

Deaths of the Elderly Exposed to Violence in Turkey

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ABSTRACT

Due to the socio-cultural and demographical changes that have been taking place in Turkey, differences in types of violence are coming on the scene. The purpose of the present study is to reveal the number of violence deaths and the variation by time in the types of violence resulting in death in the elderly of ages 65 and above in Turkey. Using a retrospective (descriptive) epidemiological method, this study was carried out with 1,326 subjects of ages 65 and above among 17,015 criminal autopsies between years 1996–2001. According to the crime scene investigations, the percentage of deaths caused by firearm injuries increased to 4.0% in 2001 from 1.9% in 1994. The dispersion of the subjects according to autopsy findings were pathologically caused death (32.3%), negative autopsy (20.3%), general body trauma (20.1%) and hanging (6.3%). Changes in the rates of deaths caused by cutting/piercing tool injuries are 1.9% and 4.3%, respectively. Regulations are needed to reinforce and financially support the family, to secure humanely life standards for the elderly, and to ensure homecare to an optimum extent.

Key words: types of violence, violence death, elderly, autopsy, Turkey

Introduction

One of the significant demographical changes that have occurred in this century is the increase in the elderly population within the society. With advances in medicine and prolonged life expectancy, the proportion of older people will continue to rise worldwide. For example, there were 390 million people aged over 65 years recorded in the 1998 World Health Report, and this figure is estimated to double in 2025¹. According to the projections carried out for the year 2015, the maximum number of the elderly is expected to be in Japan, and the minimum to be in Kenya². As a result of the decreased fertility rate, improved socio-economical level and consequent elongated life span, the rate of the elderly population to the total population had been defined as 11.4% in the developed countries and as 3.9% in developing countries^{3,4}. It has been recent that the developing countries, such as Turkey, are confronting aging-related public health problems that the developed countries came to know in 1970s. In Turkey, this has a younger and more dynamical population, the rate of the elderly of ages 65 and above to the total population reached to 7.8% in the

year 20005. People living in the rural areas as extended families have begun to migrate to urban areas because of economic circumstances, resulting in a conversion from the extended to the nucleus family structure^{6,7}.

Another important public health problem of the century is violence. The elderly are also targeted by the communal violence that has been going up due to the changing economic and socio-cultural structures. In this vulnerable term of their lives, the elderly have more health problems compared to their pasts, as well as being mostly consumers and considered as inutile by the society under the influence of the cruelty posed by the harsh economic circumstances. However, it is by no means acceptable that these people, who had been productive until recently, are treated as outcasts are subject to ill treatment. Neglect, abuse and violence that the elderly people are subjected to in Turkey have reached to such degrees that attracted the notice of public prosecutors, police and researchers. Being two of the first countries to define the ill treatment against the elderly, the United States and

Canada started to experience this phenomenon long ago and have already taken necessary measures^{8,9}.

The National Research Council's (NRC) definition of elder mistreatment is

- (a) Intentional actions that cause harm or create a serious risk of harm (whether or not harm is intended to a vulnerable elder by caregiver or other person who stands in a trust relationship to the elder or,
- (b) Failure by a caregiver to satisfy the elder's basic needs or to protect the elder from harm¹⁰. The reasons of neglect and abuse targeting the elderly are not fully known. Various researches have hypothesized about the learned violence, the stressed caregiver, the psychopathology, and the dependency to be the reasons of elderly neglect and abuse^{11–14}.

The incidence of criminal elderly deaths, as all problems involving the elderly population, has increased within the last few years. However, scientific researches investigating the elderly population and violence targeting them are very scarce^{6,7}.

The purpose of this present study is to determine the prevalence of criminal deaths, causes of deaths, and the time variation by type of violence for persons 65 years and older in Turkey.

