ORIGINAL ARTICLE

# EVALUATION OF ELDERLY CASES WITH NON-FATAL TRAUMATIC INJURIES

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## Abstract

**Introduction:** As the global population ages, there has been a concomitant increase in the number of geriatric forensic trauma cases.This study aims to determine the causes of trauma, sociodemographic and injury characteristics of elderlyforensic cases with non-fatal traumatic injuries.

**Materials and Method:** In the study, 201 geriatric cases were examinedretrospectively. The cases were reviewed in terms of variables such as gender, age group, incident origin, cause of the incident, medical diagnosis, body part injured, type of fractured bone (if any), whether they were treated as inpatients, length of hospital stay (if any), severity of injury, and injury severity score.

**Results:** Out of the patients,73.1% (n=147) of the cases were male and 26.9% (n=54) were female. The cases were most frequently in the 65-74 age group with a rate of 77.6% (n=156). It was determined that 55.7% of the cases were traumatized by intentional incidents. Battery was the most common with 105 cases (52.2%). Bone fractures ($p<.001$, Cramer's V: .452) and hospitalizations ($p<.001$, Cramer's V: .444) were more common in accidental injuries. Additionally, the injury severity score was higher for accidental injuries (d: 0.63, $t(91.5) = -4.3$, $p<0.001$).

**Conclusion:** Morbidity and mortality rates can be reduced by implementing measures to make social living spaces safer and more suitable for the geriatric population. This includes optimizing ergonomic conditions in the home and providing essential training for all individuals on how to assist the elderly in traffic, such as being cautious and allowing elderly pedestrians to cross the road safely.

***Keywords:*** Geriatrics; Wounds and Injuries; Forensic Medicine; Accidents.

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## INTRODUCTION

Old age is a natural stage of human life,marked by physiological and psychological changes that must be considered within a sociocultural framework. Chronologically, old age is defined as beginning at 65 years of age. In the field of geriatric health and disease, individuals aged 65–74 are classified as the "young-old," those aged 75–84 as the "middle-old," and those aged 85 and over as the "oldest-old" (1).

According to the Turkish Statistical Institute (TurkStat), the population aged 65 and older in Turkey was 6,651,503 in 2016, increasing by 24.0% over five years to reach 8,245,124 in 2021. The proportion of elderly individuals within the total population rose from 8.3% in 2016 to 9.7% in 2021. In 2021, 44.3% of the elderly population in Turkey were male, while 55.7% were female. Population projections suggest that the proportion of elderly individuals is expected to double over the next 50 years. Globally, 9.8% of the population was classified as elderly in 2021, placing Turkey at a median level with 9.7%(2).

Advancements in modern medicine and healthcare services, along with improved living conditions and increased life expectancy, have led to a growing number of geriatric trauma cases(1,3). Compared to younger individuals with similar injuries, elderly patients experience higher rates of mortality, morbidity, hospitalization, and complications(3-7).

In cases where bodily integrity is violated—whether intentionally, negligently, or by omission—legal proceedings are initiated against those responsible.Forensic cases include all types of trauma caused by external factors that may result in injury or death, such as assaults, traffic accidents, falls, firearm injuries, and stab wounds.In addition to providing medical care, physicians have a legal duty to recognize and report forensic cases, inform judicial authorities, and prepare detailed forensic reports(8).

This study aims to evaluate the characteristics and trends of non-fatal trauma among the geriatric population in a Turkish sample and to identify preventive strategies to reduce trauma risk in elderly individuals.

## MATERIALS AND METHOD

### Sampling, setting, and procedure of the study

This study initially examined the cases of elderly individuals who underwent medicolegal evaluation due to judicial proceedings between January 1, 2017, and September 1, 2021,at the Forensic Medicine Outpatient Clinic of Adiyaman Training and Research Hospital,located in the southeastern region of Türkiye.Our clinic evaluates only those cases that have been officially classified as forensic by judicial authorities.A retrospective analysis was conducted of the forensic medical reports of 201 cases who had suffered forensic trauma, as well as their electronic medical data within the hospital system. Reports that were limited to a specific subject, preliminary in nature and lacking sufficient medical information, or missing relevant study data were excluded from the study.

