due to traumatic experiences. Traumatic experiences are difficult and hard to interpret by nature. This difficulty may be the reason why some people tend to engage in risk-taking behaviors. Developing rehabilitation programs for drivers with frequent traffic violations could reduce their traffic violations.

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RESEARCH ARTICLE

A Forensic Responsibility: The Examination of Decision-Making Strategies and Problem-Solving Skills of Probation Officers

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Abstract:

Introduction: Since working with the offenders that are in the probation process requires a detailed assessment, probation personnel should be able to produce logical solutions for the problems that may occur in the process. Probation personnel play a key role in whether the offenders are convicted or not. The fact that their decisions can influence the future of the offenders explains why they have such a key role in the probation process. Therefore, probation personnel have an important responsibility to fulfill since their decision can affect the judicial process of the offenders.

This study was conducted to assess decision making strategies and problem-solving skills of the probation personnel working at the Probation Directorate of Adana.

Methods: In this study, 83 personnel working for the Department of Probation constituted the sample group of this study, while 87 personnel working for other public institutions constituted the comparison group. Sociodemographic Data Form, Decision Strategies Scale (DSS) and Problem Solving Inventory (PSI) were applied to the participants and the results were analyzed.

Results: When the PSI total score and DSS sub-scale score averages of the sample group were compared to the comparison group, male probation personnel's problem-solving skills total score and indecisiveness sub-scale point averages showed a statistically significant difference compared to the personnel from the comparison group. Similarly, a statistically significant difference was found between the married probation personnel and married comparison group personnel. When the logical decision making sub-scale score averages of the participants were analyzed, a statistically significant difference was found between the probation personnel with a job tenure of 1-5 years and the personnel from other public institutions ($p<0,05$).

Discussion and Conclusion: It is worth noting that the probation personnel can have a serious impact on the lives of the offenders with their problem-solving and decision-making skills. The findings obtained in this study suggest that focusing on this situation will be beneficial in terms of providing a better service to convicts in the probation process and reducing the crime rates.

Keywords: Probation Officer, Problem-Solving Skills, Decision-Making Strategies

Öz:

Amaç: Denetimli Serbestlik sürecinde hükümlülerle çalışmanın titiz bir değerlendirme gerektirdiği, dolayısıyla süreç sırasında personelin, oluşan problemlere mantıklı çözümler üretebilmesi önemlidir. Özellikle personelin, hükümlülerin mahkûmiyet kararlarını ve bir bireyin bundan sonraki yaşamını çok ciddi etkileyebileceği, hükümlülerin hayatına dair kilit rolleri olduğu unutulmamalıdır. Bu nedenlerle denetimli serbestlik sürecinde personelin sorumluluğu adli sürecin seyrini etkilemesi bakımından oldukça önemli hale gelmektedir.

Bu çalışma, çok önemli adli bir sorumluluğu yerine getiren Adana Denetimli Serbestlik Müdürlüğünde görev yapan Denetimli Serbestlik personelinin karar verme stratejileri ve problem çözme becerilerinin değerlendirilmesi amacıyla yapılmıştır.

Yöntem: Denetimli Serbestlik Müdürlüğüne bağlı olarak çalışan 83 personel çalışma grubunu, diğer kamu kurumlarında çalışan 87 personel ise karşılaştırma grubunu oluşturmuştur. Bireylere Sosyodemografik Veri Formu, Karar Stratejileri Ölçeği (KSÖ) ve Problem Çözme Envanteri (PÇE) uygulanmış ve sonuçları analiz edilmiştir.

Bulgular: Denetimli Serbestlik Müdürlüğü personelinin cinsiyetine göre Problem Çözme Envanteri toplam puanı ve Karar Verme Stratejileri alt boyutları puan ortalamaları karşılaştırma grubuna göre değerlendirildiğinde; erkek personelin problem çözme becerileri toplam puanı ve kararsızlık alt boyut puan ortalamaları, evli personelin karşılaştırma grubundaki evli personele göre, hizmet yılları açısında 1-5 arası hizmet veren Denetimli Serbestlik personelinin diğer kamu personellerine göre mantıklı karar verme alt boyut puan ortalamaları açısından aralarında istatiksel olarak anlamlı bir farklılık tespit edilmiştir ($p<0,05$).

Tartışma ve Sonuç: Denetimli serbestlik personelinin sağlıklı birer çalışan olması, hükümlülerin problemlerini çözme becerileri ve verecekleri kararlar ile onların yaşamını çok ciddi bir şekilde etkilemesi bakımından önemli görevleri olduğu unutulmamalıdır. Bu durumun denetimli serbestlik sürecinde olan hükümlülerin daha iyi hizmet almasının sağlanması açısından da konunun önemli olduğu düşünülmektedir.

Anahtar Kelimeler: Denetimli Serbestlik Personeli, Problem Çözme Becerileri, Karar Verme Stratejileri

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1. Introduction

Probation is an alternative punishment and execution system that the suspect, defendant or offender is inspected and monitored, and all necessary services, programmes, and resources are provided for the mentioned to be rehabilitated and adaptation (1). In this programme, counseling is provided considering the individual differences in various subjects, such as putting themselves into the victim's shoes, retrieve the loss, develop moral reasoning; contributions they can make to the society and the country they live in (using a way of different paths, from paying taxes on time to taking the role that they keep the young ones away from drugs), and improvement in anger management skills (2).

Personnel working at Probation Directorates perform their duties based on respect to human dignity and honesty, privacy, and neutrality principles, in accordance with law no. 5402 named Probation Centres and the Law of Protective Commissions (1). Education, informing and awareness of the personnel running this rehabilitation process are crucially important because after the probation process, the offenders will have serious societal roles (3-5). For these reasons, the individuals that work at the Directorates of Probation are psychological counselors/psychologists and social workers (health and supporting health services class), sociologists (technical services class) and qualified probation personnel who were trained in different fields of professions by a teacher from different areas (2). In the probation system, experts are responsible for observing the rehabilitation process of the offenders and informing the case officer orally, or written if necessary, about the offender's situation. Counseling for the evaluation of risks and needs of the offenders and preparation of probation plans, evaluate and make plans and check the convenience of them when it is necessary, prepare a social survey report are among the duties of experts. Officials, on the other hand, are responsible for preparing the probation plan, supervise and monitor the offender's behaviors in public, taking part in the preparation of a list of services, corporate training, and program list, and work protocol (6).

When it is considered that the ultimate aim of the probation services is to reintroduce the offenders included in the system and to reduce/prevent their possibility of committing the crime again, the approach and attitude of the probation personnel towards the offender become more important. Thus, it is also expected from the probation personnel to make decisions that can positively affect the offender's process, as well as their approach towards the offender who has been under the "Probation" or "Treatment and Probation" is important (7). Nonetheless, some offenders who have been delivered "Probation" continue the process with electronic tagging. Many problems may occur during the tagging process due to the acute problems caused by the offenders. The ways followed by the personnel while dealing with the crises, solutions to the problems, and making decisions on the possible new situations becomes crucial (8,9). It is reported in the studies conducted, especially in this field, that experts with training and practices in the multidisciplinary team during the probation process are reported to highly contribute to the offenders in the framework of human rights (10,11).

It is required a meticulous evaluation to be able to work with the offenders on their probation process. Many studies aimed to determine the importance of the experts' ability to produce reasonable solutions to the problems occurring in the process. It is indicated that the decisions made by experts and other personnel working on the probation process help offenders to have a qualified process. Thus, they will not commit the crime again and their social adaptation to society will be affected positively (12,13). According to another study, the offenders' crime rate has been detected, and "what it will work" is researched according to the risk level on effectively benefitting for problem-solving and rehabilitation process. While the rate of turning into crime is 46% in the literature, it is shown that this rate reduces in the %64 when trained personnel come up with an advanced approach to the offender (14-16).

According to Yıldız and Tiryaki (2015), it is believed that probation personnel have great faith in the Probation System. Thanks to this system, the offenders are more beneficial to themselves and society without drifting apart from their social environment (17). During this process, the offenders are acknowledged with various psychosocial practices about their criminogenic needs, their adaptation to the process and if they tend to commit the crime again (7) with the help of the counseling services, and raised awareness and the possibility of committing the crime again is aimed to be reduced (17).

It is estimated that within the scope of the probation system that has been implemented with the help of the 2005 legislations, in Turkey, approximately 5.895.327 "Treatment and Probation Provision (TCK 191)" were confirmed, which was covered by 409.968 children and 5. 485.359 adults between 2013-2018 (18). In such cases where intense and high numbers of files are included in the process, how the probation personnel react to the situation may also affect their further decisions on the individual's condition. As for making new decisions and practicing them fully, the individual's problem-solving skills become involved. Thus, it becomes more important than the relationship between individuals' problem-

solving and decision-making strategies is evaluated. It must not be forgotten that, especially for the offenders who have been included in the process for substance use or possession and the personnel (experts and officials) working in the electronic tagging team, the personnel's approach to the crises that can happen, and the quality of the decisions made may seriously affect the offender's conviction and an individual's life afterward. The personnel have a key role on the offender's lives. Therefore, reducing the possibility of the offender to commit the crime again and the adaptation of them to society becomes extremely important in the responsibility of the probation personnel.

This study aims to evaluate the decision-making strategies and problem-solving skills of the probation personnel working at the Probation Directorate of Adana, fulfilling a very important legal responsibility.

2. Materials And Methods

The content of this study, which is a depictive study, is formed by the study group, which included 109 personnel working at the Probation Directorate of Adana Courthouse and volunteered for this study, and the comparison group, which included 103 civil servants (e.g., principal, teacher and official) working at high schools affiliated with the Ministry of Education (at public institutions). However, 26 of the personnel from the study group and 16 civil servants from the comparison group who were on the leave or were on an assignment in another institution or filled the application form incorrectly could not be included in the present study. Thus, 83 Probation personnel and 87 personnel working at other public institutions, who filled the form completely, accepted to take part in this study on a voluntary basis and they were included. The civil servants who were determined as the comparison group were matched using the crosstab method with the individuals' age, gender and level of education in the study group.

In the data collecting process, face-to-face meetings were held with the civil servants who accepted to take part in this study, and they were asked to fill the sociodemographic data collecting form and the other two forms. This process was organized as a face-to-face meeting not to halt the workflow. Filling the forms approximately took 15 minutes.

In the statistical analysis of the data, SPSS 22.0 package programme were used and all analyses in this study were completed in the confidence interval of 95%.

All the necessary permissions and approval were taken from the Ministry of Justice General Directorate of Prisons and Detention Houses with the help of the documents prepared in the format that the institution demanded to be able to conduct this descriptive study. After the necessary permits were taken, the data were collected and then, after it was turned into an essay, this study was sent to the Directorate to take the second necessary permits to be able to be published.

Data Collecting Tools

Sociodemographic Data Collecting Form

Sociodemographic data collecting form was prepared to collect sociodemographic data of the Probation personnel, such as age, level of education, marital status, number of children, the period of service and compassion towards the job.

Decision Strategies Scale (DSS)

Individuals in the decision-making process under an experience or a problem may use different strategies, such as following their intuitive feelings, postponing deciding, being fatalist, overthinking the decision, and avoiding taking risks (19). According to Kuzgun (1993), the strategies that individuals are using in the decision-making process are composed of four categories:

-Impulsive Decision-making: Deciding without enough consideration on the options.

-Logical Decision-making: Deciding by gathering information on every option and examining the advantages and disadvantages of the options.

-Indecisive Decision-making: Changing their decisions often.

-Independent Decision-making: Self deciding without getting affected by other's opinions (19).

DSS is a Likert scale with 40 items designed by Kuzgun (1993) to investigate the decision-making types of individuals. The scale has four different subscales as impulsive decision-making, logical decision-making, independent decision-making, and indecisive decision-making, and each subscale includes 10 items. The scale is calculated with scores between 1-5 and it can be scored at least 10 and most 50 based on each subscale. When the scores are added to the subscales, it is thought to be more easily adopted the decision-making style related to that subscale (19).

The Cronbach alpha coefficients of the DSS subscales were as follows: impulsive: 0.74, logical: 0.72, independent: 0.72, Indecisive: 0.70. To test its validity, the scale was administered to groups whose decision-making strategies were predicted to be different, and the distinctiveness of the scale was observed. For this purpose, the tool was administered to high school students to observe the difference between genders for the decision-making strategies, to adults to determine the difference between them and young, and to doctors, lawyers, officers and theatre

artists who face decision-making situations frequently to observe the differences between them. The findings showed that the tool validated these groups as expected. As a result of the reliability and validity studies of it, DSS is the first and the only scale in Turkey developed for the determination of decision-making strategies of individuals (19).

Problem Solving Inventory (PSI)

PSI is a scale developed for the individual to perceive themselves on the determination of their own problem-solving skills (20). It was developed by Heppner and Petersen (1982) and adaptation studies to Turkey were conducted by Şahin, Şahin and Heppner (1993). It is a Likert scale composed of 35 items and calculated with the scores between 1-6. In the scale, the numbers mean as follows: "1": I always act this way, "2": I usually act this way, "3": I often act this way, "4": I sometimes act this way, "5" I rarely act this way, "6": I never act this way. When scoring, items numbered 9,22, and 29 were excluded from scoring. Items numbered 1, 2, 3, 4, 11, 13, 14, 15, 17, 21, 25, 26, 30 and 34 are the reversely scored items. It can be scored at least 32 and most 192 based on the scale. An increase in the total scores shows that the individuals perceived themselves as inadequate in terms of problem-solving skills (20-22).

Ethical Declaration

Ethical approval was obtained from Çukurova University Non-Interventional Clinical Research Ethical Committee with date 2019 and number 96-35, and Helsinki Declaration rules were followed to conduct this study.

3. Results

Table 1. Sociodemographic variables of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

Variables	Study Group (n=83)	Comparison Group (n=87)
	N (%)	N (%)
Gender Female Male	23(27,7) 60(72,3)	27(31,0) 60(69,0)
Age Group 23-34 35-41 42-63	25(30,1) 40(48,2) 18(21,7)	30(34,5) 36(41,4) 21(24,1)
Level of Education Primary School High School Associate Degree Bachelor's Degree Graduate	1(1,2) 3(3,6) 5(6,0) 65(78,3) 9(10,8)	1(1,1) 1(1,1) 6(6,9) 66(75,9) 13(14,9)
Position Civil Servant Expert	68(81,9) 15(18,1)	77(88,5) 10(11,5)
Marita Status Single Married Divorced	14(16,9) 68(81,9) 1(1,2)	24(27,6) 62(71,3) 1(1,1)
Number of Children Childless One child Two children or more	25(30,1) 21(25,3) 37(44,6)	30(34,5) 18(20,7) 39(44,8)
Period of Service Less than 1 year 1-5 years 6-10 years 11 years or more	13(15,7) 43(51,8) 8(9,6) 19(22,9)	1(1,1) 22(25,3) 31(35,6) 33(37,9)
Compassion for the Job I don't like it I like a little I like it I love it	15(18,1) 23(27,7) 38(45,8) 7(8,4)	3(3,4) 20(23,0) 43(49,4) 21(24,1)
Wish to Keep Working I want **at the Same Institution** I don't want	46(55,4) 37(44,6)	60(69,0) 27(31,0)

As shown in Table 1, 60 (72,3%) of the personnel working at the Probation Directorate consists of the females, while 23 (27,7%) of them consists of males. The findings showed that 40 (48,2%) of the personnel in this study group were between the age of 35-41, 25 of them (30,1%) were between the age of 23-34, and 18 of them (21,7%) were between the age of 42-63. When the level of education of the personnel working at the Probation Directorate was analysed, 65 (78,3%) personnel had bachelor's degree. The largest group of the positions (job titles) consisted of 59 (71,1%) individuals and civil servants. When the marital status of the personnel in the study group was examined, 68 (81,9%) of them were married and 14 (16,9%) of them were single. When the number of children of the personnel working at the Probation Directorate was analysed, 37 (44,6%) of them had two or more children, while 21 (25,3%) of them had one child. When the period of service of the personnel in this study group were examined, 43 (51,8%) of them were working for 1-5 years, 19 (22,9%) of them were working

for 11 years and more, and 13 (15,7%) of them were working for less than one year. Concerning the compassion towards the job of the personnel working at the Probation Directorate, the findings showed that 38 (45,8%) of them liked their job and 46 (55,4%) of them wanted to stay at the institution that they were working.

The civil servants in the comparison group, who accepted to take part in this study, consisted of 60 males (69%) and 27 females (31%). The findings showed that 36 (41,4%) of the civil servants in the comparison group were between the age of 35-41, 30 of them (34,5%) were between the age of 23-34, and 21 of them (24,1%) were between the age of 42-63. When the level of education of the civil servants in the comparison group was analysed, it was determined that 66 (75,9%) of them had a Bachelor's degree, 13 (14,9%) of them had a graduate level of education, and six (6,9%) of them had an Associate degree. The largest group of the positions (job titles) were formed by 77 (88,5%) individuals and civil servants. When the marital status of the civil servants in the comparison group was examined, it indicated that 62 (71,3%) of them were married and 24 (27,6%) of them were single. When the number of children of the civil servants in the comparison group was analysed, 39 (44,6%) of them had two or more children, while 30 (34,5%) of them did not have children. When the period of service of the civil servants in the comparison group were examined, 33 (37,9%) of them were working for 11 years and more, 31 (35,6%) of them were working for 6-10 years, and 22 (25,3%) of them were working for 1-5 years. Concerning the compassion towards the job of the civil servants, 43 (49,4%) of them liked their job, and 60 (69%) of them wanted to stay in the institution that they were already been working.

