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Evaluation of female trauma cases applied to the forensic medicine polyclinic

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Abstract

The distribution of forensic incidents may vary by gender. With the increasing participation of women in social life in Türkiye, the number of women involved in forensic incidents, either as perpetrators or victims, has risen. This study aimed to analyze forensic traumatology reports for female cases in forensic medicine outpatient clinics to provide regional data. A retrospective analysis was conducted on 806 female cases residing in and around Adıyaman province who had received a forensic report due to trauma. The study encompassed various demographic and forensic clinical factors, including age, age group, the type of incident, origin of the incident (accident, suicide, intentional act), the presence of domestic violence, if any, the proximity of perpetrator, medical diagnosis, injury severity, injury severity score, and forensic report outcomes. In our study, the most common age group was 20-29 years (28.4%). Assault was the most frequent cause of injury (71.0%). Intentional injuries were more prevalent in the 20-29 age group, whereas accidental injuries were more common in the 0-9 age group ($p < .001$, Cramer's V: .482). Domestic violence was identified in 331 cases (41.1%). It was observed that life-threatening injuries were lower for assaults and higher for falls from height ($p < 0.001$, Cramer's V: .471). Injuries were found to be more severe in accidental incidents compared to intentional ones. Women were often victims of falls from height at a young age and domestic violence in young adulthood. To reduce violence against women, educational, psychological and economic support should be provided to individuals who are prone to violence. Additionally, psychosocial rehabilitation services should be made available to female victims of violence.

Keywords: Forensic medicine, women, domestic violence, assault, falls from height

Introduction

The most fundamental right of individuals—the right to inviolability and the right to protect and develop their material and moral existence—is legally guaranteed in Türkiye. In cases where bodily integrity is violated intentionally, accidentally, or negligently, judicial proceedings are initiated against the perpetrators [1-3]. Forensic events are defined as situations that may cause injury or death of individuals due to external factors such as assault, firearm injuries, sharp object injuries, traffic accidents, falls from height, or workplace accidents [1,4,5]. Medical professionals are responsible for identifying and assessing individuals exposed to traumatic events with forensic relevance. Additionally, they are legally obligated to report such cases to the relevant judicial authorities to initiate legal proceedings. Furthermore, they must prepare forensic reports in accordance with the Turkish Penal Code (TPC) [6], documenting and recording the medical condition of the individuals involved [7].

The distribution of forensic incidents is influenced by geographical factors, demographic structures, and sociocultural characteristics, and it also varies by gender [1,8]. In Türkiye, changes in gender roles and the increasing participation of women in social and economic life have led to a rise in the number of women both as perpetrators and victims of forensic cases. In recent years, there has been a continuous increase in the number of women obtaining driver's licenses and participating in the workforce [9].

In Turkish society, concerns about individual and family privacy, along with various economic and social factors, have contributed to the concealment of violence, thereby hindering a comprehensive understanding of its full extent. However, in recent years, increasing public awareness and the implementation of state policies aimed at developing protective mechanisms to prevent domestic violence against women have resulted in an increase in reports of such violence by women [10]. The

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'Report on Statistical Analysis of Domestic Violence Emergency Hotline Data for the Years 2007-2021', a collaborative study by the United Nations Population Fund and the Turkish Women's Associations Federation, provides a comprehensive analysis of domestic violence cases. The report reveals that 8 in 10 people who are subjected to violence are women and 90% of perpetrators are men. It identifies spouses as the primary perpetrators (63%), followed by other family members (21%) [11].

The objective of this study was to examine female forensic trauma cases admitted to the forensic medicine outpatient clinic. The study also aimed to analyze the collected data in comparison with similar studies and to contribute to the ongoing efforts of individuals and institutions working to prevent forensic incidents.