The cases were reviewed in terms of variables such asgender, age at the time of the incident, age group, date of the incident (month and season), cause of injury (type of incident), origin of the incident, medical diagnosis, injured body site, presence of bone fractures, type of fractured bone (if any), whether inpatient treatment was received, length of hospital stay (if any), the clinic where inpatient treatment was received, whether consultations from any specialty were requested during treatment, type of treatment (conservative or surgical), severity of injury, and injury severity score (ISS).

The cases were categorized into three groups: youngest-old age (65-74 years), middle-old age (75-84 years), and oldest-old age (85+ years). Following the evaluation of medical anamnesis,

forensic investigation documents, and medical records, the cause and origin of the incident were determined. The incident origin was analyzed as injuries caused by accidents and intentional. Injuries caused by battery, sharp objects, and firearms were categorized as intentional, while those resulting from traffic accidents, occupational incidents, and falls were considered accidental.A patient who was found to have injured themselves with a sharp object with suicidal intent was not included in the study. There was no case of intentional jumping from a height.Traffic accidents were analyzed as in-vehicle, motorcycle/bicycle, and out-of-vehicle accidents. An in-vehicle traffic accident (IVTA) involves the driver and all passengers in the vehicle, while an out-of-vehicle traffic accident (OVTA) involves pedestrians.

### Trauma severity assessment instrument

In trauma cases, the severity of trauma and mortality prediction are measured by scoring systems. These scoring systems require the assessment of physiological data, anatomical localization of the injury in the body, or a combination of both. Abbreviated Injury Scale (AIS) and injury severity score (ISS) are anatomical scoring systems. The AIS is a scale with scores from 1 (minor) to 6 (fatal) according to the severity of the wounds. When assessing ISS, the body is divided into six regions: head and neck, face, thorax, abdominal and pelvic organs, extremities/pelvic bones, and soft tissue/skin. ISS is obtained by summing the squares of the AIS scores of the three most severely injured regions. The score ranges between 1-75. An ISS score of 16 and above indicates a major trauma(4, 9, 10).In the study, the AIS and ISS trauma scoring systems were used to assess the injury score and severity of injury by grouping the cases according to the anatomical regions of the trauma.

### Statistical analyses

Categorical variables were presented as frequency and percentage, and descriptive statistics and continuous variables were presented as mean±standard deviation. Categorical variables were grouped, percentages were calculated, and Pearson's chi-square or Fisher's exact test was used to compare frequencies, as appropriate. In order to determine the difference between groups in multiple groups, post hoc analysis methods for the chi-square test and Bonferroni correction were applied. We calculated Cramer's V for categorical comparisons as measures of effect size. Strength of association was reported using Cramer's V. Cohen(11) suggested the following guidelines for interpreting Cramer's V; if df=1; Small>0.1, Medium (Moderate)>0.3, and Large>0.5. The Kolmogorov Smirnov test was used for normality in continuous variables ($p > 0.05$). Kurtosis - skewness values were also evaluated. In comparison of the mean values between the two groups, the independent samples t-test was used for the data showing normal distribution and the Mann Whitney U test was used for the data not showing normal distribution. All statistical analyses and tables were performed and created using SPSS 22 (IBM Corp, Armonk, NY). $P < 0.05$ was considered statistically significant in all analyses. The statistical relationship between the variables was examined.

### Ethical Statement

The privacy rights of human subjects were respected during the implementation of study by the authors. For the implementation of the study, ethical approval was obtained from the local Ethics Committee with the decision dated 09/21/2021 and numbered 2021/07-28.This study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

## RESULTS

During the study period, a total of 6,961 forensic traumatic cases were evaluated in our clinic, of

which 2.9% (n=201) were in the geriatric age group. An analysis of the distribution of geriatric cases by year of admission revealed an increasing trend from 2017 to 2019, peaking in 2019, followed by a subsequent decline (Figure 1). The geriatric age group included 2.8% of the male patients (n=5,201) and 3.1% of the female patients (n=1,760).