Table 2. Score average distributions, of the study and comparison groups, depending on the gender, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

GENDER	**Groups**	**Female (n=50)** Study group female (n=23) Comparison group female (n=27)		**Male (n=120)** Study group male (n=60) Comparison group male (n=60)	
		±S.D.	**Med.[Min-Max]**	**±S.D.**	**Med.[Min-max]**
Problem-solving	Study Comparison	63,78±10,57 69,62±16,78	62 [39-83] 68 [43-112]	78,70±16,88 87,40±18,19	78,50 [42-130] 91 [51-117]
Statistical analysis* Probability		t=-1,495 p=0,142		t=-2,715 **p=0,008**	
Logical Decision-making	Study Comparison	28,52±4,85 21,40±5,96	29 [17-36] 19 [14-36]	28,30±4,80 25,78±6,63	28 [19-37] 27 [15-38]
Statistical analysis Probability		Z=-3,843 **p<0,001**		Z=-1,919 p= 0,055	
Making Intuitive Decisions	Study Comparison	19,30±3,83 19,07±3,62	19 [13-27] 19 [12-27]	19,56±5,05 20,26±4,52	19 [11-33] 20 [12-30]
Statistical analysis Probability		Z=-0,108 p=0,914		Z=-0,944 p= 0,345	
Making Decisions Dependently	Study Comparison	20,43±3,24 21,40±3,02	20 [13-29] 21 [16-30]	21,23±2,83 21,81±3,32	21 [14-28] 21,50 [14-29]
Statistical analysis Probability		Z=-1,088 p=0,276		Z=-0,942 p=0,346	
Indecisive Decision-making	Study Comparison	16,43±3,44 24,14±4,74	15 [10-23] 26 [16-31]	17,66±3,67 21,96±6,34	17,50 [10-27] 20,50 [14-34]
Statistical analysis Probability		Z=-4,890 **p<0,001**		Z=-3,439 **p=0,001**	

***"Independent Sample-t" test (t-table value) statistics are used for the comparison of two independent groups with normal distribution, while "Mann-Whitney U" test (Z-table value) statistics are used for the comparison of two independent groups without normal distribution.**

As shown in Table 2, when female personnel in this study were evaluated based on the gender variable with PSI total score and DSS subscale scores regarding the comparison group of the civil servants working at other public institutions, the logical decision-making subscale (Z= -3,843; p<0,001) and the indecisive decision-making subscale (Z= -4,890; p<0,001) of female personnel were significantly different from the male personnel (p<0,05). The logical decision-making score of female personnel working at the Directorate of Probation was significantly higher than the females in the comparison group, while was significantly lower than the ones in the comparison group concerning indecisive decision-making.

When male personnel in this study were evaluated based on the gender variable with PSI total score and DSS subscale scores regarding the comparison group of the civil servants working at other public institutions, PSI total score (t= -2,715; p=0,008) and indecisive decision-making subscale score (Z=-3,439; p=0,001) of male personnel were significantly different (p<0,05). The PSI total score and the indecisive decision-making subscale score of male personnel working at the Directorate of Probation was significantly lower than the males in the comparison group.

Table 3. Score distributions of the study and comparison groups, depending on the marital status, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

MARITAL STATUS	**Groups**	**Single** **±S.D.** **Med. [Min-Max]**	**Married** **±S.D.** **Med. [Min- Max]**
Problem-solving	Study Comparison	72,07±19,89 68 [42-110] 82,36±18,71 81 [43-114]	75,12±16,08 75,50 [39-130] 81,69±19,97 81,50 [43-117]
Statistical analysis **Probability**		t= -1,872 p= 0,061	t= -2,026 **p= 0,043**
Logical Decision-making	Study Comparison	28,07±4,89 28 [17-37] 24,44±7,07 24 [14-38]	28,43±4,80 28 [19-37] 24,42±6,63 24,50 [16-38]
Statistical analysis **Probability**		Z= -1,568 p= 0,119	Z= -3,525 **p<0,001**
Making Intuitive Decisions	Study Comparison	19,27±5,05 19 [12-27] 20,80±4,27 21 [13-29]	19,54±4,69 19 [11-33] 19,53±4,27 19 [12-30]
Statistical analysis **Probability**		Z=-0,980 p=0,332	Z= -0,138 p= 0,890
Making Decisions Dependently	Study Comparison	22,13±3,46 22 [17-29] 21,28±2,98 21 [14-28]	20,76±2,80 21 [13-28] 21,85±3,33 21,50 [16-30]
Statistical analysis **Probability**		Z= -0,702 p= 0,489	Z=-1,728 p=0,084
Indecisive Decision-making	Study Comparison	17,93±3,61 19 [12-23] 23,04±5,98 23 [15-33]	17,19±3,65 17 [10-27] 22,48±5,99 21,50 [14-34]
Statistical analysis **Probability**		Z= -2,465 **p= 0,013**	Z= -4,990 **p<0,001**

"Independent Sample-t" test (t-table value) statistics are used for the comparison of two independent groups with normal distribution while "Mann-Whitney U" test (Z-table value) statistics are used for the comparison of two independent groups without normal distribution.

When personnel in this study were evaluated based on the marital status variable with PSI total score and DSS subscale scores regarding the comparison group of the civil servants working at other public institutions, among the single personnel, a statistically significant difference was detected on the indecisive decision-making subscale's score average as (Z= -2,367; p=0,018) (p<0,05). The indecisive decision-making subscale of the single personnel working at the Directorate of Probation was significantly lower than the ones in the comparison group.

As shown in Table 3, when the personnel in this study were evaluated based on the marital status variable with PSI total score and DSS subscale scores regarding the comparison group of the civil servants working at other public institutions, among the married personnel, the PSI total score (t= -2,076; p=0,040), the logical decision-making subscale (Z= -3,525; p<0,001) and the indecisive decision-making subscale (Z= -4,990; p<0,001) were significantly different (p<0,05). The PSI total score average and the indecisive decision-making subscale scores average of the married personnel working at the Directorate of Probation were significantly lower than the ones in the comparison group, while their logical decision-making subscale was significantly higher.

Table 4. Score distributions of the study and comparison groups, depending on the number of children, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

THE NUMBER OF CHILDREN	**Groups**	**without Child**	**one Child**	**two Children or more**
		±S.D. Med. [Min-Max]	**±S.D. Med. [Min- Max]**	**±S.D. Med.[Min-Max]**
Problem-solving	Study Comparison	71,92±17,15 71 [42-110] 87,06±18,15 82,50 [53-117]	73,90 ±19,15 72 [39-130] 75,38±17,08 74,50 [43-112]	76,72±15,10 77 [50-118] 80,89±20,90 81 [43-115]
Statistical analysis* Probability		t= -3,175 **p= 0,003**	t= -0,256 p= 0,800	t= -0,992 p= 0,325
Logical Decision-making	Study Comparison	28,60±4,60 28 [17-37] 25,10±6,74 25,50 [15-38]	29,47±5,57 30 [19-36] 21,55±5,70 19,50 [16-33]	27,56±4,41 27 [20-36] 25,23±6,92 26 [14-38]
Statistical analysis Probability		Z= -2,025 **p= 0,043**	Z= -3,685 **p<0,001**	Z= -1,281 p= 0,200
Making Intuitive Decisions	Study Comparison	18,76±4,43 19 [12-27] 20,96±4,98 21 [13-30]	19 ±3,96 20 [13-29] 19,44±3,12 19 [14-28]	20,27±5,28 19 [11-33] 19,28±4,09 19 [12-27]
Statistical analysis Probability		Z= -1,568 p= 0,117	Z= -0,326 p= 0,745	Z= -0,433 p= 0,665
Making Decisions Dependently	Study Comparison	21,96±3,08 21 [17-29] 21,50±3,29 22 [14-28]	19,76±2,56 20 [13-24] 22,38±3,07 22 [17-30]	21,08±2,89 22 [14-28] 21,51±3,27 21 [16-29]
Statistical analysis Probability		Z= -0,280 p= 0,779	Z= -2,625 **p= 0,009**	Z= -0,225 p= 0,822
Indecisive Decision-making	Study Comparison	17,64±3,35 18 [12-23] 23±5,99 23 [15-33]	16,04±3,32 16 [10-23] 24,38±5,45 26,50 [14-32]	17,83±3,89 17 [11-27] 21,56±6,06 20 [14-34]
Statistical analysis Probability		Z= -3,248 **p= 0,001**	Z= -4,051 **p<0,001**	Z= -2,551 **p= 0,011**

***"Independent Sample-t" test (t-table value) statistics are used for the comparison of two independent groups with normal distribution while "Mann-Whitney U" test (Z-table value) statistics are used for the comparison of two independent groups without normal distribution.**

As shown in Table 4, when the personnel in this study were evaluated based on the number or children with PSI total score and DSS subscale scores regarding the comparison group, among the personnel without a child, a statistically significant difference was detected PSI total score (t= -3,175; p=0,003), the logical decision-making subscale (Z= -2,025; p=0,043) and the indecisive decision-making subscale (Z= -3,248; p=0,001) (p<0,05). The logical decision-making score of the personnel without children working at the Directorate of Probation was significantly lower than the females in the comparison group, while significantly higher than the ones in the comparison group in terms of PSI total score and the indecisive decision-making. When the personnel in this study were evaluated based on the number or children variable with PSI total score and DSS subscale scores regarding the comparison group, among the personnel with one child, the logical decision-making subscale (Z= -3,525; p<0,001), the dependent decision-making subscale (Z= -2,625; p=0,009 and the indecisive decision-making subscale (Z= -4,051; p<0,001) were significantly different concerning the score averages (p<0,05). The dependent decision-making and the indecisive decision-making subscale scores average of the personnel with one child working at the Directorate of Probation was significantly lower than the ones in the comparison group while their logical decision-making subscale was significantly higher. When the personnel in this study were evaluated based on the number or children variable with PSI total score and DSS subscale scores regarding the comparison group, among the personnel with two or more children, the indecisive decision-making subscale (Z= -2,551; p=0,011) were significantly different concerning the score averages (p<0,05). The indecisive decision-making subscale scores average of the personnel with two or more children working at the Directorate of Probation was significantly lower than the ones in the comparison.

Table 5. Score distributions of the study and comparison groups, depending on the level of education, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in the study as a comparison group

LEVEL OF EDUCATION **±S.D.** **Median [Min-Max]**		**Study G. (n=83)** **±S.D.** **Median[Min- Max]**	**Comparison G. (n=87)** **p**	
Problem-solving	High school and below	79,56±14,20 76 [59-103]	82,38±14,02 83,50 [51-95]	Z= -0,867 p= 0,423
	Bachelor's degree and above	73,96±17,01 73,50 [39-130]	81,84±20,05 81 [43-117]	Z= -2,500 **p= 0,012**
		Z= -0,975 p= 0,330	Z= -0,250 p= 0,803	
Logical Decision-making	High school and below	27,78±2,73 28 [24-32]	20±5,66 27 [16-32]	Z= -0,484 p= 0,673
	Bachelor's degree and above	28,43±4,99 28 [17-37]	24,27±6,83 24 [14-38]	Z= -3,883 **p< 0,001**
		Z= -0,404 p= 0,687	Z= -0,663 p= 0,507	
Making Intuitive Decisions	High school and below	22±5,34 21 [12-30]	18,63±3,70 18,50 [14-26]	Z= -1,551 p= 0,139
	Bachelor's degree and above	19,19±4,60 19 [11-33]	20,03±4,34 19 [12-30]	Z= -1,323 p= 0,186
		Z= -1,740 p= 0,082	Z= -0,877 p= 0,381	
Making Decisions Dependently	High school and below	20,44±2,51 20 [16-24]	20,38±5,01 19,50 [15-30]	Z= -0,437 p= 0,673
	Bachelor's degree and above	21,08±3,01 21 [13-29]	21,82±3,01 22 [16-29]	Z= -1,408 p= 0,159
		Z= -0,583 p= 0,560	Z= -1,277 p= 0,202	
Indecisive Decision-making	High school and below	18,67±3,39 19 [15-25]	20,25±4,65 20 [15-29]	Z= -0,776 p= 0,481
	Bachelor's degree and above	17,17±3,65 17 [10-27]	22,87±6,04 23 [14-34]	Z= -5,711 **p < 0,001**
		Z= -1,206 p= 0,228	Z= -1,089 p= 0,276	

As shown in Table 5, when the personnel in this study were evaluated based on the level of education variable with PSI total score and DSS subscale scores regarding the comparison group, among the personnel with undergraduate and graduate degrees, the PSI total score (Z=-2,500; p=0,012), the logical decision-making subscale (Z= -3,883; p< 0,001) and the indecisive decision-making subscale (Z= -5,711; p< 0,001) were significantly different (p<0,05). The indecisive decision-making subscale scores average of the personnel working at the Directorate of Probativon was significantly lower than the ones in the comparison group while their logical decision-making subscale was significantly higher.

Table 6. Score distributions of the study and comparison groups, depending on the positions, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

POSITION	**Groups**	**Civil Servant**		**Expert**	
		±S.D.	**Med. [Min-Max]**	**±S.D.**	**Med. [Min- Max]**
Problem-solving	Study Comparison	75,19±17,72 80,12±19,75	74 [39-130] 80 [43-117]	71,73±11,25 95,40±10,59	73 [57-93] 95 [76-114]
Statistical analysis* Probability		t=-1,578 p=0,115		t=-5,336 **p<0,001**	
Logical Decision-making	Study Comparison	28,83±4,69 24,64±6,87	28,50 [19-37] 24 [14-38]	26,20±4,76 22,70±5,29	27 [17-33] 21,50 [17-29]
Statistical analysis Probability		Z=-3,702 **p<0,001**		Z=-1,589 p= 0,112	
Intuitive Decision-making	Study Comparison	19,38±4,88 19,20±3,90	19 [12-33] 19 [12-29]	20,00±4,07 25,20±3,35	22 [11-27] 25,50 [19-30]
Statistical analysis Probability		Z=-0,129 p=0,897		Z=-2,930 **p= 0,003**	
Making Decisions Dependently	Study Comparison	21,16±2,94 21,58±3,18	21 [13-28] 21 [14-30]	20,33±3,01 22,50±3,62	20 [17-29] 23 [17-27]
Statistical analysis Probability		Z=-0,596 p=0,551		Z=-1,480 p=0,139	
Indecisive Decision-making	Study Comparison	17,51±3,71 22,32±5,89	17 [10-27] 21 [14-34]	16,46±3,24 25,10±6,19	15 [12-23] 28 [15-32]
Statistical analysis Probability		Z=-4,717 **p<0,001**		Z=-3,239 **p=0,001**	

***"Independent Sample-t" test (t-table value) statistics are used for the comparison of two independent groups with normal distribution while "Mann-Whitney U" test (Z-table value) statistics are used for the comparison of two independent groups without normal distribution.**

As shown in Table 6, when the personnel in this study were evaluated based on the positions at work variable with PSI total score and DSS subscale scores regarding the comparison group, among the personnel working as an official, the logical decision-making subscale (Z=-3,702; p<0,001) and the indecisive decision-making subscale (Z=-3,239; p=0,001) were significantly different (p<0,05). The indecisive decision-making subscale scores average of the officials working at the Directorate of Probation was significantly lower than the ones in the comparison group while their logical decision-making subscale was significantly higher. When the personnel in this study were evaluated based on the positions at work variable with PSI total score and DSS subscale scores regarding the comparison group, among the personnel working as an expert, PSI total score (t= -2,715; p=0,008), the intuitive decision-making subscale (Z=-2,930; p=0,003) and the indecisive decision-making subscale (Z=-3,439; p=0,001) were significantly different (p<0,05). The PSI total score (t= -2,715; p=0,008), the intuitive decision-

making subscale and indecisive decision-making subscale scores average of the experts working at the Directorate of Probation were significantly lower than the ones in the comparison group.

As shown in Table 7, when the personnel in this study were evaluated based on the service years variable with PSI total score and DSS subscale scores regarding the comparison group, PSI total scores of the personnel working for 6-10 were significantly different (p<0,05). Accordingly, the personnel working at the Directorate of Probation had better problem-solving skills than the ones in the comparison group. Besides, when the comparison group was evaluated by themselves based on the service years variable, there was a statistically significant difference between service year groups (F= 7,744; p<0,001). According to comparisons made using the Bonferroni correction, carried out to determine the group that this significant difference derived from, there was a statistically significant difference between the PSI total scores of the personnel working for 6-10 years and the ones working for 1-5 years and more than 11 years (p<001).

When the personnel in this study were evaluated based on the service years variable with DSS subscale scores regarding the comparison group, the logical decision-making subscale score averages of the personnel working for 1-5 years were significantly different (Z= -2,127; p=0,033). When the personnel in this study were evaluated based on the service years variable with DSS subscale score averages regarding the comparison group, the indecisive decision-making subscale score averages of the personnel working for 1-5 years (Z= -2,455; p=0,014), 6-10 years (Z= -3,033; p=0,002) and 11 years and more (Z= -3,558; p < 0,001) were statistically significant. Besides, when the comparison group was evaluated by themselves based on the service years variable, there was a statistically significant difference between service year groups (F= 3,498; p=0,019). According to comparisons made using the Bonferroni correction, carried out to determine the group that this significant difference derived from, any significant difference among the groups could not be found (p> 0,05).

As shown in Table 8, when the personnel in this study were evaluated based on the compassion towards the job variable with PSI total score and DSS subscale scores regarding the comparison group, PSI total scores of the personnel who answered, “I don’t like it” (t= -2,202; p=0,003), “I like it a little” (t= -3,041; p=0,004) and “I like it” (t= -2,177; p=0,031) were significantly different. Accordingly, the personnel working at the Directorate of Probation had better problem-solving skills than the ones in the comparison group. Besides, when the comparison group was evaluated by themselves based on the compassion towards the job variable, there was a statistically significant difference between compassion towards the job groups (F= 7,945; p<0,001). According to comparisons made with the Bonferroni correction, carried out to determine the group that this significant difference derived from, that there was a statistically significant difference between the PSI total scores of the personnel who answered, “I like it a little” and the ones who answered, “I like it” and “I love it” (p<0,001).