Material and Methods

Sampling, Setting, and Procedure of the Study

Forensic reports prepared for forensic traumatological events should have content that responds to Articles 86, 87, 89 of the TPC [3,6] (Turkish Penal Code, Law no: 5237, Article Number: 86,87,89, Accepted Date: 26.09.2004). In forensic medical practices in Türkiye, the guide [12] titled 'Assessment of Injury Crimes Defined in the Turkish Criminal Code in Terms of Forensic Medicine' serves as a standard reference. This guide systematically evaluates bodily injuries from a multidisciplinary perspective and establishes criteria in accordance with legal provisions. In the centre where this study was conducted, forensic reports were systematically prepared in accordance with this guideline.

Between January 1, 2020, and December 31, 2021, a total of 4,548 forensic cases were admitted to the Forensic Medicine Outpatient Clinic of Adıyaman Training and Research Hospital, of which 1,219 (26.8%) involved female patients. Among these cases, 806 (66.1%) involved forensic traumatology and were analyzed retrospectively. Reports that were limited to a specific subject, preliminary reports lacking sufficient medical information, or reports that did not include relevant study data were excluded from the analysis.

The cases were evaluated in terms of age, age group, date of the incident (month - season), type of the incident, origin of the incident (accident, suicide, intentional), the presence of domestic violence, if any, degree of closeness of the perpetrator, medical diagnosis, injured body region, whether inpatient treatment in any clinic, treatment method (conservative/surgical), injury severity score, severity of injury and forensic report results. The ages of the cases were analysed according to decades. Traffic accidents were categorised as in-vehicle traffic accidents (IVTA), non-vehicle traffic accidents (NVTa) and motorcycle accidents (MA). IVTA included the driver and all passengers in the vehicle, whereas NVTa included pedestrians. Abbreviated Injury Scale (AIS) and injury severity score (ISS) trauma scoring systems were used to evaluate the injured body region, general injury

score and injury severity data [13,14].

It was evaluated whether the injury was mild enough to be treated with a simple medical intervention (SMI), whether it caused life-threatening, permanent facial scar (PFS), bone fracture, permanent weakening (PW) or loss of functions (LF) of one of the senses or organs. In cases with bone fractures, the type and number of broken bone(s) and the degree effect of bone fractures on vital functions were recorded. Fractures, which play a significant role in forensic trauma assessment, were classified as mild (1), moderate (2–3), and severe (4–5–6) in accordance with relevant guide [12].

Trauma Severity Assessment Instruments

In trauma cases, the severity of trauma and mortality prediction can be 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 [14]. AIS and 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 [13,14].

In Türkiye, the assessment of injury severity in forensic traumatology cases within forensic medicine clinics is conducted using the guideline developed by Balcı et al., as previously mentioned [13]. This guideline was formulated through a collaborative effort by the Council of Forensic Medicine, the Association of Forensic Medicine Specialists, and the Forensic Medicine Association. It encompasses fracture scoring and injury severity assessments that take into account relevant articles of the TPC, and it has been developed based on anatomical and functional trauma scoring systems such as AIS and ISS [12,15].

Statistical Analyses

Frequencies and percentages of categorical variables were calculated and descriptive statistics were reported for continuous variables including means and standard deviations (eg. as mean $\pm$ standard deviation). The categorical variables were grouped, the percentages were calculated and then either Pearson's chi-square test or Fisher's test were used to compare frequencies as appropriate. In order to determine the difference between groups in multiple groups, post hoc analysis methods for the chisquare 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 [16] 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 ($p>.05$). Kurtosis - skewness values were also evaluated. For comparison of the mean values

between the two groups, the independent samples t-test was used for the data showing normal distribution. All statistical analyses and tables were produced using SPSS v22 (IBM Corp., 2013). Cases with a p value of <.05 were considered significant.

Ethical Statement

The privacy rights of human subjects were respected during the implementation of study by author. For the implementation of the study, ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Adıyaman University with the decision dated 10/25/2022 and numbered 2022/07-38. This study was performed in accordance with the ethical

standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

Results

The age range of the cases was from one month to 91 years, with a mean age of 30.9±15.5 years. The most common age group was 20-29 years, with 229 cases (28.4%), followed by 30-39 years, with 202 cases (25.1%) (Table 1). It was found that the highest number of forensic events occurred in summer with 231 cases, and the lowest number in winter with 176 cases. The highest number of cases was in September with 89 cases, and the lowest number in March with 41 cases (Figure 1).