Materials and Methods

Retrospective (descriptive) epidemiological method was used in the study. Legal procedures that applied to deaths in Turkey were taken into consideration. In our country, a general practitioner physician carries out an examination after death. The body may be buried after this examination unless the physician finds no dubiety; otherwise, an autopsy is requested. Autopsy, thereof, may only be carried out if a criminal suspicion is present, and is conducted by forensic medicine experts and attended by a public prosecutor. In Istanbul, which holds the one sixth of the whole Turkish population, all autopsies are carried out in the Council of Forensic Science (approximately 3,000 autopsies annually). Istanbul receives immigrants from all over Turkey and therefore has a demographical structure that reflects the whole country.

The study was carried out using 1,326 cases of ages 65 and above, chosen among 17,015 criminal autopsies that have taken place between years 1996–2001. Demographic attributes (age, sex, birth place) of these subjects; general practice physician's crime scene examination findings; macroscopic, microscopic pathological findings obtained during autopsy; chemical (ethyl alcohol, methyl alcohol, heroin-morphine and metabolites and CO level) and biologic (DNA, spermatozoid scan, microbiologic studies) examinations carried out blood and organs were obtained as research results. All of the demographic data were collected from the investigation records of the crime scene.

Definitions

Negative autopsy: Autopsy at the end of which the cause of death is unknown

Cause of death according to crime scene investigations: Estimated cause of death derived from the examination of the body, and from the collaborated investigation done at the crime scene by a general practice physician and members of the security force. All of the crime scene reports were read and assessed by the writer (written as the second name).

Assault: Defined as an injury to an elderly person caused by another person through a physical action, without use of any instruments for wounding purposes

Cause of death defined by autopsy: Cause of death defined after performing systematic examination and autopsy, and pathologic and chemical analyses at the Council of Forensic Science Morgue Unit.

Chemical analysis: Chemical studies of victim's blood, urine and internal organs. Ethyl alcohol, CO, benzodiazepine, morphine, and their derivatives were investigated, but no history of addiction for these was found in our subjects.

Biologic analysis: The process of scanning for biological foreign formations in victim's internal cavities and liquid body substances (blood, urine, BOS, bone marrow) before and during autopsy.

The Institute of Forensic Medicine, Turkish Ministry of Justice has granted official permission for all the investigations related with the study. Data were evaluated using SPSS 11.0.

Results

Of the total of 17,015 autopsy cases, 7.8% (n: 1,326) were found to be of ages 65 and above.

The mean age of these subjects was 73.3 ± 6.9 years. Of the cases 949 (71.6%), were males (mean age 72.6 ± 6.6), 377 (28.4%) were females (mean age 75.05 ± 7.5). The dispersion of the autopsies of the subjects 65 years and older to sex and annual autopsy count is shown in Table 1.

Of the 1,326 subjects included in the study, 446 (33.7%) were born in Istanbul. There were 814 (61.4%) cases that were born in other cities in Turkey but resided in Istanbul, and 66 cases (4.9%) that had foreign passports and their residence in Istanbul.

Table 2 demonstrates the suspected causes of deaths to be sent for autopsy as concluded from crime scene investigations. The causes of deaths are grouped by age. According to the table, »being found dead at home« (40.3%) and »motor-vehicle accident« (16.1%) were the highest for both sexes. Male/female rate for traffic accidents was found 3.7:1. The most frequent crime scene finding was »intoxication« for males (1.3%) and »firearm injury« for females (1.3%).

According to crime scene investigations, the percentage of firearm injuries, which was 1.9% in 1999, has risen

TABLE 1
THE DISPERSION OF THE AUTOPSIES OF THE SUBJECTS 65 YEARS AND OLDER TO SEX AND ANNUAL AUTOPSY COUNT

Years	Total Autopsy Number	Elder utopsy*		Total n	%
		Male n	Female n		
1996	2548	114	41	155	6.1
1997	2883	129	59	188	6.5
1998	2980	145	70	215	7.2
1999	2868	192	70	262	9.1
2000	2854	188	65	253	8.9
2001	2882	181	72	253	8.8
Total	17015	949	377	1326	7.8

* The percentage is based on total autopsy number

to 4.0% in 2001. The changes in the rates of cutting/piercing injuries were 1.9% and 4.3%, respectively.