When the personnel in this study were evaluated based on the compassion towards the job variable with DSS subscale scores regarding the comparison group, the logical decision-making subscale score averages of the personnel who answered, “I like it” (t= 3,682; p=0,008), “I like it a little” (t= 3,017; p=0,033) and “I love it” (t= 3,045; p=0,008) were significantly different (Z= -2,127; p=0,033). Besides, when the comparison group was evaluated by themselves based on the compassion towards the job variable, there was a statistically significant difference between compassion towards the job groups (F= 4,346; p=0,007). According to comparisons made with the Bonferroni correction, carried out to determine the group that this significant difference derived from, that there was a statistically significant difference on the verge between the logical decision-making subscale score average of the personnel who answered, “I like it” and the ones who answered, “I like it a little” and “I don’t like it” (p=0,062). When the personnel in this study were evaluated based on the compassion towards the job variable with DSS subscale scores regarding the comparison group, there was a statistically significant difference in the indecisive decision-making subscale score averages of all groups. Besides, when the comparison group was evaluated by themselves based on the compassion towards the job variable, there was a statistically significant difference among the groups (F= 9,537; p<0,001). According to comparisons made with the Bonferroni correction, carried out to determine the group that this significant difference derived from, there was a statistically significant difference on the verge between the indecisive decision-making subscale score average of the personnel who answered, “I don’t like it” and the ones who answered, “I like it” (p=0,010).

Table 7. Score distributions of the study and comparison groups, depending on the period of service, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

	PERIOD OF SERVİCE	Study G. (n=83) **±S.D.** Median [Min-Max]	Comparison G. (n=87) **±S.D.** Median [Min- Max]	
Problem-solving	Less than 1 year	72,92±11,44 73 [55-92]	77,50±2,12 77,50 [76-79]	Z = -0,681 0,496
	1-5 years	75,35 ±19,57 73 [39-130]	80,81±16,26 82 [43-111]	Z = -1,509 0,131
	6-10 years	75±18,36 69,50 [57-110]	93,22±19,85 102 [51-117]	Z = -2,227 0,025
	11 years and more	73,74±12,66 76 [50-93]	72,18±16,25 74 [43-111]	Z = -0,333 0,739
		F= 0,087 p= 0,967	F= 7,744 < 0,001	
Logical Decision-making	Less than 1 year	30,15±4,43 30 [24-35]	29,50±0,70 29,50 [29-30]	Z = -0,172 0,863
	1-5 years	28,58±4,94 29 [19-37]	25±7,18 26 [15-38]	Z = -2,127 0,033
	6-10 years	25,25±4,59 26,50 [17-31]	22,51±6,43 20 [15-38]	Z = -1,329 0,184
	11 years and more	27,95±4,40 27 [23-36]	25,54±6,60 27 [14-36]	Z = -0,972 0,331
		F= 1,865 p= 0,142	F= 1,605 p= 0,194	
Intuitive Decision-making	Less than 1 year	17,46±3,55 17 [12-24]	24,50±6,36 24,50 [20-29]	Z = -1,701 0,089
	1-5 years	19,98 ±4,44 19 [11-33]	19,76±3,64 20 [12-28]	Z = -0,201 0,841
	6-10 years	21±3,25 21 [16-27]	20,81±4,61 20 [13-30]	Z = -0,279 0,780
	11 years and more	19,16±3,95 18 [13-26]	18,85±4,06 19 [12-27]	Z = -0,191 0,849
		F= 1,265 p= 0,292	F= 1,966 p= 0,125	

Making Decisions Dependently	Less than 1 year	21,92±3,57 22 [17-29]	19,50±3,54 19,50 [17-22]	Z = -0,948 0,343
	1-5 years	21,12±3,01 21 [13-27]	22,14±2,95 22 [18-30]	Z = -0,943 0,346
	6-10 years	21,50±3,50 21,50 [17-27]	21,71±3,64 22 [14-29]	Z = -0,105 0,917
	11 years and more	19,95±1,90 20 [16-22]	21,51±3,03 21 [16-28]	Z = -1,760 0,078
		F= 1,339 p= 0,268	F= 0,469 p= 0,705	
Indecisive Decision-making	Less than 1 year	16,38±2,93 17 [11-20]	15,50±0,70 15,50 [15-16]	Z = -0,684 0,494
	1-5 years	18,28±3,79 18 [10-27]	21,90±5,39 21 [14-32]	Z = -2,455 0,014
	6-10 years	16,50±4,57 16 [10-23]	25±6,21 27 [14-34]	Z = -3,033 0,002
	11 years and more	16,16±2,87 15 [12-23]	21,33±5,50 20 [14-31]	Z = -3,558 < 0,001
		F= 2,153 p= 0,100	F= 3,498 p= **0,019**	

4. Discussion

This study aimed to evaluate decision-making strategies and problem-solving skills of the Probation personnel working at the Probation Directorate of Adana Courthouse.

At present, the offenders in their probation process are exposed to a risk evaluation analysis of probation personnel concerning their criminological needs, their adaptation of the process and their possibility of committing a crime again (7). With the help of these analyses performed by probation personnel, the improvements of the offender during the process, their adaptation of the process and whether they will be in the social adaptation process after the probation is ended, are determined and the convenience of their probation provision are detected. In this regard, the personnel play a key role in several decisions on the offenders and may have to solve problems that can be encountered during the probation process (23-25). In this respect, according to the results of this study, decision-making strategies and problem-solving skills between the personnel working at the probation directorate and the ones working at other public institutions are compared concerning sociodemographic variables, and as a result of the analysis, the findings show that there are statistically significant differences between them in respect to gender, department (position at work), marital status, number of children, service years and compassion towards the job.

According to the results of this study, when the probation directorate personnel are evaluated concerning the comparison group of the civil servants working at other public institutions in terms of the decision-making skills, there is a statistically significant difference between the female personnel working at the probation directorate and the ones in the comparison group in terms of logical decision-making subscale and indecisive decision-making subscale. Besides, when the male personnel working at the probation directorate and the ones in the comparison group are compared, there is a statistically significant difference in terms of problem-solving skills and indecisive

decision-making subscale score averages. Therefore, logical decision-making subscale and indecisive decision-making subscale score averages of the male and female personnel working at the probation directorate are higher than the ones' score averages in the comparison group. According to Izgar and Altınok's (2013) study conducted with the civil servants working as school principals, the findings show that there is a statistically significant difference between the decision-making scores of the female principals and the female personnel who are not principals (26). In this study, a significant difference for both the probation personnel and the comparison group is detected concerning gender variable (Table 2). Since probation services contain both the execution of court's orders and the rehabilitation of the offender, they are quite stressful practices run for multiple objects. Therefore, concerning affecting another individual's (offender) life severely, the decisions and problem-solving skills of the male and female personnel working at the Probation Directorate are more delicate and critical tasks than the ones working at other public institutions (27).

When the probation personnel are compared to the comparison group according to the marital status variable, both single and married personnel working at the Probation Directorate are determined to have a statistically significant difference with the comparison group working at other public institutions (Table 3). Regarding the single personnel, the indecisive decision-making subscale score averages of the probation personnel are detected to be lower than the ones in the comparison group. Nonetheless, PSI total scores and indecisive decision-making subscale score averages of the married probation personnel are lower, while their logical decision-making subscale score averages are higher than the civil servants in the comparison group. In this respect, taking part in the probation process, as the nature of the working area, may affect the problem-solving skills and decision-making strategies.

When the civil servants are examined according to the number of children variable and the probation personnel are compared to the comparison group, many statistically significant differences between the probation personnel and the personnel in the comparison group are determined (Table 4). It is detected that the probation personnel without children have lower PSI total score averages than the comparison group, and there is a statistically significant difference between their logical decision-making subscale and indecisive decision-making subscale score averages. Besides, the logical decision-making subscale score averages of the probation personnel are significantly higher, while their dependent decision-making and indecisive decision-making subscale score averages are lower than the comparison group. On the other hand, when the personnel with two or more children are compared, there is a statistically significant difference between the probation personnel and the ones in the comparison group only on the indecisive decision-making subscale score averages. In some studies in the literature, conducted with the civil servants based on the number of children, it is claimed that the problem-solving skills do not alter (28). The results of this study prove the opposite. An explanation for this finding can be that the probation personnel have to be more delicate on the decisions made for offenders and solve many delicate problems since they need to make more decisions in the justice system during their communication process with the offenders (29).

When the probation personnel are compared to the comparison group according to the positions at work variable, both officials and experts working at the Probation Directorate are determined to have a statistically significant difference with the comparison group working at other public institutions (Table 6). Accordingly, the logical decision-making subscale score averages of the probation personnel are significantly higher, while their dependent decision-making and indecisive decision-making subscale score averages are lower than the comparison group. On the other hand, the experts working at the Probation Directorate can be said to have more advanced problem-solving skills than the ones in the comparison group. However, intuitive decision-making (more individual, impulsive behaviour) and indecisive decision-making of them are lower than the experts working at other public institutions. Because more structured methods/evaluations are used during the meetings with the offender, it is evaluated as an expected result that the officials, who have contact with the offenders in the probation process, show less indecisive behaviours (24). According to Izgar and Altınok's (2013) study, the individuals' who have expert status use of logical decision-making strategies may reduce their indecisive and impulsive behaviours, originated from cognitive functions, such as receiving information and analysing them (26). Similarly, in a Canadian study based on a risk-need-responsivity model, aiming to evaluate the training of probation personnel, the training is effective both on the personnel and the offenders. The results of the study also emphasize the significance of continuous skills improvement. It is also observed that the probation personnel having clinical feedback and taking part in the monthly meetings and refreshment training can show the skills learned from the training and focus better on the important problems (e.g., crime motives) in their meetings (30,31).

Table 8. Score distributions of the study and comparison groups, depending on the compassion towards the job, of the personnel working at the Probation Directorate of Adana Courthouse and the civil servants taking part in this study as a comparison group

	COMPASSION TOWARDS JOB	**Study G. (n=83)**	**Comparison G. (n=87)**	
		±S.D. Median [Min-Max]	**±S.D. Median [Min- Max]**	
Problem-solving	I don't like it	76,13±21,93 75 [39-130]	105±8,18 107 [96-112]	t= -2,202 **0,003**
	I like it a little	80,95 ±14,67 80 [42-108]	95,10±15,80 94 [53-117]	t= -3,041 **0,004**
	I like it	70,47±15,32 68 [48-118]	78,55±17,79 79 [43-114]	t= -2,177 **0,031**
	I love it	72,42±13,95 72 [54-93]	72,80±19,04 68 [48-112]	t= -0,049 0,956
		F= 2,030 0,116	F= 7,945 **< 0,001**	
Logical Decision-making	I don't like it	28,40±5,38 29 [19-37]	16,66±0,57 17 [16-17]	t= 3,682 **0,008**
	I like it a little	27,43±4,03 27 [20-36]	22,10±7,30 18 [15-38]	t= 3,017 **0,033**
	I like it	28,55±5,23 28 [17-37]	26,62±6,30 27 [14-38]	t= 1,484 0,211
	I love it	30,28±3,14 29 [27-36]	23,23±5,79 23 [16-33]	t= 3,045 **0,008**
		F= 0,675 0,570	F= 4,346 **0,007**	
Intuitive Decision-making	I don't like it	19,73±4,26 19 [14-26]	19±3,60 18 [16-23]	t= 0,277 0,721
	I like it a little	20,34 ±4,87 20 [11-29]	20,55±4,69 20,50 [13-29]	t= -0,138 0,893
	I like it	19,05±5,18 19 [12-33]	20,37±4,11 19 [12-30]	t= -1,275 0,092
	I love it	18,57±2,14 18 [16-22]	18,42±4,21 18 [12-27]	t= 0,116 0,810
		F= 0,453 0,716	F= 1,206 0,313	
Making Decisions Dependently	I don't like it	20,73±3,43 21 [13-27]	24,66±4,04 24 [21-29]	t= -1,770 0,120
	I like it a little	21,65±2,90 22 [16-28]	21,20±3,66 21,50 [14-26]	t= 0,451 0,854
	I like it	20,78±2,91 20,50 [14-29]	21,74±2,96 21 [16-30]	t= -14,59 0,183
	I love it	20,71±2,56 20 [17-24]	21,61±3,21 21 [17-28]	t= -0,603 0,748
		F= 0,490 0,690	F= 1,014 0,391	
Indecisive Decision-making	I don't like it	16,06±3,15 16 [10-22]	30,33±3,21 29 [28-34]	t= -7,142 **0,007**
	I like it a little	18,21±3,77 18 [12-27]	26,85±5,58 29 [15-33]	t= -6,005 **<0,001**
	I like it	17,34±3,72 17 [10-27]	20,23±4,92 18 [14-31]	t= -2,946 **0,017**
	I love it	17±3,51 15 [14-22]	22,47±5,63 21 [14-31]	t= -2,402 **0,019**
		F= 1,083 0,361	F= 9,537 **<0,001**	

***"Independent Sample-t" test (t-table value) statistics are used for the comparison of two independent groups with normal distribution while "Mann-Whitney U" test (Z-table value) statistics are used for the comparison of two independent groups without normal distribution.**

When the probation personnel are compared to the comparison group according to the service years variable, the personnel working at the Probation Directorate for 1-5 years have a statistically significant difference with the comparison group working at other public institutions (Z= -2,12; p= 0,033) (Table 7). According to a study conducted by Aslanyürek Zorlu (2014), the service years of probation experts and emotional exhaustion, depersonalization and personal success emotions are compared, and a statistically significant difference between them is detected (32). Also, in Atameriç's (2012) study conducted with the teacher, the service years of the teachers do not influence the exhaustion (33). In Demir's (2010) study on the hospital personnel; on the other hand, the result is consistent (34). Thus, a newly appointed personnel or long service years experiences, and emotions, such as emotional exhaustion, depersonalization that affects the task, which may have a negative effect on the logical decision-making process of the probation personnel are now considered to influence less.

In another study on probation experts conducted by Panknin (2007), they are reported to feel more exhaustion because of the dilemmas that they have gone through on applying laws and providing rehabilitation to the young ones and the lack of participation in their decision-making process (35). Thus, unlike the research results, the service years of the probation personnel at the Probation Directorate do not cover a long time, and this limits to commentate on how the service years of the personnel affect their problem-solving and decision-making skills.

According to the study conducted by Yücel (2019), concerning the results obtained from the probation personnel, internal job satisfaction is higher than the external job satisfaction concerning job satisfaction subscales (internal, external, general). It is also determined that emotional exhaustion and depersonalization levels of the probation personnel are high while their personal success is low regarding the exhaustion subscales (emotional exhaustion, depersonalization, and personal success) (36).

When the probation personnel are compared to the comparison group according to the compassion towards the job variable, the probation personnel are determined to have a statistically significant difference with the comparison group (Table 8). Although the probation personnel do not like their job, a significant difference between them and the comparison group is determined concerning problem-solving skills total scores, logical decision-making subscale score averages and indecisive decision-making subscale score averages. As the reason for the probation personnel's higher scores on problem-solving and decision-making strategies than the comparison group, although they do not like their jobs, being a probation civil servant allows to influence the offenders' lives severely, that is a fragile group since it is both a theoretical and practical profession, and also, probation personnel may have an important responsibility in the eyes of the public since they have critical tasks on the criminal justice system (37,38). However, as the probation personnel who answered, "I like it" or "I love it" have higher problem solving total scores and logical decision-making subscale score averages, it is assumed that the compassion towards the job may be related to inner job satisfaction (2). The density of the job and the number of offenders seen in one day can affect the personnel's way of decision-making, as it affects their motivation. Hence, compassion towards the job may determine if a rehabilitation-oriented and fair judgment can be made during the decision-making process of the offender (39,40).

5. Conclusion And Suggestions

As the education practices on probation services around the world are examined, it can be seen that both academic and in-service training take place. For example, the Correctional Service of Norway Staff Academy have a two-year personnel training programme by NOKUT (the Norwegian Agency for Quality Assurance in Education), accredited in 2012 (41). In the UK, a good part of probation personnel gain credits depending on the qualifications that they have preciously obtained, or since they have related degrees that requires shorter-term education, they attend a 15-month diploma programme and then, start serving in the related department (42). Personnel-oriented training has a crucial place for the development of probation services in Turkey. For this purpose, 53 training activity took place in 2014 and as a part of the training, 1.820 probation personnel, including execution and protection officials and experts, are trained within the Justice General Directorate of Prisons and Detention Houses (43). It is believed that frequent in-service training and the update of these training for the personnel working at the Probation Directorates can positively affect the decision-making strategies and problem-solving skills. There are studies in the literature directed to the effectiveness of the in-service training for the probation services. For example, in a study aiming to evaluate the training, the case formulation training package is observed to have the potential of recovery and improving rehabilitation plan for the offenders (44). In a Canadian study aiming to evaluate the probation training, based on the risk-need-responsivity model, the training is observed to have positive impacts on the offenders. The results of the study also emphasize the significance of the constant skill improvement. It is also observed that the probation personnel having clinical feedback and taking part in the

monthly meetings and refreshment training can show the skills learned from the training and focus better in the important problems (e.g., crime motives) in their meetings (30). The positive effects of the SEED training have been observed on the personnel in the UK (31).

Another practice that can contribute to the workload management of the personnel is that the personnel are distributed according to their education and experience. In the USA, the newly appointed personnel are responsible for the probation of the relatively non-dangerous offenders. Senior personnel class is a promoted position and includes the personnel working with the offenders who have convicted for substance use, the public scrutiny personnel, and the release control personnel. The release control personnel monitor the offenders released from prison while the public scrutiny personnel oversee the house detention-electronic tagging. Lastly, expert position is also a promoted position and includes violence criminals, sexual criminals, and criminals with mental issues. This practice provides personnel's workload distribution in view of the offender's risk level (45).