Table 1. Distribution of the cause of the incident according to age group

The cause of the incident	Age group							Total n (%) ^a
	0-9 aged n (%)	10-19 aged n (%)	20-29 aged n (%)	30-39 aged n (%)	40-49 aged n (%)	50-59 aged n (%)	60+ aged n (%)	
Assault	8 (11.0)	63 (64.3)	194 (84.7)	166 (82.2)	79 (70.5)	39 (75.0)	23 (57.5)	572 (71.0)
IVTA	10 (13.7)	10 (10.2)	18 (7.9)	17 (8.4)	14 (12.5)	6 (11.5)	7 (17.5)	82(10.2)
FFH	32 (43.8)	6 (6.1)	1 (0.4)	2 (1.0)	4 (3.6)	3 (5.8)	2 (5.0)	50 (6.2)
OVRTA	14 (19.2)	12 (12.2)	5 (2.2)	4 (2.0)	5 (4.5)	2 (3.8)	5 (12.5)	47 (5.8)
MA	3 (4.1)	1 (1.0)	3 (1.3)	7 (3.5)	-	1 (1.9)	-	15 (1.9)
SOI	-	3 (3.1)	4 (1.7)	1 (0.5)	2 (1.8)	-	2 (5.0)	12 (1.5)
Burns	6 (8.2)	1 (1.0)	1 (0.4)	2 (1.0)	-	-	-	10 (1.2)
OA	-	-	2 (0.9)	-	4 (3.6)	-	-	6 (0.7)
FI	-	1 (1.0)	1 (0.4)	1 (0.5)	2 (1.8)	-	1 (2.5)	6 (0.7)
Others	-	1 (1.0)	-	2 (1.0)	2 (1.8)	1 (1.9)	-	6 (0.7)
Total ^b	73 (9.1)	98 (12.2)	229 (28.4)	202 (25.1)	112 (13.9)	52 (6.5)	40 (4.9)	806 (100.0)

^aPercentages were calculated by column, ^bPercentages were calculated by line, IVTA: in-vehicle traffic accidents, FFH: falling from height, OVRTA: out-of-vehicle traffic accidents, MA: motorcycle accident, SOI: sharp object injuries, OA: occupational accident, FI: firearm injuries

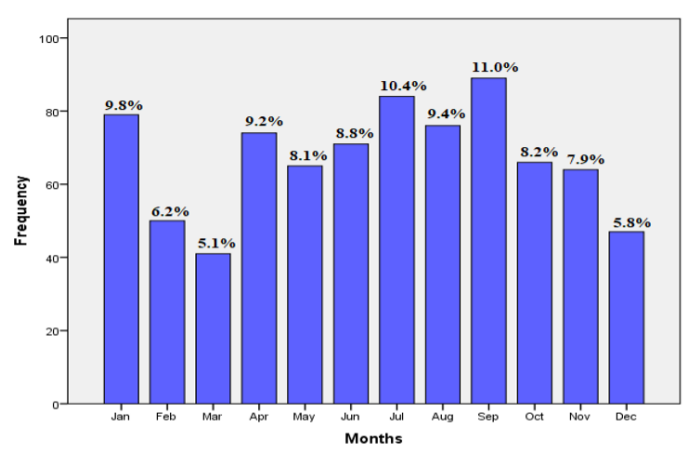


Figure 1. The monthly distribution of the cases

Assault was the predominant cause, accounting for 572 individuals (71.0%) (Table 1). Among the 145 cases (18.0%) related to traffic accidents, it was determined that 82 of the cases were involved in IVTA, 47 in NVTA, and 15 in MA. It was found that 73.1% (n=589) of the cases resulted from

intentional acts, while 25.9% (n=209) were due to accidents. Only five cases were observed to have exhibited self-injurious violent behaviour. Intentional acts were more prevalent among individuals aged 20–29, whereas accidental injuries were more common among those aged 0–9 ($\chi^2=185.091$, $df=7$, $p<.001$, Cramer's $V=.482$). Due to the limited number of cases in older age groups, individuals aged 50 years and above were grouped together, resulting in a total of six age groups being analyzed. In the 0–9 age group, the incidence of falls from height (FFH) was found to be higher, while the incidence of physical assault was lower ($\chi^2=287.433$, $df=20$, $p<.001$, Cramer's $V=.299$).