The dispersion of the subjects according to autopsy findings is shown in Table 3. The death cause of approximately one third of the subjects was reported as »pathologically caused death«. No cause to explain death could be found in 269 cases (20.3%). Of the 269 cases that had been defined as negative autopsy, 135 (50.1%) were found dead at home, 57 (21.2%) were sent to hospitals due to traffic accidents and 28 (10.4%) due to being beaten (assault), 23 (8.6%) arrived at the hospital but their deaths were found suspicious, 12 (4.5%) were intoxicated, and 6

(2.2%) fell from heights. Remaining 8 subjects (2.9%) had been sent for autopsy for various reasons. Of the subjects who were »found dead at home«, the cause of death of 60.9% was found »pathological«. »General Body Trauma« (20.1%) and »hanging« (6.3%) were other frequent autopsy results. Of the »hanging cases«, 65.9% were males and 34.1% were females.

Investigation data related with crime scene and findings collected from autopsy were compared. The rate of the autopsy findings corresponding to death cause in the investigation data of crime scene was assessed. Findings of all the 114 subjects called »falling from heights« in the

TABLE 2
DISPERSION OF CRIME SCENE DIAGNOSES ACCORDING TO SEX

Diagnosis	Male		Female		Total	
	n	%	n	%	n	%
Found dead at home	407	76.2 (%42.9)	127	23.8 (%33.7)	534	100.0 (%40.3)
Motor-vehicle accident	168	78.5 (%17.7)	46	21.4 (%12.3)	214	100.0 (%16.1)
Falling from heights	72	63.1 (%7.5)	42	36.9 (%11.2)	114	100.0 (%8.5)
Suspicious death at hospital	76	77.5 (%8)	22	22.5 (%5.8)	98	100.0 (%7.4)
Assault	54	62.7 (%5.7)	32	37.3 (%8.5)	86	100.0 (%6.4)
Hanging	53	64.6 (%5.5)	29	35.4 (%7.7)	82	100.0 (%6.2)
Firearm injury	53	91.4 (%5.6)	5	8.6 (%1.3)	58	100.0 (%4.4)
Burn	25	47.1 (%2.7)	28	52.9 (%7.4)	53	100.0 (%3.9)
Intoxication	17	37.7 (%1.8)	28	62.3 (%7.4)	45	100.0 (%3.4)
Cutting tool injury	24	57.1 (%2.6)	18	42.9 (%4.7)	42	100.0 (%3.2)
Total %	949	71.5 (%100.0)	377	28.5 (%100.0)	1326	100.0 (%100.0)

TABLE 3
THE DISPERSION OF THE SUBJECTS BY SEX ACCORDING TO AUTOPSY FINDINGS

Autopsy result	Male		Female		Total	
	n	%	n	%	n	%
Pathologically caused death	336	78.3 (%35.4)	93	21.7 (%24.6)	429	100.0 (%32.3)
Negative Autopsy	181	67.3 (%19.1)	88	32.7 (%23.3)	269	100.0 (%20.3)
General Body Trauma	201	75.6 (%21.2)	65	24.4 (%17.2)	266	100.0 (%20.1)
Hanging	54	65.9 (%5.7)	28	34.1 (%7.4)	82	100.0 (%6.3)
Firearm Injury	50	90.1 (%5.3)	5	9.9 (%1.4)	55	100.0 (%4.1)
Asphyxia	29	87.9 (%3.1)	24	12.1 (%6.4)	53	100.0 (%3.9)
Cranium Fracture	33	71.7 (%3.4)	13	38.2 (%3.5)	46	100.0 (%3.5)
Intoxication	24	53.3 (%2.5)	21	46.7 (%5.5)	45	100.0 (%3.4)
Burn	21	46.7 (%2.2)	24	53.3 (%6.4)	45	100.0 (%3.4)
Cutting/piercing tool injury	20	55.5 (%2.1)	16	44.5 (%4.3)	36	100.0 (%2.7)
Total %	949	71.5 (%100.0)	377	28.5 (%100.0)	1326	100.0 (%100.0)