Improving personnel's problem-solving and decision-making skills with the help of the training and supervision for civil servants in the probation services are considered to contribute positively to a more fair and rational evaluation of the offenders, and thus, to contribute to the offenders to be successful in the rehabilitation process and the possibility of the repeat of the crime is diminished. Although there are differences in personnel training in probation services around the world, in Turkey, training of the probation personnel is considered to be very important, and personnel training and improvement are supported with the help of many in-service training.

As conclusion, it should not be forgotten that the probation personnel are healthy individuals, and they have critical tasks on the offender's lives with their problem-solving skills and decisions. Therefore, this is considered to be important in terms of the increasing productivity of the probation directorates, and also, providing better service to the offenders who are under the probation.

With the help of this study, in Turkey, as it all around the world, presentation of different practices of probation services can contribute to the future studies on preventing the offenders to turn into crime on reducing the possibility of crime and committing the crime again.

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Adli Tıp Bülteni

RESEARCH ARTICLE

Gender Estimation in Anatolian Population from Scapula Measurements Using Volume Rendering Technique with 3D Computerized Tomography

Hasan Tetiker*, Ceren Uğuz Gençer

Abstract:

Objective: The present study aims to evaluate the sexual dimorphism of the scapula and to measure the accuracy of the results of the measurements performed by computed tomography imaging of the thorax for gender estimation in the modern Anatolian population.

Materials and Methods: Multidetector CT images of 302 cases (164 males, 138 females) with ages between 20 and 93 and taken between February 2019 and April 2019 in Radiology Department at Muğla Sıtkı Koçman University Training and Research Hospital were used in this study. Longitudinal lengths (LL), transverse lengths (TL) and scapular spine lengths (SSL) of the right and left side scapulae were measured and evaluated. The effects of measurements on gender determination were determined using Logistic Regression analysis.

Results: Scapula measurements were higher in males than in females ($p < 0.001$). Statistically significant difference was found between transverse lengths of the right and left scapula in females and statistically significant differences in all three measurements in males. The longitudinal, transverse and scapular spine lengths of the scapula were found to be statistically significant when the measurements were used for gender determination. Accordingly, it was seen that longitudinal length of right scapula was the highest accuracy rate.

Conclusion: This study shows that scapula bone is an important bone in sex prediction in the Anatolian population. Therefore, if skull, long bones and pelvic bones cannot be found in forensic medicine and anthropological studies, scapula can be used alone or in combination with other skeletal elements for sex estimation methods.

Keywords: Forensic Anthropology; Sex Estimation; Scapula; Multidetector Computed Tomography; Sexual Dimorphism

Öz:

Amaç: Bu çalışmanın amacı, skapulanın seksüel dimorfizmini değerlendirmek ve toraks bilgisayarlı tomografi görüntüleme yöntemi ile yapılan ölçüm sonuçlarının, modern Anadolu popülasyonunda cinsiyet tayini için doğruluğunu ölçmektir.

Gereç ve Yöntem: Muğla Sıtkı Koçman Üniversitesi Eğitim ve Araştırma Hastanesi Radyoloji Anabilim Dalı'nda Şubat 2019 ve Nisan 2019 tarihleri arasında çekilmiş olan, 20-93 yaşları arasında, 302 vakanın (164 erkek,138 kadın) Multidedektör BT görüntüleri kullanıldı. Sağ ve sol taraf skapulaların longitudinal uzunlukları (LU), transvers uzunlukları (TU) ve spina skapula uzunlukları (SSU) ölçüldü ve değerlendirildi. Ölçümlerin cinsiyeti belirlemedeki etkisi Lojistik Regresyon analizi ile saptandı.

Bulgular: Erkeklerde skapula ölçümlerinin kadınlara göre daha yüksek olduğu görüldü ($p<0.001$). Kadınlarda sağ ve sol skapula transvers uzunlukları arasında istatistiksel olarak anlamlı fark saptanırken, erkeklerde her 3 ölçüm için de istatistiksel olarak anlamlı fark saptandı. Ölçümler cinsiyet belirleme için kullanıldığında skapula longitudinal, transvers ve spina skapula uzunlukları birbirinden bağımsız olarak, istatistiksel olarak anlamlı bulundu. Buna göre en yüksek doğruluk oranını sağ skapula longitudinal uzunluğunun verdiği görüldü.

Sonuç: Bu çalışma Anadolu toplumunda skapula kemiğinin cinsiyet tahmininde önemli bir kemik olduğunu göstermektedir. Dolayısıyla adli tıpta ve adli antropolojide kafatası, uzun kemikler ve pelvis kemiği bulunamadığı takdirde diğer cinsiyet tahmini metotlarıyla veya tek başına kullanılabilir.

Anahtar Kelimeler: Adli Antropoloji; Cinsiyet Tahmini; Skapula; Multidedektör Bilgisayarlı Tomografi; Cinsiyet Dimorfizmi.

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Ethical Declaration
The principles outlined in the Declaration of Helsinki were followed in our study.
* This article is English version of the manuscript entitled as "3 Boyutlu Bilgisayarlı Tomografi ile Volüm Rendering Tekniği Kullanarak Skapula Ölçümlerinden Anadolu Popülasyonunda Cinsiyet Tahmini".

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1. Introduction

Biological identity determination becomes more important in situations, such as disasters, attacks and wars, which may cause mass death or in cases where body integrity is impaired. In such cases, forensic researchers try to identify the four main elements of biological identity, such as gender, age, ethnicity, and height (1). These biological features can be determined from a skeleton even years after death (2,3). Accurate gender prediction based on measurements in human bone remains one of the most important steps in identification (4–6). In particular, the pelvis and skull are considered to be the most useful skeletal sites for gender prediction (1,4–7). Since the morphological features of the pelvis and skull bones show sexual dimorphism, many other bones in the skeleton also show sexual dimorphism, as well as being the most used elements in gender prediction (4). When Krogman and Iscan rank the bones according to the most accurate result in determining gender from skeletal elements, the pelvis 95%, the skull 92%, the mandible 90%, and the long bones (humerus and femur) were 80% accurate (8). When previous studies are examined, it can be found that humerus (9–12), ulna (10–13), radius (10–12), femur (10,12,14–16), tibia (10–12,17,18), patella (19,20), clavicle (21), costa (22), talus (4), calcaneus (23,24), metatarsals (25) and scapula (1,4,5,21,26–30) bones has been studied to investigate their usefulness in gender prediction. The scapulas, on the other hand, have been used in studies because of the negligible morphological changes that develop after completing ossification in addition to being short, flat and better protected than long bones (31–34).

Gender determination can be made from the body or skeletal remains obtained for identification using radiological imaging methods. Making morphometric measurements on bones using radiological methods is preferred because it does not require cleaning, does not damage the bone, and it is more practical and feasible than many other identification methods. Multidetector Computed Tomography (MDCT), which is one of these methods, is frequently used because it is easy to apply and allows marking anatomical structures more accurately.

3D images of the bones can be produced quickly in the MDCT method. Thus, population-specific data are easily collected, making it easier to estimate biological profiles in the skeleton, including gender (5,6). Based on morphometric measurements of the scapula bone measured from CT images, it has been reported that gender estimation can be made in the Chinese (2), Japanese (29), Egyptian (30) and Italian (34) populations. However, since the method determined for a population can only be applied to the populations belonging to the same ethnic group, different formulas are required for different populations (30). When identification studies and gender determination from human bones were scanned in the Anatolian population, it was observed that studies related to the scapula were few and have been mostly conducted on dry bones, which remained under-researched. Considering the diversity of Anatolia's studies on dry bones, it will be difficult to say that it belongs to a certain population. Thus, in our study, we used MDCT images to obtain today's data and to make the most accurate scapula measurements.

In this study, we aimed to determine the relationship between scapula measurements and gender and to investigate the usability of scapula measures in gender determination in the Anatolian population using a three-dimensional volume rendering technique.

2. Materials and methods

Multidetector CT images of 302 cases (164 males, 138 females) between the ages of 20-93, taken between February 2019 and April 2019 in the Department of Radiology at Muğla Sıtkı Koçman University Training and Research Hospital in Turkey were used. Cases with the tumor, trauma, congenital abnormalities that disrupted the integrity of the scapula, or cases who did not complete their ossification were excluded from this study.

Thorax CT images were obtained with a 256-slice multidetector computed tomography device (Siemens, Somatom Definition Flash, Germany). The shooting was done with 1 mm cross-section thickness, 1 pitch, 100 Kv and 70 mAs. The images were processed after they were transferred to the workstation (Syngo CT 2017). 3D reconstructed images were used for evaluation with the volume rendering technique. All measurements on both sides were measured by two observers, respectively. Averages of measurement values were used for statistical analysis. The following osteometric measurements were taken from the scapula (Table 1, Figure 1).

Table 1. Definitions of osteometric measurements		
Measurement	Definition	Reference
Longitudinal length of the right and left scapula (RLL and LLL)	the distance between the upper edge of the processus coracoideus and the angulus inferior in the scapula	(2,30)
Transverse length of the right and left scapula (RTL and LTL)	The distance between the medial edge of the scapula on the spinous axis and the lower edge of the cavitas glenoidalis	(2,30)
The length of right and left scapular spine (RSSL and LSSL)	The distance between the medial edge of the scapula on the spinous axis and the most protruding point of the scapular spine in the lateral	(26,29)

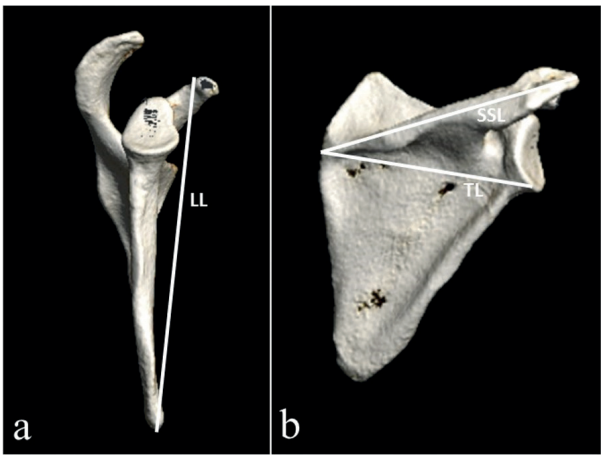

Figure 1. CT scan with volume rendering reconstruction: (a) right scapula, lateral view. LL: Longitudinal length of the scapula (b) right scapula, posterior view. TL: transverse length of the scapula. SSL: length of the scapular spine.

R program was used for the statistical analysis. Metric measurements were given in millimeters. Descriptive statistics were given as mean and standard deviation. Whether there was a statistically significant difference between the right and left sides in the osteometric measurements of the scapula was made by Paired t-test, and comparisons between men and women were made by the Welch t-test. The effects of these measurements on gender determination were determined using Logistic Regression. The sensitivity and specificity of the cut-off values determined by the ROC analysis were calculated according to the Youden method (the point with the highest total of sensitivity and specificity). Results with a P-value of less than 0.05 were considered statistically significant.

Ethical Declaration

The principles outlined in the Declaration of Helsinki were followed in our study.

3. Results

In our study, values of 302 cases, 138 women (45.7%) and 164 men (54.3%) between the ages of 20-93, were used. The average age was 60.47 ± 14.43 years. The average age of women was 58.70 ± 14.63 years, and men were 61.96 ± 14.12 years. No statistically significant difference in age was found between men and women (p=0.051, Welch t-test).

When scapula measurements were evaluated, it was observed that men were higher than women (p <0.001). Descriptive statistical values for all variables in both genders were given in Table 2.

Right and left scapular sizes were compared among women. Accordingly, a statistically significant difference was found between the right and left of the transvers scapular length (p = 0.016, Paired t-test). When the longitudinal length of the scapula and length of the scapular spine were evaluated, no statistically significant difference was found between the right and left scapula (p> 0.05, Paired t-test).

Statistically significant difference was found between the right and left for all three measurements among men (longitudinal scapular lengths, p = 0.0007; transvers scapular length, p = 0.001; lengths of scapular spine, p <0.0001, Paired t-test).

Table 2. Descriptive statistics for all variables of both genders								
	Female (n=138)			Male (n=164)				
	Minimum	Maximum	Mean ± SD	Minimum	Maximum	Mean ± SD	t value	p-value
Age	20	88	58,70 ±14,63	21	93	61,96 ±14,12		
RLL	124,57	189,41	159,81 ±10,77	148,88	206,95	182,36 ±9,51	-19,313	<0.001
LLL	115,97	187,18	159,42 ±10,48	151,69	209,16	183,35 ±9,68	-20,607	<0.001
RTL	89,37	114,97	101,33 ±5,28	96,34	127,74	112,90 ±5,28	-18,989	<0.001
LTL	88,59	117,25	101,91 ±5,51	95,16	128,51	114,55 ±5,91	-19,081	<0.001
RSSL	106,88	149,68	126,72 ±7,82	122,41	158,21	141,61±7,35	-17,037	<0.001
LSSL	107,09	149,68	126,75 ±7,86	125,22	159,58	142,46 ±7,57	-17,652	<0.001

Descriptive statistics were given in mm as mean ± standard deviation. P-values were obtained by the Welch t-test. RLL: Longitudinal length of the right scapula; LLL: Longitudinal length of the left scapula; RTL: Transverse length of the right scapula; LTL: Transverse length of the left scapula; RSSL: The length of right scapular spine; LSSL: The length of left scapular spine.

The cut-off values that can be used to determine gender and the sensitivity and specificity of these values are given in Table 3. These cut-off values, which were determined by ROC analysis, are the levels with the highest total sensitivity and specificity (Youden method). The high AUC values presented in Figure 2-4 show that each of the osteometric measurements evaluated in this study is "independent determinant factors" in gender estimation.

Table 3. ROC Analysis				
		Cut-off value (mm)	Sensitivity	Specificity
Longitudinal length of the scapula	Left	171	91%	92%
	Right	169	93%	84%
Transverse length of the scapula	Left	110	84%	91%
	Right	109	80%	93%
Length of the scapular spine	Left	136	81%	90%
	Right	135	82%	88%

Cut-off values were determined by ROC analysis. The sensitivity and specificity of these cut-off values were calculated according to the Youden method.

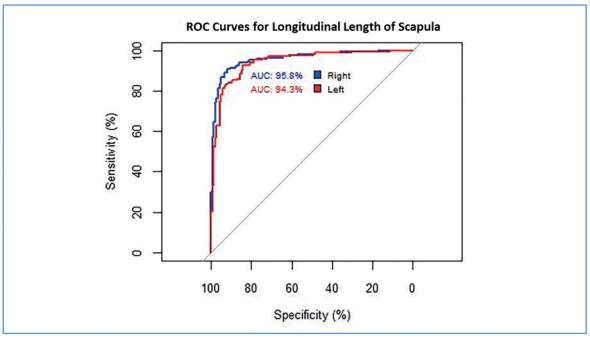

Figure 2. ROC curves and AUC values of longitudinal length of the right and left scapula

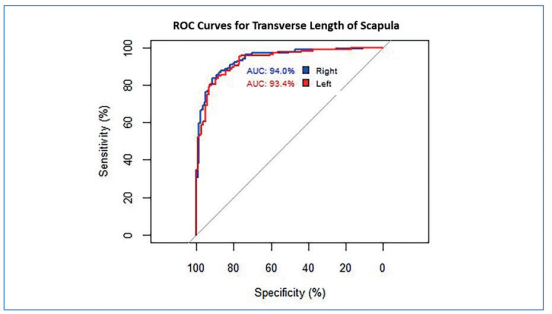

Figure 3. ROC curves and AUC values of the transverse length of right and left scapula

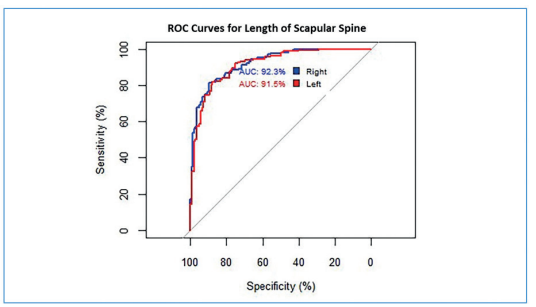

Figure 4. FROC curves and AUC values of length of right and left scapular spine

These cut-off values can be interpreted as follows. The percentage of the correct male identification was 91% when the left longitudinal scapular length (LLL) was longer than 171 mm. However, the percentage of correctly defined women was 92% who had shorter LLL than 171 mm and the rate of misidentification was 8% (false positive).

In other words, for unknown genders, the prediction that the left scapula bone with a longitudinal length over 171 mm belonged to a male was 91% correct. Likewise, the prediction that the left scapula bone with a longitudinal length shorter than 171 mm belongs to a female was 92% correct and 8% wrong, statistically.

4. Discussion

Gender distinction, which is very important in identification in forensic medicine and forensic anthropology, is possible with morphometric analysis (35). Radiological examinations after death provide ease of access to morphometric information (36). Using computed tomography, which is one of the most frequently used radiological methods today, morphometric analysis of living individuals is performed non-invasively, with the convenience of accumulating the data of a certain population.

In this study, the osteometric measurements of the scapula were obtained by evaluating the CT images. In our study, the longitudinal and transverse length of the scapula that were measured for each scapula and the length of the scapular spine were found higher in males than in females. In addition, based on the measurement values of the scapula, evaluations were made to estimate the gender of people in the Anatolian population. The results of our study showed that any of the three osteometric measurements we take could be statistically used for gender prediction.