A total of 331 cases (41.1%) were identified as victims of domestic violence (Table 2), with 323 of these cases involving assault. Five patients had sustained lacerations caused by sharp objects. Further analysis of domestic violence by age group revealed that young adults aged 20–29 years constituted the most affected demographic ($\chi^2=88.470$, $df=7$, $p<.001$, Cramer's $V=.331$) (Table 2). Additionally, in 243 cases (73.4%), the perpetrator was identified as the victim's spouse (Table 3).

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

Domestic violence	Age group							Total n (%)
	0-9 aged n (%)	10-19 aged n (%)	20-29 aged n (%)	30-39 aged n (%)	40-49 aged n (%)	50-59 aged n (%)	60+ aged n (%)	
Present	4 (1.2)	27 (8.2)	126 (38.1)	107 (32.3)	45 (13.6)	15 (4.5)	7 (2.1)	331 (41.1)
Absent	69 (14.5)	71 (14.9)	103 (21.7)	95 (20.0)	67 (14.1)	37 (7.8)	33 (17.5)	475 (58.9)
Total *	73 (9.1)	98 (12.2)	229 (28.4)	202 (25.1)	112 (13.9)	52 (6.5)	40 (4.9)	806 (100.0)

*Percentages were calculated by line; Pearson's chi-squared test was performed (χ^2 : 88,470, df: 7, $p<.001$, Cramer's V: .331)

Table 3. Distribution of injuries that cannot be treated with simple medical intervention

Relationship with the victim	n	%
Spouse	243	73.4
Father	21	6.3
Brother	18	5.4
Sister	10	3.0
Son	8	2.4
Boyfriend	4	1.2
Mother	4	1.2
Unknown	13	4.0
Others	10	3.0
Total	331	100.0

An analysis of the forensic reports revealed that injuries were not life-threatening in 759 cases (94.2%), while they were life-threatening in 47 cases (5.8%). Among the life-threatening injuries, the most common cause was isolated cranial bone fracture (n=11) (Table 4). In terms of the body regions affected, 55.3% (n=26) of life-threatening cases involved head injuries only, and 19.1% (n=9) involved chest injuries only. To assess statistical significance, the cases were categorized into five groups based on frequency: assault, IVTA, NVTA, FFH and other causes. Chi-square post hoc analysis with Bonferroni correction indicated that assault-related injuries were significantly less likely to be life-threatening (0.2%), whereas FFH was significantly more likely to result in life-threatening conditions (40.0%) ($\chi^2=179.109$, $df=4$, $p<.001$, Cramer's V=.471).

Table 4. Distribution of life-threatening diagnoses

Medical diagnoses	n	%
CBF	11	23.4
IAOI	5	10,6
CBF+ICH	5	10,6
CBF+ICH+CI	4	8,5
CBF+CI	4	8,5
Hx/Hpx/Px	4	8,5
LI	3	6.4
Hx/Hpx/Px + LI	2	4.3
Others	9	19.2

In 21.1% (n=170) of cases, the injury was not mild enough to be treated with SMI, whereas in 78.9% (n=636) of cases, the injury was mild enough to be treated with SMI. The most common reason for the injury not being mild enough to be treated with SMI was bone fracture(s), observed in 93 cases (54.7%) (Table 5).