147 (73.1%) of the patients were male and 54 (26.9%) were female. Among the cases, the minimum age was 65 years, the maximum was 97 years, and the mean age was 71.0±5.6 years. Among the cases, 77.6% (n=156) were in the youngest-old age group (65-74 years), 19.4% (n=39) were in the middle-old age group (75-84 years) and 3.0% (n=6) were in the oldest-old age group (85+ years). The mean age was 71.2±5.7 years in male patients and 70.3±5.5 years in female patients, and the mean ages of both genders were similar (Z=-1.203, p=.229). The gender distribution of the age groups was similar (p=.798) (Table 1). Regarding the season, it was determined that geriatric traumas occurred most frequently in summer with 74 cases (36.8%), and most frequently in August with 30 cases (14.9%).

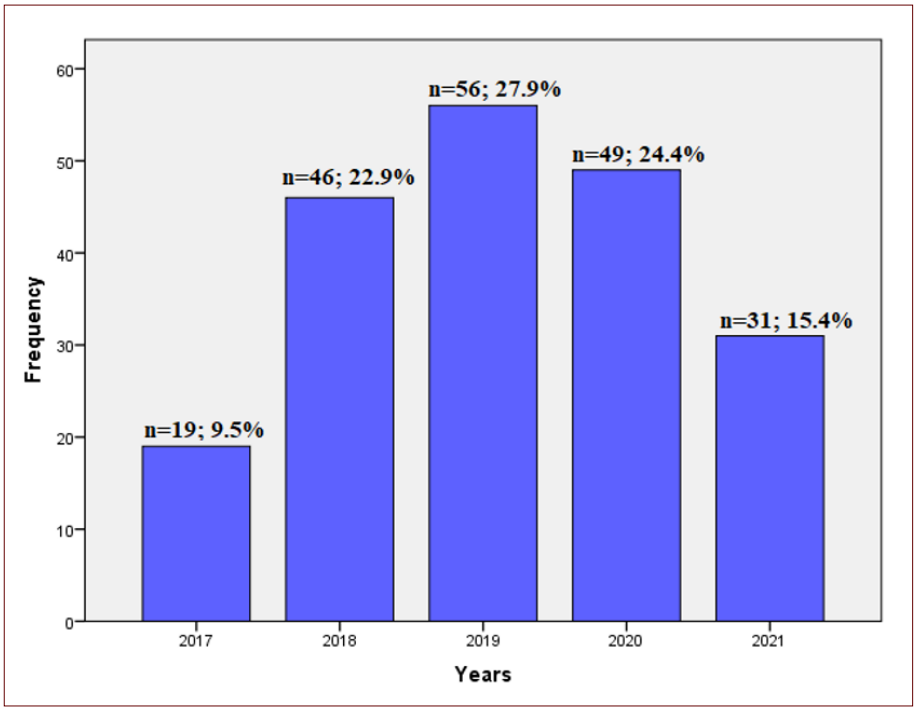


**Figure 1.** Distribution of cases by year.

*: Data from the first eight months of 2021 were incorporated into the study

**Table 1.** Distribution of the cases according to age groups and gender.

| | | Male[α] | Female[α] | Total[α] |
|---|---|---|---|---|
| Age Group | 65-74 | 113 (76.9%) | 43 (79.6%) | 156 (77.6%) |
| | 75-84 | 30 (20.4%) | 9 (16.7%) | 39 (19.4%) |
| | 85 and over | 4 (2.7%) | 2 (3.7%) | 6 (3.0%) |
| Total | | 147 (73.1%) | 54 (26.9%) | 201 (100.0%) |

[α]Percentages were calculated by column.