El Dine and Hassan evaluated the changes in scapula width, height and length of scapular spine with age at different genders (37). Accordingly, although the length of scapula was longer in women under six years of age, there was no significant difference. Although measurements in both genders were very close to each other between the ages of 6-12, it was found to be higher in men. Their findings showed that there was a significant difference between genders over 12 years of age. Among the parameters in our study, the mean scapula height was found higher in men than in other studies (2.28,30) (Table 2). These results show that there are structural differences in the scapula between populations. As bone growth is influenced by genetic and environmental factors, and data or formulas about bone measurements among a population are specific to that population. Scapular measurements have been reported to be useful in gender determination in many studies using scapular measurements in different populations. Paulis and Abu Samra (30) reported that the longitudinal length of the scapula could be used to estimate the gender with an accuracy rate of 89% in their study by evaluating the CT images of in the Egyptian population. Zhang et al. (2) found this rate as 84.8% according to the data of the Chinese population in their study. Torimitsu et al. reported that the length of the right and left scapula was more than 90% accurate in predicting gender in the Japanese population (29). Özer et al. found that the accuracy rate of the scapula to be 82.9% in estimating the gender according to the data obtained from skeletal remains in the Dilkaya archeology area of Van region (5). The results of our study showed that if we determine the cut-off value for the longitudinal length of right side scapula as 169 mm in the modern Anatolian population, the sensitivity is 93%, and the specificity is 84%. These results suggest that the longitudinal length of the scapula shows the best sexual dimorphism among the measurements we have taken.

It has been reported that the transverse length of the scapula is longer in females under four years of age and significantly longer in males over 16 years of age (37). Our findings showed that the mean transverse length of the right scapula was 113 mm in males and 101 mm in females, while these values were 115 mm in men and 102 mm in women for the left scapula. These results were consistent with previous studies (2,28,30). In adults, the accu-

racy of the transverse length of the scapula alone in gender estimation was reported as 83%, 86-87%, 91%, respectively, by Zhang et al. (2), Torimitsu et al. (29) and Paulis and Abu Samra (30). In our study, if we determined the cut-off value for the transverse length of the left scapula as 110 mm, the sensitivity was 84% and the specificity was 91%. Debnath et al. found that the scapula width gave the highest accuracy rate among all measurements, such as the height, width, and oblique length of the scapula among the Dakshina Canada population data (28). Özer et al. found that scapular width was the most useful parameter in determining gender when compared with scapular length, width, length of the glenoid cavity and width in their study among skeletal remains (5). In our study, we found that the longitudinal length of the scapula ranks first for the accuracy rate. Each population has its own specific signs of dimorphism. Thus, since the data obtained for gender determination are specific to that population, population-specific formulas should be created and kept up to date.

The length of the scapular spine was found significantly longer in women under two years of age. The growth rate of scapular spine maximizes in males between the ages of 14-19 (37). Our findings showed that the mean value of the length of scapular spine was 142 mm in men and 126 mm in women both on the right and left scapula. These results were consistent with previous studies (27,29). Torimitsu et al. reported the accuracy rate as 87% in adults. (29). According to their study on dry bones, Papaioannou et al. found this rate as 91% (27). In our study, if we determined the cut-off value as 135 mm for the length of the right scapular spine, the sensitivity was 82% and the specificity was 88% (Table 3).

In conclusion, this is a radiological study showing that morphometric analysis of the scapula bone is important for gender determination and can be used as an alternative in forensic anthropology only in cases where measurement can only be taken from the scapula. As osteometric measurement analysis can be performed directly on skeletal remnants, CT can be easily used for this purpose because it can provide a three-dimensional image. However, the accuracy of any method decreases when applied to another population. Therefore, population-specific measurements are required. Our study shows that scapular measurements based on 3D CT images in the modern Anatolian population show sexual dimorphism and may be useful for gender prediction in forensic anthropology. LL, TL and SSL measurements show statistically independent significance (Logistic Regression analysis) for gender determination. Even using the LL measurement of scapula alone is shown as a reliable and correct method since it provides over 90% accuracy in gender estimation. Forensic anthropologists may alternatively use the scapula bone if the skeletal parts which provide very high accuracy for gender determination, such as the pelvis and the skull, are damaged or not found.

Limitations

In our study, we think that up-to-date data on men and women belonging to a particular segment of modern Turkish society have been obtained. However, the data obtained were collected only from cases that applied to Muğla Sıtkı Koçman University Training and Research Hospital. We think that population-specific formulas can be developed for identification and this will contribute to forensic medicine and forensic anthropology with the data to be obtained by new studies with more cases in a wider area.

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REVIEW

Childhood Injuries; Educational and Forensic Dimension

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Abstract:

Childhood is a period in which the awareness of self-protection against hazards has not yet developed due to the child's curiosity to explore and its mobile structure, therefore, it is open to trauma. On the other hand, child abuse and neglect affect children of all ages, races and income levels is an important public health problem that can be encountered in this age group. Teachers are in a relationship with children and their families in the community and play an important role in understanding, reporting and preventing child abuse. The first step to take when helping or starting to help a child exposed to abuse or neglect is to know the signs and symptoms of abuse. The most important approach; child abuse should be suspected. Here, it is very important to correctly identify the findings of accident-related injuries and the injuries associated with abuse and to manage the process correctly in children that are suspected of abuse. The aim of the study is to classify the findings related to childhood child abuse and the findings related to childhood accidents and draw attention to the points that need to be observed correctly.

Keywords: Child Abuse, Accident, Teacher, School, Children Rights, Child Protection

Öz:

Çocukluk dönemi, çocuğun keşfetme merakı ve hareketli yapısı nedeni ile kendini tehlikelere karşı koruma bilincinin henüz oluşmadığı, bu nedenle travmalara açık olduğu bir dönemdir. Diğer yandan da her yaştan, ırktan ve gelir düzeyinden çocuğu etkileyen çocuk istismarı ve ihmali bu yaş grubunda karşılaşılabilen önemli bir halk sağlığı sorunudur. Öğretmenler, toplumda çocuklar ve aileleriyle ilişki halinde olup, çocuk istismarının anlaşılmasında, bildirilmesinde ve önlenmesinde çok önemli bir role sahiptir. İstismara veya ihmale maruz kalan bir çocuğa yardım ederken ya da yardım etmeye başlarken atılacak ilk adım istismarın işaretlerini ve belirtilerini bilmektir. En önemli yaklaşım; çocuk istismarından kuşkulanılmasıdır. Burada kazalara bağlı yaralanmaların bulguları ile istismara bağlı yaralanmaların bulgularını doğru tanımlayabilmek ve istismardan kuşkulanan çocuklarda süreci doğru yönetebilmek çok önemlidir. Çalışmada amaç fiziksel çocuk istismarında görülen bulgularla, çocukluk çağı kazalarına bağlı bulguları sınıflayarak, doğru gözlem yapılması gereken noktalara dikkat çekmektir.

Anahtar Kelimeler: Çocuk İstismarı, Kaza, Öğretmen, Okul, Bildirim, Çocuk Hakları, Çocuğun Korunması

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1. Introduction

Childhood is a period when the child's awareness of protecting itself against dangers is not yet formed due to child's discovery curiosity and mobile nature, and therefore is open to trauma. On the other hand, child abuse and neglect, which affects children of all ages, races and income levels, is an important public health problem that can be encountered in this age group. It is very important to distinguish these two situations for the protection of the child. The cases of violence against children are the ones that cause the greatest harm and remain hidden most. Violence against the child is generally considered as child abuse because it prevents the child's development (1). Violence affecting children and violence against children have become more and more worrisome. According to the results of a study conducted in Turkey, physical abuse is seen most commonly between the ages 4 to 6. In the study boys have been exposed to abuse more than girls have been. Physical abuse is the most visible and widely recognized form of child abuse (2). In the studies, the most striking answer to the question of who will protect the child from "family" and the experts trying to protect the child primarily from the family and then from the abusers in the social environment is the most difficult part of the struggle. Child protection is guaranteed in many international instruments. The United Nations Convention on the Rights of the Child is the world's most widely accepted international convention. Turkey is among the first countries who accepted this agreement. Basic values guiding the children's rights convention; non-discrimination is the best interests of the child, life and development, protection and participation. According to this contract; Every human being up to the age of 18 is a child, except in the case of the age of legal mojority. The childern's rights agreement was published in the Official Gazette numbered 22184 on January 27, 1995 and turned into a domestic law rule with the law numbered 4058.

The teacher has a great responsibility in the realization of children's rights and protection of the child. Teachers are in contact with children and their families in the society and have a very important role in understanding, reporting and preventing child abuse. The first step in helping or starting to assist a child who is exposed to abuse or neglect is to be able to accurately observe the signs and symptoms of abuse. The most important approach in childhood injuries; child abuse should be suspected. This is because these children often do not call for help regarding the abuse they experienced. However, it is very important to recognize the abuse. If it is overlooked that the child is exposed to violence, the child is exposed to more severe trauma and even a process that can lead to death is experienced. Teachers are in a key position for the early diagnosis of child violence. Teachers should be a good observer at this point and use their reporting obligation when necessary in order to detect the violence experienced by the child early, by observing the signs of abuse in the child correctly. Schools are one of the areas where children spend the most time outside of the home. Teachers may have the opportunity to observe children's behavior while watching the routine education and training processes of children. The teacher can notice positive and negative behaviors in children and interpret them. Continuous communication between teachers and children can help to understand and notice the call for help more quickly. Teacher's attention and observation can have significant effects on the child's life (3).

2. Childhood Injuries

Injuries in children can be seen due to accident and abuse. Injuries due to accidents and injuries due to abuse differ in terms of both the family history and the characteristics of the wounds in the child. While abusive injuries occur in many different ages and forms, injuries due to accidents usually occur on the face and front of the body due to a fall. Abuse can be considered when injuries occurring in the child do not heal, are continuous or even recurrences is seen. In addition, dirty, neglected appearance, bald areas on the scalp, shy, cowardly attitude and growth retardation are symptoms of physical neglect (2,4). Pinching, pushing, shaking, squeezing the childs throat, hitting the childs head against a wall or elsewhere, tying the child up, physical exhaustion, not allowing the child to be washed and cleaned, sticking a needle into the childs foot, burning the childs hands and feet, applying painful substances to the childs mouth are other types of physical abuse encountered in society (5).

2.1. Accidental Injuries

Children; They are curious because of their learning inclination, their perception skills are limited, their mobility is limited, they easily reach dangerous environments during this period. Self-injury, squeezing into narrow areas, limb compression, falling, hitting and burns can be encountered. Injuries caused by cutting and piercing tools can aslo be encounted. Children are often curious about what's in front of them. Most accidental injuries occur on the front of the body (6).

The places where the accident occurred are mostly the areas that cover the house or the social environment of the child. When we look at the rates of accident injuries in childhood, it can be observed that there are age and gender differences. The home can be considered as an im-

portant area for childhood injuries. Structuring the child's living space without considering the movement and development process can also lead to accident-related injuries (7). Traffic accidents, falls, suffocation, burns, object ingestion and poisoning can be common injuries in children (8). While drowning, falling and burns may be the most common cause of accidents among children under the age of 5, it can be said that traffic accidents are the most common form of accident of children at a school age. Over the years, infants and young children have formed a high-risk group, and in this age group alone, hospital cases are increasing significantly. While those under the age of 5 are usually injured at home and in their immediate surroundings, it can be said that the most common accident areas for school children (5-14 years) are schools, home and leisure areas (9).

In accidental injuries, the family usually takes the child to the hospital within a short time after the event. Generally, the child does not have a history of frequent admission to the hospital due to accidents. In terms of the way the event occurred, the child and the family give the same story. There is usually no contradiction in the statements that they give. The injuries are compatible with the mobility reflecting the age group of the child. Wounds mostly occur on the face and front of the body. Major areas of injury; forehead, nose, chin, wrist, elbows and areas where the skin and bone are in close contact. Accidental cuts and wounds normally occur in bony areas of the body such as the arms and knees. Accidents are unlikely for injuries in soft and protected areas such as the abdomen and hips. Again, in cases where injury is frequent, the possibility of an accident is low (10).

2.2. Injuries Due to Physical Abuse

Physical child abuse is defined as non-accident injury to the child. In injuries due to physical abuse, an unexplained delay in the child's admission to the hospital. A history of contradictory or incompatible with physical findings, recurrent suspicious injuries, the parent holding the child or someone else responsible for the damage. The parent blaming the child for the damage, the mother and / or father's childhood abuse history. The mother and / or the father's seeming uninterested or extremely anxious about the damage in the child, the child being taken to the hospital. The child being uncomfortable with physical contact, the presence of pain complaints. The presence of clothes that are not suitable for climatic conditions and are worn to hide the body (11). Although accidents are common in children, abuse should be suspected in cases of injuries that are not suitable for age and are very unlikely to be spontaneous (112). Injuries with different stages of recovery may suggest child abuse. Abuse is usually not a one-off, but an increasingly violent process. For this reason, injuries of different ages and appearance are typical signs of abuse. Signs of healing at different levels include hand prints, bite marks, clustered and regular forms, traces of objects used to cause pain such as belts, electric cables, bruises on the face, lips, mouth, trunk, back or thighs. If the iniuries are noticed after holiday, weekend, etc, the occurrence of a situation such as repetition may suggest abuse (13). Abuse may be suspected if there is a difference between the child and the family / caregiver's explanation of the cause of the injury. Another suggestion to abuse is nconsistent explanations or protecting the person responsible for the situation. Overreacting or not paying attention to the event, not remembering the incident. Indifference to the child, pain or situation, and not allowing the child to be treated. Refusing to be investigated, focusing on one's own needs and desires. Showing evidence of losing control of the child or fear of losing control, due to unreasonable or minor complaints. Not bringing the child to health institutions in the near future, making unrealistic expectations about the child. Alcohol or substance use. Significant mental health disorders, abuse of adult attitudes observed in the form of excessively harsh discipline not suitable for the child's age, fault or situation. Adult attitudes observed in the form of discipline may be clues to support the abuse or the child's statement of abuse (14).

2.2.1. Skin Injuries

Skin injuries are usually seen on the face, lips, and inside the mouth. It can also be seen on the body, back, hips, legs and calves. Bite marks in different parts of the body, cluster or regular wound shapes, tracks in the form of a rail, belt, cable, stick, ruler, or marks created by a certain object, cuts in areas that the child cannot reach are suspected injuries in terms of child abuse. Unilateral ecchymosis (bruising) called "Tin Ear Syndrome" can be seen in the ear or eye area of the child. The time of injury can be estimated according to the color change of the wounds. While the acute lesion is red-purple in color, it then changes color to green-yellow-brown (15). Injuries are divided into two. Injuries with or without tools. If it is considered to be abuse; Does the injury to the skin remind us of any tool mark? Is it outside the areas where the child would be injured in the accident? Are there different skin injuries in different places and shapes on the child's body? Answers to their questions should be sought.

2.2.2. Human Bites

Families may use abuse methods such as biting a child to punish, intimidate and discipline the child. They may

also intentonally have an animal bite the child. Human bite marks on the chest, neck, hips and legs of the child should suggest the possibility of sexual abuse. Bite marks that occur as a result of abusive acts are usually multiple, clear-looking and can be seen with sucking marks (16). In emergency services, which are among the priority places where child abuse cases can be detected, other healthcare personnel, especially physicians, should be careful about the possibility of abuse (17). Often the first and most important step to diagnose abuse is to suspect the abuse (18). Bite marks of the animal can be found on the child's body. Animal teeth are narrow and pointed, with animal bites causing tiny holes in the skin. Human teeth, on the other hand, cause tears or crushes due to their large surface (19). Human bites can be more superficial than animal bites. Adult bite marks are unlikely to be accidental and abuse should be suspected (20).

2.2.3. Mouth and Lip Lesions

In addition to the appearance of blunt lesions resembling a cut wound or with irregular edges on the lips as a result of a direct punch in the mouth, burns can also occur when the person in charge of the child puts the hot spoon or bottle on the mouth of the child. Fractures in the teeth and facial bones may accompany these findings. Sudden injury in the lip area of the child, injuries that resembling being hit on the mouth with a spoon. Can sometimes be seen in the area of the mouth. Injuries similar to scarring, the child having difficulty consuming food and beverages at school and attributing this to an injury in the mouth, the place of fluent speech can be detected by checking the inside of the mouth even if there is no injury in the mouth area of the child (21). Abused children can have traumatic findings in the mouth and perioral regions, face and head. The forensic dentist can determine the signs of physical and sexual abuse during thier examination. Oral cavity is a place where sexual abuse is common in children. During dental examination and treatment, findings such as bite or sucking marks can be seen in the oral cavity, around the mouth and in different parts of the body (22).

2.2.4. Burns

Burn cases can also be seen due to abuse. The distinction between accident and abuse is important in burn-related lesions. It has been reported that negligence should be suspected especially in cases of burns whose cause cannot be determined under the age of 5. (23). Burn injuries constitute approximately 10% of "child neglect" cases and approximately 10% of child burn cases admitted to the hospital develop as a result of child neglect or abuse. Accidental injuries due to burns can be seen in children who develop mobility, but abuse can be observed by following the limitations and patterns of the burn correctly. The marks left on the body should be taken into consideration in distinguishing abuse burns from accident burns. In accidental burns, the child's body can touch the object or splash, shapeless burns due to accidental spilling of water and touching and pulling occur, while the picture is different in abuse burns. Immersion method known as punishment method; It may cause well-circumscribed and sharp burns on hands and feet, and total burns may be observed in well-circumscribed areas. Bite-shaped burns in the hip due to punishment in toilet training, hot spoon in the mouth. Burns due to pressing and burning with different objects. Burns in the appearance of gloves or socks caused by immersing hands and feet in water and holding them for a while may be encountered. At the same time, shaped burns related to burning the body of the child with an iron, cigarette burns or with a hot object can be seen (24).