Table 5. Distribution of injuries that cannot be treated with simple medical intervention

Medical diagnoses	n	%
Bone fracture	93	54.7
Bone fracture + life-threatening injuries	27	15,9
Life-threatening injuries	20	11,8
Burns	7	4,1
Ligament / muscle / tendon injuries	7	4,1
Skin/subcutaneous injury	5	2,9
Dental injuries	3	1.8
Others	8	4.7
Total	170	100.0

It was determined that 17.1% of the cases (n=138) had fractures in any part of the body. When the fractures evaluated, it was found that the most common injury was moderate (2), accounting for 29.0% of cases. Multiple bone fractures were observed in 41 cases (29.7%), while single bone fractures occurred in 97 cases (70.3%). In the study, 22 patients had nasal fractures, and 21 had forearm fractures.

When considering whether the injury caused a permanent facial scar (PFS) on the person's face, it was found that in 90.8% of cases (n=732) the event did not cause a PFS, in 8.9% of cases (n=72) it was appropriate to assess six months later (wound healing process) and in 0.2% of cases (n=2) the PFS was present. In 89.7% (n=723) of cases, there was no PW or LF in any of the senses and organs. Four cases were found to have LF and one case was found to have PW.

Among the medical diagnoses of injury, isolated skin/soft tissue trauma was the most common, observed in 651 cases (80.8%). Nine cases were found to have skull fracture and intracranial trauma. When analysing the site of injury, 224 cases (27.8%) presented with isolated extremity/pelvic bone trauma, 114 cases (14.1%) with isolated facial trauma, 94 cases (11.7%) with combined facial and extremity/pelvic bone trauma, and 84 cases (10.4%) with isolated head/neck trauma. It was observed that 87.1% of patients (n=702) were discharged following treatment

in the emergency department, while 12.9% (n=104) required hospitalization. A combination of surgical and conservative treatment was used in 41 cases (5.1%). The ISS ranged from 1 to 75 points, with a mean of 2.9 ± 6.8 points. The mean ISS for intentional injuries was 1.7 ± 1.9 , while it was significantly higher for accidental injuries at 6.3 ± 12.4 ($t(211.5) = -5.2$, $d = 0.51$, $p < 0.001$). According to the ISS classification, 97.6% of cases were categorized as minor injuries and 2.4% as major injuries.

Accidental injuries were significantly more likely to be associated with life-threatening conditions ($\chi^2 = 107.062$, $df = 1$, $p < 0.001$, Cramer's $V = .366$), bone fractures ($\chi^2 = 193.304$, $df = 1$, $p < 0.001$, Cramer's $V = .492$), inpatient admission ($\chi^2 = 204.380$, $df = 1$, $p < 0.001$, Cramer's $V = .506$), and surgical treatment ($\chi^2 = 49.215$, $df = 1$, $p < 0.001$, Cramer's $V = .248$). When Fisher's exact test was applied, it was found that the rate of major injuries was higher for accidental (8.1%) than for intentional (0.3%) ($\chi^2 = 40.322$, $df = 1$, $p < 0.001$, Cramer's $V = .225$). These findings indicate that accidental injuries tend to be more severe than intentional injuries.

Discussion

The presence of women in daily and social life is increasing day by day. The proportion of women in various public domains, such as employment, education, sports, art, traffic and politics is increasing both globally and in Türkiye [9]. This study aimed to obtain forensic traumatological data on women in our region, thereby contributing to efforts to prevent judicial incidents.

When the studies examining forensic cases admitted to forensic medicine outpatient clinics in Türkiye were analysed, it was found that the proportion of female cases ranges from 23.2% to 30.6% in studies conducted in Manisa, Sivas and Izmir, which aligns with the findings of our study (26.8%) [4,17,18]. In studies conducted in Pakistan and Nepal in which forensic medical cases were analysed, the proportion of female cases was 15.7% and 21.1%, respectively, which was lower than in the studies conducted in Türkiye [1,19]. In forensic reports prepared in 2017-2018 at the centre where this study was conducted, the rate of female cases was found to be 23.9%, with a consistent increase over time, as also reported in the literature [3]. According to data from the Turkish Statistical Institute entitled 'Women in Statistics', the employment rate of women in Türkiye was approximately 30% in 2020 and 2021, while this rate was nearly twice as high for men [20,21]. It is believed that forensic traumatic events are more prevalent among males due to their greater involvement in social and occupational settings, as well as their higher likelihood of encountering externalizing challenges such as violence, aggression, and substance abuse.