Regarding the type of the incident, battery was the most common type of incident with 105 cases (52.2%) (Table 2). An analysis of the incidents caused by traffic accidents (n=72) according to the type of occurrence revealed that 34 were IVTA, 28 were OVTA (Table 2). Fourteen cases (13.3%) were observed to be victims of domestic violence. 112 (55.7%) were injured by intentional acts and 89 (44.3%) were injured by accidental trauma. The distribution of the incident origin by gender was similar (p=.503)(Table 3). Moreover, the distribution of incident origin was found to be consistent across the years (p=.282).Due to the small number of cases, when the middle and oldest-old age periods were analyzed together, it was found that accidental incidents were more common in the advanced age group (middle and oldest-old age) ($\chi^2$: 2.988, SD: 1, p=.044, Cramer's V: .122) (Table 3). It was observed that intentional incidents were more likely to occur in warm seasons and accidents in cold seasons ($\chi^2$: 4.480, SD: 1, p=.034, Cramer's V: .149).

Among the medical diagnoses of the injuries, the most common diagnosis was skin/soft tissue trauma (n=114, 56.7%). The second most common one was only bone fracture(s) (n=54, 26.9%)(Table 4). Fourteen patients had skull fractures and/or intracranial trauma. Regarding the sites of injury, the

**Table 2.** Distribution of the cause of the incident according to age group

| | | Aged 65-74 | Aged 75-84 | Aged 85 + | Total |
|---|---|---|---|---|---|
| The cause of the incident | Battery | 85 (54.5%) | 18 (46.2%) | 2 (33.3%) | 105 (52.2%) |
| | IVTA | 29 (18.6%) | 5 (12.8%) | - (-) | 34 (16.9%) |
| | OVTA | 15 (9.6%) | 9 (23.1%) | 4 (66.7%) | 28 (13.9%) |
| | FFH | 8 (5.1%) | 3 (7.7%) | - (-) | 11 (5.5%) |
| | MA | 5 (3.2%) | 2 (5.1%) | - (-) | 7 (3.5%) |
| | OA | 5 (3.2%) | 1 (2.6%) | - (-) | 6 (3.0%) |
| | FI | 5 (3.2%) | - (-) | - (-) | 5 (2.5%) |
| | BA | 2 (1.3%) | 1 (2.6%) | - (-) | 3 (1.5%) |
| | SOI | 2 (1.3%) | - (-) | - (-) | 2 (1.0%) |
| Total | | 156 (77.6%) | 39 (19.4%) | 6 (3.0%) | 201 (100.0%) |

IVTA: In-vehicle traffic accidents, OVTA: Out-of-vehicle traffic accidents,FFH: Falling from a height, MA: Motorcycle accident, OA: Occupational accident, FI: Firearm injuries, BA: Bicycle accident, SOI: Sharp objectinjuries.

**Table 3.** Distribution of Non-accidental and Accidental Cases by Age Group and Gender.

| | | Non-accidental | | | Accidental | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Total* | Male | Female | Total* |
| Age Group α | 65-74 | 69 (75.0%) | 23 (25.0%) | 92 (82.1%) | 44 (68.8%) | 20 (31.2%) | 64 (71.9%) |
| | 75-84 | 15 (83.3%) | 3 (16.7%) | 18 (16.1%) | 15 (71.4%) | 6 (28.6%) | 21 (23.6%) |
| | 85 and over | - (-) | 2 (100.0%) | 2 (1.8%) | 4 (100.0%) | - (-) | 4 (4.5%) |
| Total | | 84 (75.0%) | 28 (25.0%) | 112 (55.7%) | 63 (70.8%) | 26 (29.2%) | 89 (44.3%) |

α: Percentages were calculated by line.

*:Percentages were calculated by column.

**Table 4.** Distribution of medical diagnoses of cases

| Medical diagnoses | n | % |
|---|---|---|
| **Skin/soft tissue trauma** | 114 | 56.7 |
| **Only bone fracture** | 54 | 26.8 |
| **Only skull fracture and/or intracranial trauma** | 12 | 6.0 |
| **Only intrathoracic trauma** | 11 | 5.5 |
| **Multiple trauma** | 3 | 1.5 |
| **Dental Injuries** | 2 | 1.0 |
| **Others*** | 5 | 2.5 |
| **Total** | 201 | 100.0 |

*: Other diagnoses were only intra-abdominal trauma, spinal cord injury, eye injury and amputations.