3. Teacher's Role in Abuse Detection and Reporting

Raising healthy generations is primarily possible with healthy children, but abuse of children by the person or persons primarily responsible for their care can negatively affect the child physically and mentally. Many research findings indicate that exposure to child abuse and neglect affects the child for life. It can show that it causes depression, post-traumatic stress disorder, substance abuse, suicide attempt, self-mutilation and different behavioral disorders. Considering that children who continue their education life spend more time at school than at home, it is seen that teachers and educational institutions are very important in prevention and intervention efforts of child abuse and neglect (25).

In the evaluation of child abuse in the early childhood period of 2-6 years; Whether the child's communication style includes violent words and behaviors, interests, role played by playing with anatomical toys during play, pictures the child creates, and whether there are findings that may raise suspicion about family should be investigated. It can be observed that these children have self-expression problems and are unwilling to seek help from the teachers and the adults around them. At the same time, fearful, timid and anxious attitudes may be among the situations that the teacher will observe in order to detect abuse in early childhood, and the notification that the child is clearly abused.

Social adaptation problems are observed in children who are subjected to physical violence. In general, they can leave an introverted, quiet, docile, harmonious, shy, sometimes shy and scared impression with others (26).

When the detection of abuse in the 7-11 age first childhood period is evaluated; Behaviors observed in children in the middle childhood period are similar to early childhood behaviors, while behaviors such as insecure attitude, inability to solve problems, anxious behavior, attention and focus problems, and school absenteeism can be observed in the middle of the period.

Among the effects of domestic violence on children; It manifests itself as withdrawal, having fears, having communication problems, failure in school life, not wanting to even go to school because they are afraid of their friends asking questions about their family (27).

When abuse is observed in children in early childhood and middle childhood, care should be taken to avoid prompting questions during the interview with the child, to establish eye contact, and to use a relaxing and reassuring body language (28).

When the detection of abuse in adolescence is evaluated; It can be observed that children who grow up in an environment of violence exhibit aggressive behaviors, social adaptation disorders, frequent school absenteeism, introversion, physical harm to themselves, low academic success and generally refuse to call for help. These children may be individuals with low sense of responsibility and poor social emotional communication skills.

In addition, young people who grow up in violent homes are thought to be at high risk in terms of substance abuse, suicide and running away from home (29). The result of the research conducted by Vahip and Doğanavşargil (2006) also supports that there is a significant relationship between the history of physical violence in childhood and abuse against one's own child (30).

It is known that physical abuse has psychological and behavioral findings. Behavioral Findings; fear of adults, family, especially physical contact, harming oneself or others, aggressive or introverted behavior, learning and attention problems, decreased school success, delayed language development, running away from home or criminal behavior, clumsy gestures or angry, resentful behavior posture, tendency to accidents and appear afraid of going home. Although some or all of these findings can be observed in children who are not abused, the presence of these findings draws attention to the possibility of the child being abused (31).

Open-ended questions about abuse can be asked to children in this period. During adolescence, a friendly environment in which the child can speak and feels understood can be important.

It is necessary to listen to the child carefully and to give information about the post-notification process.

The fact that teachers know and follow children's behaviors, emotional development, and routines can be decisive in the detection of abuse. In such detection situations, it may be important for teachers to act quickly and to think child-oriented in order to identify, report and act in the best interest of the child in the next process. In case of suspicion or detection of child abuse and negligence, the notification process should be carried out in secrecy and it should be aimed that the child overcome this process with the least harm. Your process; It should be conducted in the school environment with the participation of at least one person (32).

Suspicion and signs of abuse are sufficient for the teacher to use the reporting obligation. The notification is the last step after detecting child neglect and abuse, at the same time it aims to identify children who are exposed to abuse, prevent neglect and abuse against the child, and provide support to the family and the child (33).

After the determination, the teacher must inform the school's guidance unit and the school administration about the subject. The necessary evidences about the victimization of the child should be recorded by including the professional techniques and methods of the counselor. School administration should definitely notify judicial authorities in cases where negligence and abuse is suspected, and support school personnel who report (34). Also Law of the Republic of Turkey personnel working in the public sector there are notification obligation according to Article 279. Article 279 of the Law of the Republic of Turkey; It is stated that "a public officer who finds out that a crime requiring investigation and prosecution has been committed on behalf of the public in connection with his duty and neglects to notify the competent authorities or shows a delay in this matter is punished with imprisonment from six months to two years". In cases of child abuse, people who encounter suspicion of abuse are obliged to report it, otherwise legal sanctions are in question. Suspicion of abuse is deemed sufficient to fulfill the reporting obligation.

In countries where teachers are obliged to report cases of abuse and neglect, for teachers; Various training programs on how to identify abuse and neglect, recognize its symptoms and how to intervene in noticed cases are included in in-service training and handbooks for teachers are published (34).

Anyone, as well as teachers and professionals working with children, can and should report suspected child abuse. The notification is not an accusation; It can be considered as an application made to express the opinion and to investigate and evaluate the situation of the child. A report is required with suspicion of child abuse or neglect.

As well as the importance of detection and notifica-

tion in child abuse, the importance of the teacher to manage the process correctly is also very important for the benefit of the child. The duties that the school must fulfill in cases of abuse are diagnosis, evaluation and guidance. Although these tasks are handled within the framework of school administrators, teachers and guidance counselors, the roles that the counselor should perform may be more pronounced than others due to the specialty training (35).

4. Forensic Aspect in a Child Physical Abuse Case

Today, an environment where children should enjoy all civilized, political, social, cultural and economic rights like adults. Efforts are made to ensure this has been reached, albeit partially. In terms of the negligent and abused child entering into the judicial process it separate into two processes, namely the judicial process regarding the punishment of the defendant and the judicial process regarding protection of the child. Since the actors in criminal proceedings are often unaware of the child's need for protection, a trial is conducted only on the punishment of the defendant. However, in accordance with the Convention on the Rights of the Child, since the protection of the child is the main goal besides punishing the defendant, both systems should work together or side by side. This is only possible by explaining the need to protect the child with a multidisciplinary approach to the legal system, demonstrating it or using the judicial system. In order to work together with the judicial system, it is necessary to know the functioning of the judicial system and how to intervene in the protection of the child at every stage (16).

In order for the judicial system to be activated, the necessary actions must be taken with the notification. Information to be given at the preliminary information stage in order to report the abuse and initiate the necessary actions; child's name, surname and address information, describe what you see or hear about the abuse or neglect. The duration of the abuse, the name and address of the child's family or caregiver. The name and address of the suspected perpetrator, the degree of relationship with the child, if known, where the abuse occurred, who was aware of it. It should be in the form of what was done until the incident was intervened, the content and extent of the child's injuries. Evidence of previous injuries, injuries and other information that will reveal the identity of the perpetrator. The names of other persons who have information about the abuse, the information of the person who made the report, and the telephone number. Reporting of information in an enlightening way to the judicial system can be important for the protection of the child. The names of those who have notified families who have been reported about child abuse and neglect are not disclosed. The institutions that we can report child abuse or neglect are; Social Services and Child Protection Agency or Child Police / Police Station and Public Prosecutors. (36).

The facts of children in need of protection are evaluated within the framework of the "Child Protection Law". Child protection law (5395) entered into force on 03.07.2005. Children are categorized as "those in need of protection or those driven to crime"; protection measures and trial conditions are defined. However, today judicial and law enforcement officials; It could not provide enough specialization in children. The law has specified "being educated" as an adequate criterion. Although social investigation studies are regarded as important, today social investigation studies at the law enforcement and judicial stage have not been institutionalized, therefore they have not fulfilled their real function. Practices at the judgment stage focus on the "punitive" system rather than defining an educational process.

The new Turkish Penal Code was accepted on 26.09.2004 with the law number 5237 and entered into force on 1 June 2005. With the Turkish Penal Code, we can say that there are some more positive changes in terms of children's rights compared to the old law. Turkey, gathered at United Nations Headquarters in 1989 "World Summit for Children". Children's Rights was opened for signature for the first time. Within the first states to put the signature of the convention Turkey was also one of the first countries that participated. This convention gained the status of international law on 2 September 1990. Articles 19, 34 and 39 of the Convention on the Rights of the Child are about child abuse, neglect and prevention. In our country, it is seen that many regulations have been made with the Turkish Penal Code, Child Protection Law, Law on the Protection of the Family. However, as legal regulations and institutional structures accompanying them are not established, they are not able to achieve transformation in current practices. In order to fully demonstrate the best interests of the child in the public sphere, the multidisciplinary approach should be validated by providing medical, legal and social structural transformations. It is expected that the "Child Protection Program" will be established and structured by the state and its components that look after the benefit of children, on the basis of the benefit of children (16)

5. Forensic Medical Assessment

In terms of forensic medical evaluation; It is important for the physicians who are consulted as medical experts to prepare forensic reports together with their own

scientific opinions in a multidisciplinary approach, taking opinions from different medical specialties. Medical evaluation by an experienced team consisting of forensic experts, psychiatrists, psychologists, pedagogues and social workers is of great importance in the process of reintegrating the child into the society. The examination of the person allegedly attacked is requested in writing. Care should be taken that this request is almost always written and all incoming letters should be filed. Before starting the examination, the identity information of the person is determined and this information is recorded in the file. The time, date and date of the examination, the names of those present in the examination and the time between the attack and the examination time must be recorded (37).

Managing the detection and examination process correctly and for the benefit of the child can be considered a prerequisite for children not to be victimized for the second time. At this stage, professionals and teachers working with children may be responsible for listening to the child, preparing for the process, and also transferring the information received from the child to the judicial units. For this reason, efficient and correct management of the process of these people is important. In this process, the language and attitude used in communication with the child is also very important. Children who are abused and neglected can discuss the problem more comfortably with the audience they trust, who are away from judgments and who listen effectively. In this respect, it is important for teachers to talk to children they suspect of being abused and neglected and to listen to them effectively. Before starting to talk, it is necessary to decide which questions will be asked in what way. It may be necessary to be prepared for situations that may arise such as the child's sudden crying behavior and refusing to speak. It is important in terms of cooperation that the teacher approaches the child with empathy and the child does not feel guilty during the expression while the child is explaining his / her situation. The place and time to talk to the child is also an important detail. Care should be taken to choose a private, quiet place away from other students as a speaking place. The child should feel comfortable, explain his/her situation at any time and make sure that the child is given enough time to explain (38). Listening to the child carefully, taking what they say seriously, not being terrified by what is being told, being calm, comforting the child, asking as few questions as possible, and using the words the child uses while speaking can be important points in making speech more effective. Make sure that what the child says is understood correctly, everything the child says should be recorded later. In addition, at the end of the conversation, promises should not be made to the child. The child should not be asked to tell her story to different people over and over again. The child should be informed about the post-notification process, taking into account the developmental characteristics. It would be correct for the teacher to state to the child that he /she will share this infomation with someone who will help the child and family (38).

Basically; Listening to the child effectively and with empathy, taking care not to touch the child due to the traumatization experienced, approaching with a language and attitude that the child can understand. Supporting and encouraging the child can be considered as basic communication steps.

6. Role of Institutions and Teachers in Preventing Negligence and Abuse

Protecting the child from negligence and abuse is possible primarily through prevention activities. Within the scope of prevention activities, it may be necessary to carry out studies that will raise awareness for children and families and develop protective factors, strengthen the child and reduce the risk of abuse and neglect. The inclusion of children in the education module to be made on personal, family and environmental factors can be aimed at strengthening the child within these programs, while at the same time providing support to parents and creating a conscious child protection policy. Relationship between parents and staff is very important for the program to be able to communicate with parents. Support, training and counseling from staff may be necessary to help parents do this. Activities such as training of teachers to ensure the social and emotional development of children, to observe child abuse or neglect, to act according to early warning signals and to respond to the first problem signal can provide early intervention. Similar programs can also help keep children safe and help parents get the necessary support and services. Family support activities and child abuse prevention programs can be considered as important steps for the development and dissemination of these protective factors. At the same time, within the scope of preventive services of guidance units of schools and organizing awareness raising trainings and preventive service; By paying attention to the principle of confidentiality, only the units in charge of the case should review their policy of informing and act in the best interests of the child (36).

7. Conclusion

Child abuse; It has become a field of study that not only our country but also all countries work on and, despite increasing rates, combat violence in order to protect

the child and develop prevention and rehabilitation methods. This area creates a multidisciplinary field of study. Job descriptions have been created for all occupational groups that come into contact with the child within the work area, and the field of 'Child Neglect and Abuse' has created a different perspective in order to protect the child. In this area; Occupational groups working in the fields of medicine, law, social services, child development, psychology, safety and education are included. The aforementioned multidisciplinary structure is actually a strong chain for the development of child protection policy, the weakness of a single link forming this chain may damage the targeted child protection policy. Perhaps it will save the life of the child if the teachers, who are constantly confronted with children in this chain, recognize child abuse and report any signs of abuse or neglect in children to the judicial units. Therefore, their awareness is very important in childhood injuries.

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CASE REPORT

Ludwig's Angina Resulting in Mortality: an Autopsy Case

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Abstract:

Ludwig's angina (LA) is a form of cellulitis that bilaterally affects the sublingual and submandibular soft tissue above the mylohyoid diaphragm at the base of the mouth. Due to its complications, the mortality rate of up to 50% has declined up to 8% in recent years with the contribution of modern treatment options. In this article, a case of LA resulting with death is presented with autopsy findings. In cases where phlegmon is opened with an intraoral incision, the risk of aspiration pneumonia should be taken into consideration. In order to detect LA and its complications, organs and soft tissues of the oral cavity, neck region and thoracic cavity should be carefully examined in autopsy cases.

Keywords: Ludwig's angina, Mediastinitis, Aspiration Pneumonia, Autopsy

Öz:

Ludwig anjini (LA) ağız tabanında bilateral olarak mylohyoid diaframın üzerindeki sublingual ve submandibuler yumuşak dokuyu tutan bir selülit şeklidir. Komplikasyonları nedeniyle %50'ye varan mortalite oranı çağdaş tedavi seçeneklerinin katkısı ile son yıllarda %8'e kadar gerilemiştir. Bu yazıda ölümle sonuçlanan bir LA olgusu otopsi bulguları eşliğinde sunulmuştur. Ağızıçi insizyonla flegmonun açıldığı olgularda aspirasyon pnömonisi riski göz önünde bulundurulmalıdır. LA ve komplikasyonlarının saptanabilmesi için otopsi olgularında oral kavite, boyun bölgesi, mediasten ve göğüs boşluğundaki organ ve yumuşak dokular dikkatlice incelenmelidir.

Anahtar Kelimeler: Ludwig anjini, Mediastinit, Aspirasyon Pnömonisi, Otopsi

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1. Introduction

Ludwig's angina (LA) is an aggressively spreading form of cellulitis that bilaterally involves the sublingual and submandibular soft tissue above the mylohyoid diaphragm at the floor of the mouth (1). It is a rare life-threatening disease which often develops due to odontogenic infections (2, 3). The mortality rate up to 50% due to frequent complications has decreased to 8% in recent years with the widespread use of antibiotics and surgical treatment options (1, 4). LA cases presented with autopsy findings are rare in the literature. In this report, an LA case complicated by mediastinitis, septicemia and aspiration pneumonia and resulting in death is presented with autopsy findings.

2. Case

A 37-year-old male patient admitting to the hospital with complaints of swelling of the floor of the mouth, difficulty of speech, restriction to mouth opening and pain had swelling that mainly involved the submental space of the neck in the physical examination, with fever determined to be 39°C, pulse 110/min, arterial blood pressure 120/80 mmHg. The patient's 34th tooth had been extracted 10 days before. In his history, he had controlled type 1 diabetes. On the first day, the patient was operated with diagnosis of phlegmon of the mouth floor and a large amount of bloody-purulent exudate was aspirated by intraoral incision performed to the mouth floor, and antibiotic treatment was initiated simultaneously. In exudate and blood culture anaerobic streptococcus growth was detected. Despite the treatment in the following days, the patient's fever did not come down and his general condition was evaluated as moderate. On the X-ray, signs of inflammation were observed in the lungs and mediastinum. On the 14th day in the hospital, the patient's condition suddenly worsened and respiratory distress developed. On the seventeenth day, the patient had a sudden cough, followed by a large amount of foul-smelling, green-gray purulent sputum. Meanwhile, the cardiac arrest has been developed in the patient, and despite interventions, biological death occurred.

At autopsy, external examination revealed swelling in the submandibular space and cervical region, and crepitation during palpation. In the oral cavity, a dry socket was observed at the level of the 34th tooth, with hyperemia and swelling in the tissues around it, and an incision section with hyperemic and edematous margins at the floor of the mouth. There was abundant accumulation of purulent exudate at the floor of the mouth and partly inside the mouth. The corpse was opened via a single vertical incision. Abundant fibrinopurulent exudate was observed between the soft tissue and skeletal muscles in the mouth floor and neck area, as well as in the mediastinum. In the sections made in both lungs, it was observed that fibrinopurulent exudate flowed from the sectional surface of the tissue.

In microscopic examination, edema, hyperemia, granulation tissue formation, abundant lymphocyte and neutrophil infiltration, microabscess formations were observed in the soft tissues around the 34th tooth socket, and findings of erosion and ulceration in the surface epithelium (Figure 1). Widespread areas of necrosis and edema were observed in the soft tissue and skeletal muscles of the neck region, as well as abundant lymphocyte and neutrophil infiltration on this base (Figure 2). Considering the autopsy findings, the case was reported as "Ludwig's angina complicated by mediastinitis and aspiration pneumonia due to 34th tooth extraction" and it was concluded that death was natural.