crime scene investigation were in conformity with this diagnosis. This rate was evaluated at 95% for »hanging«, 91.4% for firearm injury, 85.7 for cutting tool injury, 79.2% for burn, 69.1% for traffic accident(s), 68.4% for assault, and 51.1% for intoxication. Intoxication was found to be the cause of death in 45 subjects out of 1,326.

Carbon Monoxide was responsible for 82.2% of them, while for 17.8% ethyl alcohol; methyl alcohol, heroin-morphine derivatives and cyanide were found responsible with similar rates.

No chemical substance had been found in 1113 of 1326 subjects during chemical studies performed along with autopsy. Ethyl alcohol was found in the blood of 7, 9% (n: 106) out of 1,326 subjects. Of the 213 subjects, in whose blood chemical substances were defined, ethyl alcohol was found in 106 (49.7%), CO in 67 (31.5%), benzodiazepine in 21 (9.8%), morphine and derivatives in 8 (3.7%), and other toxic substances in the remaining 11 (5.2%).

Evidence of sexual aggression was found in four of 1,326 subjects. All of these four subjects were females; »general body trauma« was reported in crime scene records and causes of death were defined, after autopsies, as cranium fracture and general body trauma.

Discussion

Aging, for any living, is a biological process that begins with impregnation and ends with death. However,

this process may be modified by individual differences including heritage, lifestyle, job, nutritional habits, chronic diseases, personality/mood, how the individual is perceived by the society, his/her entourage, and him/herself. As the unique qualities of the elderly, who are being treated as outcasts due to the growing tendency towards nucleus family, cannot be replaced by any other factors, the new generation is growing up without receiving sufficient love and care, and thus the loveless youth inclined to violence are being formed^{15,16}. The youth are not able to experience the socialization related to the transmission of social values. Various studies that research elderly abuse and violence-caused deaths^{17,18}.

Death at home and motor-vehicle accidents are the most frequent forms of elderly deaths in Turkey, as in the world (Table 2). In Turkey, casualties of traffic accidents have been grouped as inside the vehicle or outside in the investigation document of crime scene. Thus it is not possible to determine whether the subjects are passengers or drivers with the investigation document of crime scene. That 16.1% of the elderly deaths had been found related to motor-vehicle accidents in our study is a remarkable result. Improving preventative measures against motor-vehicle accidents can control the death rate. Elderly death rates, particularly caused by head and chest trauma from motor-vehicle accidents, found in the studies from across the world are similar to those found in our study^{19–24}. Meel B, in the study on violent and/or traumatic deaths, has reported motor-vehicle ac-

cidents as the most frequent cause of death in Transkei region of South Africa during the years 1993–1999; male/female rate of the subjects of this study being 3.3/1. Motor-vehicle accidents among violent and/or traumatic deaths were the major cause, and distribution according to sex was similar to that of Meel B's study. These deaths may be prevented by applying some sanctions practiced for children (sitting on the rear seat etc.) also for the elderly, and by limiting driving for the aged²⁵.

Similar to the increase in the elderly population in our country, the rate of the elderly in criminal autopsies is also increasing. The rate, which was 6.1% in 1996, has ascended to 8.8% in 2001, with an increase rate of 44.3% (Table 1). Data are limited as to state the rate of real elderly abuse in the elderly autopsy of 1,326 subjects. However, it is remarkable that there is an increase in the actions (cutting tool injury, assault, etc.) which have certainly been undertaken in order to injure the elderly on purpose. The increase in the incidence of actions that are certain to have aimed to hurt the elderly (cutting/ piercing tool injury and firearm injury) is also striking. According to crime scene investigations, the rate of firearm injuries that was 1.9% in 1996 has risen to 4.0% in 2001. These rates for cutting/piercing injuries are 1.9% and 4.3%, respectively. Within the past years, there has been an ongoing increase in fatal violence and abuse incidents targeting the elderly^{26–30}.