**Table 5.** Distribution of the cases according to injury regions.

| Injury Region | n | % |
|---|---|---|
| **Head/Face/Neck** | 62 | 30.8 |
| **Head/Face/Neck + Extremity/Pelvic** | 46 | 22.9 |
| **Extremity/Pelvic** | 45 | 22.4 |
| **Head/Face/Neck + Thorax + Extremity/Pelvic** | 10 | 5.0 |
| **Thorax** | 9 | 4.5 |
| **Head/Face/Neck + Thorax** | 7 | 3.5 |
| **Abdomen** | 7 | 3.5 |
| **Others** | 15 | 7.5 |
| **Total** | 201 | 100.0 |

most common site of injury was the head/neck/face with 131 cases (65.2%), followed by the extremities/pelvis with 113 cases (56.2%) (Table 5).

Eighty-one patients (40.3%) were observed to have a fracture/fractures in any part of their body. Out of 81 patients, 42 had single bone fractures and 39 had multiple bone fractures. 19 patients had rib fractures, 19 had fascial fractures, 15 had tibia/fibula fractures, 10 had vertebral fractures, and 9 had cranial fractures. Bone fractures were significantly more common in accidental injuries ($\chi^2$: 41.063, SD: 1, p<.001, Cramer's V: .452). The presence of bone fractures was similarly distributed according to age groups (p=.765).

148 patients (73.6%) were discharged after treatment in the emergency department, while 53 patients (26.4%) were hospitalized in a hospital clinic. Significantly higher rates of hospitalization were observed in accidental injuries (48.3%) compared to injuries caused by intentional action (8.9%) ($\chi^2$: 39.623, SD: 1, p<0.001, Cramer's V: .444). It was found that 58 cases were consulted to the Orthopedics clinics, and 38 cases were consulted to the Neurosurgery clinics. Inpatients (n=53) were most commonly treated in orthopedics (n=26, 49.1%) and neurosurgery (n=12, 22.6%) clinics. These patients were followed up in the hospitalized clinics for a minimum of 1 and a maximum of 70 days ($\bar{x}$=11.5±13.3). Conservative treatment was applied

in 170 cases (84.6%), and surgical and conservative treatment was combined in 31 cases (15.4%).

Regarding the injury severity score, 92.5% and 7.5% of the patients had minor and major injuries, respectively. Fisher's exact test showed a similar ratio of the severity of injuries in both genders (p=.237). The mean injury severity scores of both genders were found to be similar (p=.342). Accidental injuries (M=8.4) had a significantly higher injury severity score than intentional actions (M=1.9) (d: 0.63, t(91,5)=-4.3, p<0.001). The Chi-square test revealed that cases had a significantly higher rate of major injuries in accidental incidents (15.7%) compared to those resulting from intentional actions (.9%) ($\chi^2$: 15.810, SD: 1, p < 0.001, Cramer's V: .280).

## DISCUSSION

In Turkey and across the world, the elderly population is rapidly increasing. Therefore, it is crucial to identify the causes of forensic traumatic events in elderly individuals, determine the clinical characteristics of these cases, and implement necessary measures. As people age, they experience reductions in various functions such as perception, attention, mental and motor activity, vision, and hearing, along with slower reflexes and deterioration of the musculoskeletal system. These pathophysiological changes result in more frequent traumas among elderly individuals, leading to serious injuries and deaths(12).

In this study, 72.0% of the cases were male, aligning with findings from studies on geriatric forensic trauma cases in Turkey, which reported male prevalence rates between 68.9% and 69.2%(6, 13).This higher proportion of male cases in Turkey is often attributed to their greater participation in the workforce, daily social activities, and trafficexposure. In contrast, other studies conducted in Turkey, Italy, Trinidad and Tobago, Australia and Bolivia reported a higher prevalence of female patients(7,14-17). This discrepancy is attributed to these studies examining the general geriatric population, where the proportion of elderly women is higher globally. This discrepancy is likely due to the focus of these studies on the general geriatric population, in which the proportion of elderly women is globally higher.