The mean age of the cases was 30.9 years, which is consistent with similar studies [3,4]. In a study conducted in Malatya analyzing female forensic cases, the mean age of the cases was 27.3 years and the most common age group was 0-9 years [9]. This phenomenon is attributed to the high number of fall and intoxication cases. In a study [4] conducted in Manisa, it was documented that the majority of cases were observed within the

10-19 years. This observation can be attributed to the referral of cases for assessment of both physical and mental health due to sexual abuse [4]. A study conducted in Malatya analyzing female forensic cases admitted to the emergency department emphasized that women most frequently experienced physical violence in the 20-39 age group [9]. Similarly, a study conducted in Brazil reported that most female victims of domestic violence were between 18 and 39 years old [22]. In our study, the high number of violence-related cases contributed to a higher prevalence among women in the 20-29 age group.

Studies conducted in different regions of Türkiye indicate that the distribution of forensic cases varies by season and month [2,17,18,23]. It was considered that the occurrence periods of forensic cases might vary regionally due to tourism, industry, and agricultural activities. A study conducted in Adiyaman reported that forensic reports were most frequently issued in November and December, predominantly in the autumn season [3]. The first COVID-19 case in Türkiye was officially reported on March 11, 2020 [24]. In our study, the lowest number of applications was observed during the winter season and in March, which was attributed to the pandemic-related measures that led individuals to spend more time at home during these periods.

The leading causes of forensic incidents involving women in our study were physical assault and traffic accidents, which aligns with findings from a study conducted by Çakır et al. in Izmir [17]. Lewis et al. reported that trauma exposure is common among young individuals, with estimates suggesting that 15%–82.5% experience at least one traumatic event in their lifetime [25]. In a study examining emergency department cases in India related to physical violence, factors such as intimate partner violence, heated arguments among university students, injuries during theft, and the widespread consumption of alcohol were identified as risk factors [26]. In the study examining female forensic cases conducted in Manisa, traffic accidents were reported as the most common type of incident, followed by assault [4]. In our study, the high prevalence of domestic violence against women contributed to the significant number of physical assault cases.

One subcategory of violence, domestic violence, primarily affects women, with the perpetrators most often being their spouses or intimate partners [27]. Due to differences in physical strength and sociocultural gender norms, men often perceive themselves as having control over women's lifestyles, behaviors, and social activities, which can lead to domestic violence. Various social, cultural, economic, legal, educational, and traditional factors influence the occurrence and prevalence of domestic violence [10]. Studies conducted in Türkiye's Aegean region report that 18.6%–23.9% of cases involved domestic or partner violence [4,17]. A study conducted in Adiyaman before the COVID-19 pandemic, which examined risk factors for domestic violence and psychological distress among victimized women, found that 34.5% of women over the age of 18 had experienced physical violence, with 85% of these cases involving intimate partner violence [28]. In contrast, our study, conducted during the pandemic, found a higher proportion (41.1%) of women who

were victims of domestic violence. Consistent with the literature, intimate partners were identified as the primary perpetrators of violence. As a result of restrictions imposed during pandemics, it has been stated that the prolonged cohabitation of potential perpetrators and victims in isolated environments, such as homes, predisposes individuals to domestic violence and leads to an increased frequency of domestic violence incidents [29]. Based on the data obtained from our study, it was considered that home isolation during the pandemic may have contributed to an increase in domestic violence incidents. However, various factors such as sociocultural dynamics, education, and economic conditions were also thought to influence the frequency of domestic violence. Additionally, the number of domestic violence cases identified in our study may be underreported due to cultural and social pressures.

Studies on forensic cases indicate that victims of physical assault are most commonly attacked with fists and kicks, suggesting that such attacks are more likely impulsive rather than premeditated [30,31]. Similarly, in our study, most victims of physical assault sustained blunt force trauma.