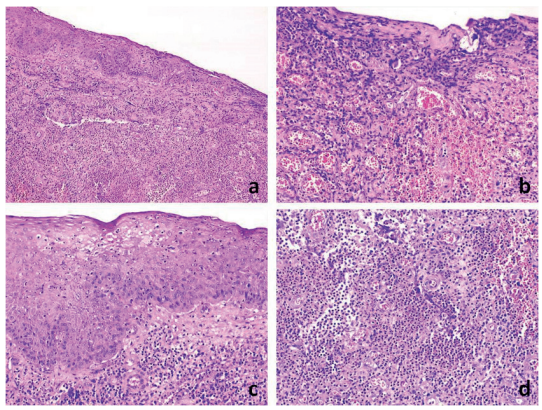

Figure 1. In the soft tissue samples taken from around the tooth socket, erosion, ulceration and granulation tissue in the oral mucosa (a, b); in the surface epithelium (c) and subepithelial tissue, widespread lymphocyte/neutrophil infiltration and microabscess formation (a, b, d). (stain: Hematoxylin-Eosin).

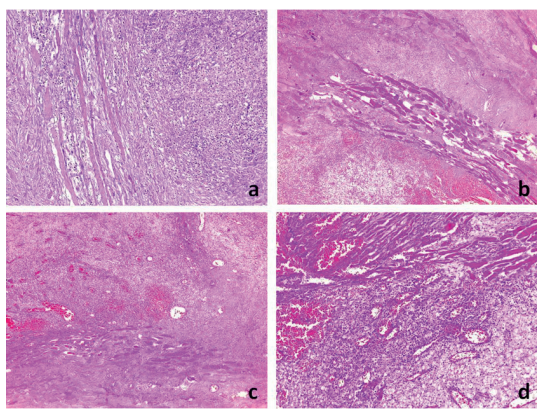

Figure 2. In the soft tissue samples of the neck region, widespread necrosis and edema (a, b), granulation tissue and bleeding areas (c, d), lymphocyte/neutrophil infiltration (a-d) including skeletal muscles (stain: Hematoxylin-Eosin).

Ethical Declaration

Informed consent was obtained from the participant and Helsinki Declaration rules were followed to conduct this study.

3. Discussion

LA was first described by the German physician Wilhelm Friedrich von Ludwig in 1836 (5). In large-scale studies, the disease was seen to be relatively more common in men than in women, and the average age was reported to be around 44. (3)

The most common cause is dental diseases, particularly lower second and third molar teeth in 90% of the cases (5). In general, any damage and infection in the oral cavity and mandibular region can cause LA. Traumatic injuries to the floor of the mouth, tongue and jawbones, intraoral piercings, peritonsillar abscesses, sialadenitis of the submandibular gland, and infected thyroglossal duct cyst are other causes (5, 6). Cases that develop due to rare causes such as snake bites have been reported in the literature (7). Infections are usually polymicrobial but often include organisms found in the oral flora. Organisms showing the most frequent reproduction in cultures taken from LA cases are *Staphylococcus, Streptococcus, Peptostreptococcus, Fusobacterium, Bacteroides* and *Actinomyces* (8). Predisposing factors, along with etiological factors, have an important role in the development of LA. Diabetes, oral malignancies, dental cavities, alcoholism, malnutrition, and immune deficiency are among these factors (5).

The most common findings are fever, chills, neck swelling, odynophagia and dysphagia. Less frequently, complaints such as regional pain, hoarseness, and choking may be encountered (5). On physical examination, swelling, stiffness, tenderness, and crepitation during palpation are observed in the submandibular space, and sometimes on the tongue and floor of the mouth. In LA cases, infection primarily involves the sublingual space and then progresses to the submandibular space, neck and mediastinum. Regional lymphadenopathy is not observed in the patient since LA does not show lymphatic spread (5). In cases with severe airway obstruction, findings such as respiratory movements <25/min and saturation below 95% can be observed (7). Laboratory tests make minimal contribution to specific diagnosis during the diagnostic process. Blood culture is important in terms of showing the hematogenous spread of infection. Radiological methods, such as computed tomography and ultrasonography, are often required to confirm abscess formation and thus to determine the indication for surgical intervention (5, 9).

Early diagnosis and treatment are very important for prognosis in LA cases, as the risk of complications and death is naturally higher in cases diagnosed late (10). Mediastinitis, septic shock, respiratory distress, venous thromboembolism, aspiration pneumonia, aortopulmonary fistula, necrotizing fasciitis are expected complications in LA cases (3, 4, 11). While it has a mortality rate of up to 50% due to its complications, the widespread use of antibiotics and surgical treatment options have decreased this rate to 8% in recent years (1, 4). In a study covering the years 2006-2014 in the USA, the mortality rate was determined as 0.3% (3). Respiratory failure is the most common cause of death in cases resulting in mortality (7).

Autopsy findings of only 4 cases were presented in the English literature (12-15). However, the authors could not reach a publication with a similar content in Turkish. In the autopsy cases reported, swelling of the neck, submandibular space and oral cavity organs, and oral mucosa covered with hyperemic and purulent exudate were prominent findings. Due to the cause of LA, attention should be paid to the presence of local lesions such as infected tooth socket, peritonsillar abscess, bone fracture during autopsy. In cases that are kept for post-mortem, green-brown colored dark spots may be observed due to rapid corpse decay in areas where the purulent exudate accumulates under the skin. In internal examination, specific findings for LA are generally observed in the organs and tissues of the oral cavity and neck region, and in complicated cases, additionally in the mediastinum and thoracic organs. In complications such as septicemia and septicopyemia, widespread inflammatory lesions may be encountered in all internal organs. Neutrophil-weighted inflammatory cell infiltration, colonies of various microorganisms, and additionally, in chronic cases, granulation tissue and fibrosis are expected findings on widespread necrosis base in the specified organs and tissues in microscopic examination (12-15).

4. Conclusion

In addition to usual complications such as mediastinitis and septicemia with high risk of complications and mortality, rare complications such as aspiration pneumonia can be seen in LA. In cases where phlegmon is opened with intraoral incision, the risk of aspiration pneumonia should be taken into consideration. In order to detect LA and its complications, oral cavity, neck region, organs and soft tissues in the mediastinum and thorax should be carefully examined in autopsy cases.

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The Bulletin of Legal Medicine
Adli Tıp Bülteni

CASE REPORT

Re-Autopsy: Dealing with Almost Impossibility?

Melike Erbaş*, Yasemin Balcı

Abstract:

Performing an autopsy on a body, that was autopsied before, becomes a very difficult situation; especially for the cases, that there is no first autopsy report or any information. Depending on the impossibilities to reach the findings detected in the first autopsy; it becomes a very difficult procedure; which is almost impossible. Practically it seems that the important point in such cases is developing trust by sharing the findings and information as much as possible.

We would like to discuss the situation on three cases that were re-autopsied after the first autopsy procedures performed abroad.

Keywords: Re-Autopsy, Second Autopsy, Methanol Intoxication, Embalming

Öz:

Üzerinde daha önce otopsi yapılmış genellikle yurt dışından gelen bir ceset üzerinde yeniden ve tekrar bir otopsi işlemi yapmak; özellikle ilk otopsiye ait rapor veya adli soruşturmaya ilişkin herhangi bir bilgi olmadığında sonuç alınması imkânsıza yakın, güç bir işlem halini alabilmektedir. Mevcut uyum ve standardizasyon çalışmalarının yanı sıra pratikte bu olgular için en önemli hususun güven oluşturmak ve bu amaca yönelik olarak olabildiğince çok bilgi ve veri paylaşımını mümkün kılmak olduğu düşünülmektedir.

Buna yönelik olarak yurt dışında yapılan ilk otopsileri sonrası gerçekleştirdiğimiz üç tekrar otopsi olgusu üzerinden konunun tartışılması amaçlanmıştır.

Anahtar Kelimeler: Tekrar Otopsi, İkinci Otopsi, Tahnitleme

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1. Introduction

Suspicious deaths and their legal investigations may vary from country to country (1-3). In order to harmonize the autopsy procedures there are some international efforts as "Medico-legal Autopsy Rules" among the countries of European Union and "Minnesota Protocol" of the United Nations; but in practice the application of legislations may vary according to the conditions and working styles of the countries; even in the same country according to the institutions and staff (3-5).

On the other hand for the cases autopsied abroad usually a second autopsy becomes a necessity in the homeland. In such cases there may be a possible loss of findings because of the first autopsy. In addition to the loss of the findings; being unable to reach any information about the first autopsy and about the legal investigations; makes the issue much more difficult.

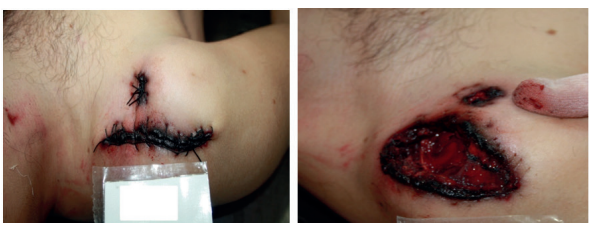
There were three cases sent by the public prosecutors to Muğla directorate of Forensic Medicine for re-autopsy; one autopsied at first in Greece and the other two in Saudi Arabia.

Case 1

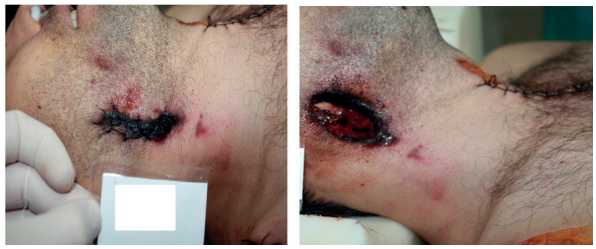
29-year-old male case died of a gunshot wound disobeying the stop warnings of military forces in Greek territorial waters was sent after the first autopsy and embalming procedures; without any report, document, information about crime scene investigations and the legal procedures.

In the external examination there were sutures related with the first autopsy and signs of embalming together with the sutured lesions at the lower part of the right cheek and right shoulder; thought to be occurred due to the firearm injury (Picture 1,2). During the examination under the scope there was a bullet left in the atlanto-occipital region.

During the re-autopsy it was seen that the all of the organs were in their anatomical positions left without any sign of dissection; but pieces were taken from all organs probably for sampling.



Picture 1. Probable firearm exit/entrance wounds on right shoulder



Picture 2. Probable firearm wounds at the lower side of the right cheek.

During the autopsy the mandible was seen fractured from the right side, the bullet was left in the atlanto-occipital region lacerating the right jugular vein and right carotid artery and the atlanto-occipital joint was separated. There was a hematoma on the right side of the thyroid cartilage and around the right greater horn of hyoid bone. The right greater horn of hyoid bone was fractured proximally and there was blood in trachea thought to be due to the aspiration.

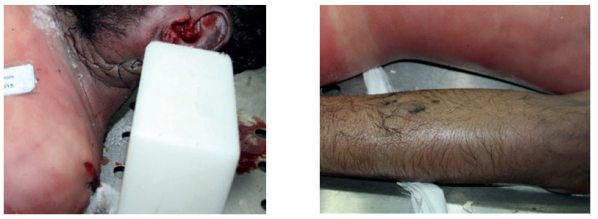
It was seen that the bullet; entered from the 2x2 cm lesion on the right shoulder; fractured the clavicle and the caput humeri; and by moving through the soft tissues left the body from the upper side of the right scapula. Samples were taken from the skin lesions that were thought to be due to the fire-arm injury. During toxicological examinations 13mg/dl ethyl alcohol, 21 mg/dl methyl alcohol was detected in blood and gunshot residues were found on skin samples.

As a result there were two bullets found during autopsy. The one entered from the right cheek was solely responsible from the death. The death cause was reported as the fire arm injury; that caused laceration of great vessels.

Case 2

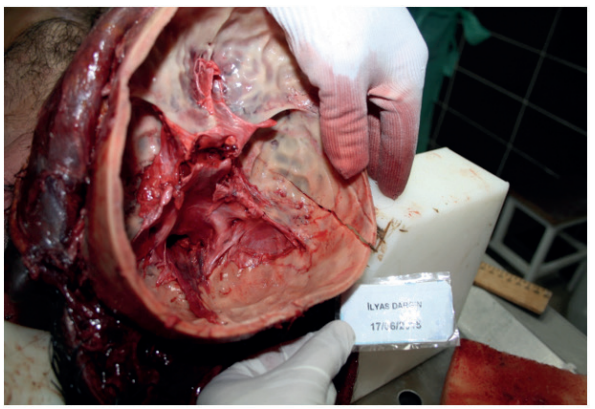
40-year- old construction worker male dealing with electric work was died in Saudi Arabia and sent to our directorate. The public prosecutor was asking if the case had died because of the fractures of the skull with related cerebral hemorrhage or because of the electrocution.

In the external examination; there were sutured lesions due to the first autopsy and signs of embalming together with three lesions on left forearm largest of which was 2 cm in size and at the backside of the left shoulder there were lesions 3x3 cm in size (picture 3) thought to be due to electrocution.



Picture 3. Left shoulder and left forearm lesions probably due to electrocution.

During the autopsy on the right occipito-temporal region linear fracture was seen (picture 4), all organs were found dissected seemingly according to the protocols and the samples were appropriately taken as well. Despite embalming there were signs of putrefaction and discoloring on brain tissue and no macro pathology of other organs were seen.



Picture 4: Linear fracture on the right occipito-temporal region

Skin samples were taken from the lesions; thought to be the entrance of electrocution; for histopathology together with blood samples for toxicology. The results of the histopathology were reported as being compliant with electric burns; if supported by other information and findings related with the case.

During toxicological examinations 338mg/dl methyl alcohol was detected in blood. As a result the cause of death was undefined; since it was not possible to differentiate if the cause of the death was cerebral hemorrhage due to the fracture of the skull or electrocution

Case 3

28-year-old male case was found dead on ship-board and sent by the public prosecutor for re-autopsy after the first autopsy in Saudi Arabia.

The case was hardly taken from the coffin and placed on the autopsy table because of the intense formaldehyde smell and had to be aerated for a while. This was thought to be due to the excessive formaldehyde usage.

In the external examination there was only a 25 cm sutured lesion of incision; beginning from the xifoid process ending at the lower side of the umbilicus and there were no other traumatic findings.

During the autopsy a huge piece of cotton was found in the abdominal cavity thought to be impregnated with formaldehyde. The ileum, jejunum and colon were shrunk and from place to place there were cuts and liquefied parts on colon; all other organs were in their anatomical positions not dissected, staying as a whole and besides there were no signs of sampling.

By toxicological examinations; 10 mg/dl ethyl alcohol, 47 mg/dl methyl alcohol and 1000 ng/ml paracetamol was found in blood. Since there were no signs of trauma or any other pathologic findings; and by considering the detected methyl alcohol levels were due to the oxidation of formaldehyde; the death cause was not definite and it was concluded that the case was died because of an underlying illness.

3. Discussion And Conclusion

The prosecutors rarely send re-autopsy cases. A second autopsy becomes a really hard procedure because of a probable loss of essential findings in concluding the death cause (1) In order to overcome these difficulties; reaching the reports and examination findings of the first autopsy procedure is very important; but usually this becomes impossible. This is usually same also in other countries. In a study on 25 cases autopsied outside their own country; there was only one autopsy report available for only one case during the re-autopsy (6). It was not possible for us to reach any information, report or examination result for all three of our cases.

The education of staff and doctors dealing with the autopsy, names of their specialties, organization of institutions varies according to the conditions of the countries (5-7). Despite the standardization and harmonization efforts; there are differences among autopsy procedures (6, 7). Our first case was a captain died of a gunshot wound violating the stop warning of Greek military forces in territorial waters of Greece. In the first autopsy procedure in Greece tissue samples were taken from all organs without any dissection, the death cause was concluded as fire arm injury. There was no available information about toxicology and pathology. It was seen that the first autopsy procedure was not in compliance with the internationally accepted autopsy rules despite the fact that the cause of death was clearly understood without a detailed autopsy procedure (2, 3).

It was reported that considering the first autopsy procedures outside the home country with suspicion is very natural; where there is no provided international standards with differing applications and approaches (7). Even for cases autopsied according to the internationally accepted rules; the second autopsy becomes a hard situation to deal; where it is impossible to reach information about the first autopsy report or it is impossible to communicate with the institution where the first autopsy procedure was done. Our second case was a prototype of this condition. The first autopsy was understood to be performed according to the internationally accepted rules; but the medico-legal problem "if the case was died because of skull fracture causing cerebral hemorrhage or because of electrocution?" could not be defined.

Our third case was autopsied in Saudi Arabia at first as our second case; but unlike our second case the autopsy procedure was not performed according to the internationally accepted rules; the organs were left in their anatomical positions without sampling. In histopathology of the re-autopsy procedure; there were no significant findings except the findings of chronic gastritis. It was concluded that the case was died because of an underlying illness; since there were no significant findings in pathologic and toxicological examinations.

It was thought that the most important thing is providing trust by enabling information sharing about autopsy report, legal investigations and other procedures as much as possible by establishing an international network.

Grellner et al reported that in their study; there were 5 cases autopsied abroad; 4 of which were completely or almost completely found inadequate and in such cases re autopsy becomes a necessity (8). Nevertheless we have the opinion that re-autopsies will not make any sense; without fulfilling the missing information; when we also consider the probable loss of the findings during the first autopsy. Similar conclusions were also reported by Boukis (9). Boukis reported that many re-autopsies performed in Athens were characterized by missing findings, false information, useless efforts and feeling of discontent; with only a few exceptions(9).

The defined death cause of first case was same with the death cause reported after the first autopsy; but the bullet was left in place so there were suspicions if the medico-legal assessments as the analysis of bullet trajectory were properly done or not. On the other side; there may be video recordings of crime scene, statements of witnesses and so the forensic staff dealing with the autopsy probably did not feel any need to do further examinations for advanced medico-legal assessments. However for a second evaluation of the case in the home country; since there was no information about investigation procedures or any other report about the first autopsy; a second autopsy naturally becomes a necessity. Whenever this very important information is not available; a second autopsy will not be considered as healthy as in the study of Boukis et al (9).