The mean age of the patients was 71.0 years and the most common age group was 65-74 years, consistent with similar studies(1,9).It was attributed to several factors, including the greater mobility of individuals in the youngest-old age group and their more frequent participation in active lifestyles compared to other age groups. A study conducted in Italy reported that, although individuals aged 75–84 experienced the highest overall exposure to trauma, gender-based comparisons showed that women had a higher prevalence of trauma within this age group, while men were more frequently affected in the 65–74 age group (14).Inanother study conducted in Norway, the median age of geriatric patients was 76 years, higher than that of our study (3). These datamay be related to the different rates of the elderly population and life expectancy in different societies. Additionally, the economic and socio-cultural characteristics of societies may also influence the age variable in geriatric trauma cases.

In our study, it was observed that the number of geriatric trauma cases increased from 2017 to 2019, followed by a downward trend thereafter. In a study conducted by Can et al. in the Aegean region of Turkey, which investigated trauma patients presenting to the emergency department during the COVID-19 pandemic restriction period, a decrease in forensic cases and traffic accident-related admissions was reported, along with a marked reduction in geriatric trauma cases (18). Similarly, our study identified a downward trend in the number of cases during the COVID-19 restriction period in 2020 and 2021. It is considered that the decline in geriatric cases during the pandemic period may be attributed to the restrictions imposed on daily life activities.

In a study on geriatric forensic cases admitted to the emergency department, it was reported that

admissions decreased during the winter months and continued to increase from spring to the end of the summer season (6).Similarly, in our study, the number of cases was observed to be at the lowest level in the winter months and continued to increase in the spring and summer months. Concerns regarding illness and the increased risk of falls on icy surfaces may lead elderly individuals to avoid going outdoors during winter.Furthermore, a previous study conducted at the same center where our research was carried out found that forensic trauma cases presenting to emergency services were reported most frequently during the warmer months and least frequently during colder months, which is consistent with our findings (19).

In our study, it was found that the most common causes of injury were found to be battery and traffic accidents, respectively. These results are consistent with studies conducted in Turkey's Mediterranean, Marmaraand Eastern Anatolia regions (5,13,20). However, Guler et al. found that traffic accidents were the most common cause of injury in the Aegean region (1).In studies conducted in Turkey, Italy, Australia, Trinidad and Tobago, Bolivia, and Norway in which geriatric trauma cases were examined, it was reported that falls and traffic accidents were observed at the highest rates in the study samples, respectively (3,7,14-17). On the other hand, motor vehicle accidents, pedestrian accidents, and falls were found to be the most frequent forensic diagnoses in a study conducted inAnkara, the capital city of Turkey located in the Central Anatolia region (21). Elderly individuals' participation in daily life, the respect and appreciation they receive, compliance with traffic rules, traffic density, and the socioeconomic and sociocultural differences of societies may vary across regions and countries.Falls may be attributed to the individual's conditions such as dementia, diabetes, or hypertension, or their carelessness, and thus might not be considered forensic events due to the lack of intentional or accidental external influence from another person. Consequently, falls are often reported at lower rates in studies examining geriatric forensic cases. It was noted that there were fourteen cases of elder abuse among the cases of battery in our study. Elderly individuals are often subjected to physical abuse due to factors such as their dependence on others for care and chronic illnesses (6).Therefore, it is crucial for physicians to carefully examine elderly patients for signs of physical abuse.

The percentage of cases involving intentional actions (55.7%) in our study was similar to the study conducted by Sener and Kilinc (53.8%) but lower than the study conducted by Durak et al. (71.5%) (5,13). Elderly abuse rates are reported to be between 4%-10% in Canada and 15.4% in Turkey (5,22).Our study found a similar rate of 13.3% for elderly physical abuse. It has been reported that older individuals may suffer physical abuse from family or caregivers, emphasizing the necessity of detailed physical examinations during service visits (5).Our study's result that accidental events increase with age is consistent with a similar study (13). Accidents become more common with age due to deterioration in cognitive functions, the presence of chronic diseases, and decline in musculoskeletal functions.