A study examining forensic cases involving children reported that poisoning and accidental injuries were more common among younger age groups [32]. Another study conducted in Adıyaman found that injuries due to accidents were more prevalent during childhood and old age, while intentional injuries were more common in adulthood [3]. Our findings were consistent with these studies, as intentional injuries were more frequent among individuals aged 20–29, while accidental injuries were more common among children aged 0–9. It was considered that families should pay close attention to the supervision of young children when they are pedestrians in traffic and take necessary protective measures to prevent falls from heights in risky areas such as windows, balconies, and stairs. Additionally, reducing intentional injuries among young adults may be possible through educational, psychological, and economic support programs.

Studies on forensic cases involving women in Türkiye report that the proportion of life-threatening injuries ranges from 11.2% to 19.3% [4,9]. Although our study found a lower rate (5.8%), this discrepancy may be due to differences in case inclusion criteria, as the aforementioned studies included intoxication cases. In a study by Çakır and Şenol, life-threatening injuries were identified in 2.4% of forensic cases, and it was noted that injuries in cases of violence against women were generally not life-threatening [17]. Tıraşçı et al. found that life-threatening injuries were more commonly associated with electrocution, falls from a height, and sharp object trauma, whereas lower rates were observed in cases of poisoning and assault [23]. In our study, the low incidence of life-threatening injuries in assault cases and the high incidence in falls from height were consistent with previous studies. Saydan reported that most injuries among female forensic cases were minor trauma, treatable with simple medical interventions, and did not involve bone fractures [9]. Similarly, in our study, major injuries were observed in only 2.4% of cases, while 78.9% had minor injuries treatable with

simple medical interventions, and approximately one-sixth of the cases involved bone fractures. In the study conducted in Manisa, 60% of cases were found to have injuries treatable with simple medical interventions, which was attributed to the high incidence of traffic accidents [4]. A study from Nepal found that injuries resulting from accidents were more severe than those from physical assaults, with higher rates of extremity fractures and life-threatening injuries [19]. Additionally, head injuries were frequently observed in life-threatening cases. Our study produced similar findings, with isolated head injuries being the most common in life-threatening cases. Given that traffic accidents often result in high-energy trauma, they are expected to present with more severe clinical outcomes. The fact that traffic accidents typically involve high-energy trauma makes more severe clinical presentations an expected outcome. A forensic study analyzing trauma cases found that extremity fractures were more common in accident-related injuries, while facial bone fractures were more prevalent in cases of physical assault [19]. Consistent with this, our study, which had a high proportion of physical assault cases, identified nasal bone fractures as the most common type of fracture. Due to the face being easily accessible and more exposed, facial traumas are frequently observed. In cases of violence against women, trauma to this region can be considered a physically degrading act that undermines women's self-confidence. A study conducted in Brazil on women who were victims of domestic violence reported that soft tissue injuries were the most common finding, which is consistent with our study [22]. It has been suggested that physical assaults often occur impulsively due to a loss of emotional control or feelings of pressure. These incidents typically do not involve weapons and therefore tend to result in minor injuries.

Conclusion

The findings indicate that the majority of forensic cases involved young adult women aged 20–29, with physical assault being the most prevalent cause of injury. Accidental injuries were more common among children aged 0–9, while domestic violence incidents were most prevalent among young adults aged 20–29. It was noteworthy that approximately half of the cases involved victims of domestic violence, with the majority of perpetrators being intimate partners.

To reduce violence against women, educational, psychological, and economic support should be provided to individuals prone to violent behavior. Psychological and social rehabilitation services should also be offered to female victims of violence. Protective measures should be implemented to prevent falls among young children, particularly in high-risk areas such as windows, balconies, and staircases. Conducting large-scale nationwide field studies on the causes of interpersonal and domestic violence against women will help identify the underlying social, economic, and psychological factors contributing to violence, thereby making a significant contribution to violence prevention efforts.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

The privacy rights of human subjects were respected during the implementation of study by author. For the implementation of the study, ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Adiyaman University with the decision dated 10/25/2022 and numbered 2022/07-38. This study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

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