The cause of death for our second case could not be defined even though the first autopsy was performed in compliance with protocols; since there was loss of findings.

The second and third case were both autopsied in Saudi Arabia; but only one of them was seemed to be properly autopsied; showing that even in the same country autopsies may differ.

One remarkable point for all three cases was the detection of methanol. As it is known formaldehyde is the oxidation product of methanol and there may be methanol in formaldehyde solutions in varying concentrations and that is the reason why the methanol free formaldehyde solutions should be used for embalming procedures; at least for the cases that will be sent abroad.

There are no detailed legislations for re-autopsy. The law no. 87-89 of 5271 Turkish code of criminal procedures is related with external examination and autopsy; but there is no explanation about re-autopsies. In the 4th sub-article of Law no. 87, it says "*A buried body may be exhumed to observe or to perform an autopsy. The decisions about these procedures are made by the public prosecutors during the investigation period and made by the court during the trial period. The decision of the exhumation should be declared to a relative; if the aim of the investigation will stay safe; if it is not too hard to reach him/her*" (10). The cases we presented were not exhumed but the difficulties that were encountered seem to be similar. In studies on autopsy procedures after exhumation, it was emphasized that as the time spent in the grave increases; the incidence of finding an evidence decreases; histopathology and toxicological examinations becomes harder; because of artifacts (11-13). It was reported that for 39, 7 % of exhumed cases in Trabzon and for 56, 9 % exhumed cases in Bursa the causes of death could not be defined. Besides all these difficulties; in gathering evidences; autopsy procedures should certainly be performed either in case of exhumation or in case of a second autopsy. Even limited; it is possible to find important findings in both cases. Macroscopic pathologies may be seen as fractures and anomalies. Gök et. al reported a case of a single ventricle diagnosed during an autopsy of an exhumed body (14). In the second case we presented there was a linear fracture on right occipito-temporal region; but the brain was dissected and the effects of putrefaction were

present; so the detection of cerebral hemorrhage and its localization was not possible. Especially for the tissues resistant to putrefaction; histopathology were reported to be helpful as in the myocardial necrosis (15-16). By the toxicological examinations; the detection of chemicals as heavy metals, barbiturates, organic phosphates were reported (17). The results of histopathology of skin samples for our second case were in compliance with the electrocution; the problem with that case was elucidation of the death cause since there was no information about the first autopsy procedure, about the results of toxicological or pathologic examinations and about the legal investigation. Actually making the decision of death cause for such cases - as our second case- in routine practices also; when there is no additional document or information about the legal investigations; is not very easy.

Another fact about these re-autopsies is the question; that if it will be possible to perform these autopsy procedures within the frame of the "Expert Opinion". Within the 6th sub-article of law no.67 of criminal court law titled as "Expert Report, Expert Opinion" it is stated that "*Public prosecutor, constituent, attorney, suspected, counselor, legal representative may offer for scientific consideration from an expert about the trial issue in preparing export reports or about the interpretation of export reports and no additional time is allowed* "(10) Autopsy procedures are expert examinations. Actually the re-autopsy procedures for the cases autopsied and investigated by an expert before might be considered within the frame of "Expert Opinion". In practice these re-autopsy procedures are done by Council of Forensic Medicine and by its related directorates. In case of an offer for scientific consideration from an expert without a re-autopsy; the findings of first autopsy procedure, toxicological and pathologic examination results and the information about legal investigation should be provided and if a re-autopsy procedure is also a necessity; proper conditions and a proper place for re-autopsy procedures should also be provided. The expert should be invited to that proper place together with formerly mentioned information. In our cases re-autopsies were performed in the same way as the routine autopsy procedures. In practice; expert opinions are given by joining the autopsy procedure - performed by the official experts - as an observer and then interpreting the prepared autopsy reports by adding also opinions. It is thought that popularizing this detailed form of autopsy may increase the quality of autopsies. A standard international protocol is a necessity for re-autopsies in different countries; but in practice another fact that should be emphasized is the effective information sharing. It is concluded that in case of a re-autopsy a detailed report about the first autopsy, histopathology, toxicology and any information available is very important and establishing information sharing network at least for these cases is an international necessity.

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The Bulletin of Legal Medicine, 2020; 25(3): 250-253

The Bulletin of Legal Medicine
Adli Tıp Bülteni

CASE REPORT

A Rare Case of Congenital Pericardial Cyst Detected Postmortem

Berk Gün, Cemil Çelik*, Gözde Yeşiltepe, Esra Gürlek Olgun, Mehmet Tokdemir

Abstract:

Congenital pericardial cysts are very rare and often found incidentally in many cases, however they can rarely cause life-threatening symptoms. We aimed to discuss on death the effect of the pericardial cyst and fatty changes in the atrioventricular (AV) node that were detected in the autopsy of a 23-year-old postpartum female.

In documents; it was written that the woman who was breastfeeding had been suffering from chest pain for some time. In autopsy; an oval, unilocular, cystic structure with a size of 7.5x7.5x4 cm adjacent to the upper lobe of the left lung, hanging on the outer surface of the pericardium was found. In the histopathological examination; fatty changes were observed in the AV node.

In our case, complications that occured after the space-occupying effect of the cyst in the mediastinum, such as arrhythmia, right ventricular outflow tract obstruction, cardiac compression, and changes due to fatty AV node were evaluated.

Keywords: Pericardial Cyst, Postmortem, Sudden Cardiac Death, Fatyy AV node.

Öz:

Konjenital perikardiyal kistler çok nadirdir ve birçok vakada tesadüfen saptanmasına karşın nadiren yaşamı tehdit edici semptomlara neden olabilir. 23 yaşındaki postpartum dönemdeki kadın olgunun yapılan otopsisinde saptanan perikardiyal kistin ve atrioventriküler (AV) nodda yağlanmaya bağlı değişikliklerin kişinin ölümü üzerindeki etkisini tartışmayı amaçladık.

Adli tahkikatta; emzirme döneminde olan kadının bir süredir göğüs ağrısı şikâyeti olduğu yazılıydı. Yapılan otopsisinde; perikardın dış yüzüne asılı halde, sol akciğer üst loba komşu 7,5x7,5x4 cm boyutunda, oval yapıda, unilokuler, intakt, içerisinde berrak sıvı bulunan kistik yapı görüldü. Histopatolojik incelemede; AV nodda yağlanmaya bağlı değişiklikler izlendi.

Olgumuzda mediastendeki kistin yer kaplayıcı etkisi sonrası gelişen aritmi, sağ ventrikül çıkış yolu tıkanıklığı, kardiyak bası gibi komplikasyonların ve AV nodda yağlanmaya bağlı değişikliklerin ölümüne sebebiyet verdiği değerlendirildi.

Anahtar Kelimeler: Perikardiyal Kist, Postmortem, Ani Kardiyak Ölüm, AV Nodda Yağlanma

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1. Introduction

Congenital anomalies of the pericardium are a rare group of diseases including congenital absence of pericardium, pericardial cyst and diverticulum. These congenital defects result from changes in embryological formation and the structure of the pericardium (1,2). Congenital pericardial cysts are rare benign congenital mediastinal lesions and their incidence is 7% among all mediastinal masses (1). Congenital pericardial cysts are congenital encapsulated cysts originating from pericardium in early developmental phases and they are not in contact with the pericardial cavity (2).

Congenital pericardial cysts are very rare and often found incidentally in many cases, however they can rarely cause life-threatening symptoms. They do not show any clinical symptoms unless they reach large sizes. However, when they do, they become symptomatic due to infection and cyst rupture as a result of pressure on cardiac structures (1, 2). They have also been shown to induce cardiac arrhythmias, including atrial fibrillation and ventricular tachycardia (3, 4).

We aimed to discuss the effect of the pericardial cyst and fatty changes in the atrioventricular (AV) node that were detected in the autopsy of a 23-year-old postpartum female patient who was found dead in her house and sent to our headquarters for the determination of the exact cause of death.

Ethical Declaration

Permission was obtained from The Council of Forensic Medicine with the date 05.03.2019 and number 21589509/2019/129 and Helsinki Declaration rules were followed to conduct this study.

2. Case Report

Forensic investigation, autopsy findings, histopathological examination findings, and systematic toxicological analysis results of a 23-year-old woman who was sent to the Forensic Medicine Headquarters Izmir Group Directorate Morgue Specialization Department were examined. Permission was obtained from The Council of Forensic Medicine with the date 05.03.2019 and number 21589509/2019/129 and Helsinki Declaration rules were followed to conduct this study.

In the forensic medical history obtained from the husband; it was stated that the woman was married to her husband for five years and they had two children. He woke up hearing the crying of their five-month-old baby and he went to wake his wife who was sleeping together in a separate room with the children. He found her lying in the prone position with a whitened face and a wet pillow before taking her to the hospital and then finding out that she was dead. She had been breastfeeding and on birth control. She had been suffering from chest pain for some time and weakness due to upper respiratory tract infection for about a week. She did not have a history of chronic disease or a heart condition.

In the external body examination, no abnormal examination findings and acute traumatic lesions were observed except for postmortem changes. When the head, neck and abdomen were opened and examined, no macroscopic pathological features were observed.

When the chest cavity was opened, it was observed that there was a 7,5x7,5x4 centimeter (cm) cystic sac hanging from the posterolateral aspect of the pericardial sac, adjacent to the medial surface of the upper lobe of the left lung (Figs. 1, 2), and the left lung was attached to the diaphragm. It was observed that there was a rudimentary, closed hole on the parietal leaf of the serous layer where the sac was held on the pericardium. The cyst was intact with clear fluid inside, hanging on the outer surface of the pericardium, and was not related to the pericardial space. Minimal petechial subepicardial bleeding was observed on the external surface of the heart. Heart morphology and branching of the main vessels emerging from the heart were normal. The heart weighed at 295 grams. The endocardium of the heart was in its normal appearance. No macroscopic pathological feature was observed in the aorta lumen, in the large vessels entering and exiting the heart. Aortic valve perimeter length was 6 cm, mitral valve perimeter was 10.2 cm, tricuspid valve perimeter was 13.5 cm, pulmonary valve perimeter was 7.7 cm, left ventricular wall thickness was 1.4 cm. Right ventricular wall thickness was measured as 0.3 cm. No traumatic lesions or any other macroscopic pathological features were detected in the chest area. The pouch was cut out from the junctional area with the pericardial membrane, and sampled as a whole for histopathological examination.

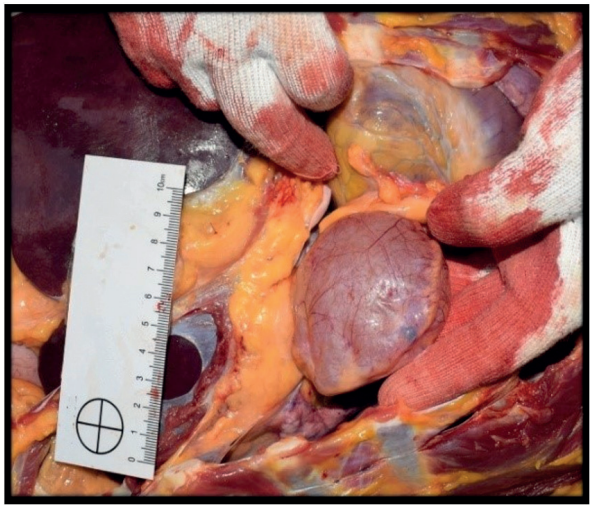

Figure 1. Cystic pouch on the pericardial external surface

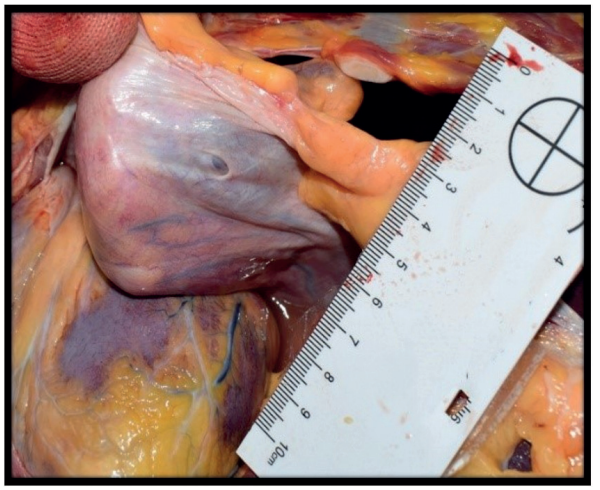

Figure 2. Cystic pouch on the pericardial external surface

In the report prepared as a result of searching for toxic substances registered in the library of our Chemistry Department, no drugs, stimulants and other substances were detected. In the report of our Histopathology Department, a pericardial cyst (Figure 3) was detected, in the cut sections of the heart's conduction system fatty changes were observed in the atriventricular (AV) node (Figure 4), a small follicular bronchiolitis focus was seen in the lung tissue, and also intraalveolar bleeding areas and edema were detected.

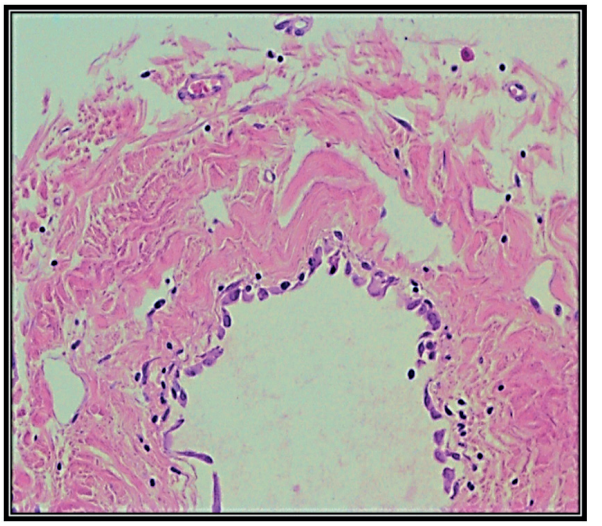

Figure 3. Cystic structure rich in collagen and elastic fibers, the wall of which is lined with single-row mesothelial cells (H&E Stain x 10)

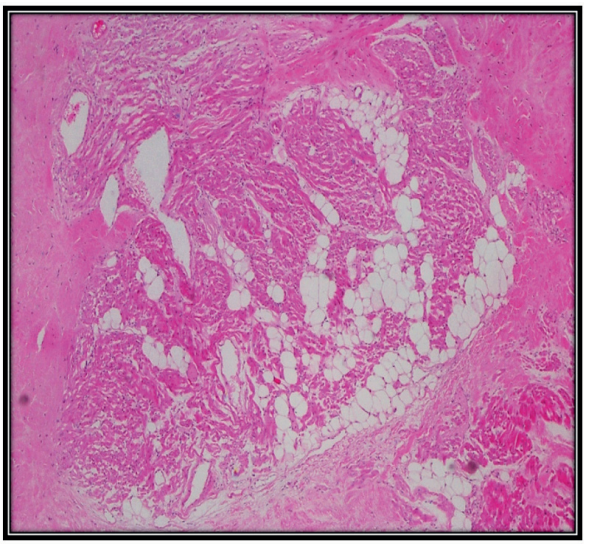

Figure 4. Fatty changes in the AV node (H&E Stain x 4)

There was no traumatic lesion causing death in the case, and no toxic substance was found in the toxicological analysis. There was a cystic structure in the mediastinum which was big enough to affect the heart's movements, the fatty changes in the AV node, and edema in the lung which all resulted in the conclusion that the death occurred as a result of the existing heart disease.

3. Discussion

Although cysts are generally asymptomatic, the most common symptom of cysts that reach large sizes is chest pain or pressure in the retrosternal area, dyspnea and cough. Pericardial cyst-related complications such as cyst rupture, cardiac compression, cardiac tamponade, right ventricular outflow tract obstruction, partial erosion in adjacent structures, congestive heart failure and even sudden death after causing fatal arrhythmias such as atrial fibrillation and ventricular fibrillation have been reported in the literature (3-6).

Hekmat et al. stated in their study that the pericardial cyst that they encountered, which was 13x8x5 cm in size, was one of the largest cysts in the literature (7). In a study presented by White et al., it was reported that a 38-year-old male patient presented with exertional syncope, atypical chest pain, sinus bradycardia, non-orthostatic hypotension, and a pericardial cyst with a diameter of 8.6x3.5 cm was detected (8). Therefore it can be said that the cyst with the size of 7,5x7,5x4 cm in this case, which has similar dimensions with the case presented by White et al., is also large in size and may cause complications.

In studies investigating how the presence of adipose tissue in the heart affects the onset of arrhythmias; it is stated that adipocytes may affect the electrical properties of myocytes. It has been demonstrated that adipose tissue is a contributing factor to cardiac arrhythmias (9, 10). Significant correlations have been shown between adiposine filters and arrhythmia (8, 11). Similar to the case in the study of Ley et al. (3), in our case, the pericardial cyst may have caused a fatal arrhythmia that caused sudden death after the it squeezed the atrium. In our case, the cyst may also have triggered a fatal arrhythmia due to lubrication changes in the AV node.

In this case, it was assessed that the effects of the large cyst on contraction functions developed due to the space-occupying effect, and the changes in the AV node due to lubrication, and the effects of the cyst on the conduction system of the heart, caused the death. Although it is reported in the literature that pericardial cysts often progress asymptomatically, it should be considered during autopsy that it may cause death.

In conclusion, it can be said that when there is a pericardial cyst found incidentally or after it presented with symptom, it would be beneficial for such cases to have a close follow-up, or to consider the surgical treatment option if it reaches large dimensions.

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The Bulletin of Legal Medicine
Adli Tıp Bülteni

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