In a study conducted in the Western Black Sea region of Turkey, which examined geriatric emergency department admissions before and after the COVID-19 pandemic, a similar ratio was identified between the periods in terms of the types of injuries (23). Additionally, no significant temporal differences were observed in the distribution of admissions due to traffic accidents, assaults, or firearm-related injuries (23). This study further demonstrated that the pattern of trauma origins among geriatric patients showed no significant variation over the years. This may be attributed to the relatively stable lifestyle patterns of geriatric individuals, who tend to spend more time at home, often live alone, and maintain routine daily habits,

along with reduced social contact during the pandemic period.

Studies examining geriatric trauma cases admitted to emergency departments in Turkey have found that soft tissue injuries are the most common trauma-related injuries among the elderly, followed by extremity fractures (16, 21). Similarly, studies on geriatric forensic trauma cases conducted in the Central Anatolia and Eastern Anatolia regions of Turkey have reported that the most common injuries are superficial injuries involving the skin and subcutaneous tissue (6, 13). Consistent with previous findings, the most frequent medical diagnoses in our study were soft tissue trauma and bone fractures. The majority of cases involved minor traumas, with superficial injuries being more common. Minor traumas are often associated with physical assault, while major traumas are more frequently linked to traffic accidents. Since elderly individuals are physically more vulnerable, perpetrators may prefer to use a minimal level of force to achieve intimidation or coercion. The primary intent of such violence is often not to cause fatal or severe injury, but rather to exert control, impose pressure, or inflict emotional harm.Traffic accidents cause high-energy trauma, resulting in a higher number of bone fractures, more major trauma, and longer hospital stays (13).Consistent with the literature, our study showed that duration of hospitalization, incidence of bone fractures, and injury severity scores were significantly higher for injuries resulting from accidents compared to intentional injuries. Notably, almost all cases of intentional injuries involved minor traumas.

The most commonly injured body areas were the head/neck and extremities, consistent with other studies (3,14,17,24).Additionally, the fact that most cases were treated in the orthopedics clinic aligns with previous studies (1,16).These body areas are expected to be more frequently injured due to their exposure to impact. In previous studies, similar to our study, the average duration of hospitalization of elderly individuals after trauma was 8 to 11.5 days (9,25,26). Physiological, metabolic, and pharmacodynamic changes with age negatively affect clinical prognosis (6). Therefore, a multidisciplinary approach to treating elderly trauma cases is considered more appropriate.

### Limitations and Advantages

Our study on elderly individuals with non-fatal traumatic injurieshad several limitations. First, we did not have information on comorbid conditions that could affect the morbidity of the participants. Second, there was a lack of data on the identity of the perpetrators and the degree of their relationship with the victims. Lastly, there are general limitations due to its retrospective design. The advantage of this study is that it examines forensic geriatric non-fatal trauma cases.

## CONCLUSION

Traumatic injuries in elderly individuals can cause significant physical, emotional, and financial damage to the person, their family, and the country. Geriatric forensic traumatic admissions continue to increase due to the growing elderly population in Turkey. Due to age-related pathophysiological changes, elderly individuals often experience higher rates of mortality and morbidity, longer hospital stays, and more complications compared to younger individuals with similar injuries. A multidisciplinary approach is more appropriate in the treatment of elderly trauma cases.

Healthcare professionals should be aware of the characteristics of elderly physical abuse and approach cases with caution. It is important to remember the legal and social responsibility of reporting forensic traumas to relevant authorities (police, prosecutors, etc.) to prevent repeated elderly abuse.Preventive measures are vital for preventable events such as traffic accidents, domestic accidents and falls from heights. It is

believed that morbidity and mortality rates can be reduced by implementing measures to make social living spaces safer and more suitable for the geriatric population. This includes optimizing ergonomic conditions in the home and providing essential training for all individuals on how to assist the elderly in traffic, such as being cautious and allowing elderly pedestrians to cross the road safely.

### Conflict of Interest

The authors state that there is no conflict of interest.

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