The most frequent agent causing intoxication was found carbon monoxide in our study, while a study by Jonsson et al. reported ethyl alcohol as the most frequent cause of fatal intoxications, with a rate of 43%³¹. Intoxication may sometimes involve suicide in the elderly, while it might also have catalyzed the cause of death resulting from a trauma of any origin^{32,33}.

Much literature demonstrates that incidence of suicide is increasing by time. Choice of hanging as the method of suicide was observed in our study more frequently in men than women, and this finding is in accordance with that of DW Ng's study^{34–36}.

Death cases are assessed both by crime scene investigations and autopsy. Crime scene investigations are es-

sential in finding out accurately how the event had taken place. Information and findings obtained during this process will not only light the way for autopsy but also will ensure accurate determination of the death cause. In the study, findings suggest 69,1% of the subjects stated as the traffic accidents in the crime scene report. In effective actions and intoxications, the rates are 68,4% and 51,1%, respectively. Especially in traffic accidents, effective action, and intoxications crime scene investigations should be particularly carried out with more care.

»Being found dead at home« was the most frequent crime scene findings for both sexes. A total of 534 cases (40.3%) had been reported to forensic units with death-at-home pre-diagnoses. More aged people will face this end because of the increasing inclination towards nucleus family structure in our century, leaving the elderly no choice but to live alone^{37–39}.

Conclusion

The population of the elderly in Turkey of ages 65 and above will reach to 12.1 million within 25 years⁴. As elderly abuse could be regarded as public health issue in the following years, sociological and psychological studied must be conducted considering family dynamics.

Regulations are needed to reinforce and financially support the family, to secure humanely life standards for the elderly, and to ensure homecare at an optimum level. It is important to realize that the task to give communal and social support for the elderly should not be assumed merely by the Government, but that voluntary foundations and institutions should also take on upon significant responsibilities.

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REFERENCES

1. WORLD HEALTH ORGANIZATION, The world oral health report, accessed 10.03. 2008. Available from: http://www.who.int/oral_health/media/en/orh_report03_en.pdf. — 2. KINSELLA K, VELKOFF VA, An aging world: 2001 (U.S. Government Printing Office, Washington, DC, 2001). — 3. KLEINSCHMIDT KC, *Ann Emerg Med*, 30 (1997) 448. — 4. KOSSBERG JI, NAHMIOSH D, Characteristics of victims and perpetrators and milieus of abuse and neglect. In: BAUMHOVER LA, BEAL SC (Eds) *Abuse and neglect and exploitation of older persons: strategies for assessment and intervention* (Health Professions Press, Baltimore, 1996). — 5. REPUBLIC OF TURKEY PRIME MINISTRY, Status of women general management, accessed 14.02.2006. Available from: <http://www.kssgm.gov.tr>. — 6. AKAN P, ERDINÇLER D, TEZCAN V, BEGER T, Elderly abuse. In: *Proceedings (International Psychogeriatric Association And Turkish Society of Psychogeriatrics, Istanbul, 1998)*. — 7. YARDIMCI AE, The relationship between health problems of elder teachers, living in Istanbul, with their daily life activities and daily life activities with gymnastic. Ph.D. Thesis. In Turkey (University of Istanbul, Istanbul, 1995).

8. GORDON RM, *Journal of Elder Abuse and Neglect*, 4 (1992) 173. — 9. NAHMIOSH D, Prévenir et combattre la violence et la négligence à l'endroit des personnes, âgées au Canada, accessed 04.05.2001. Available from: <http://www.hc-sc.gc.ca/main/nfh/web/publicat/execsumm/nahmishf.htm>. — 10. BONNIE RJ, WALLACE RB, Elder mistreatment: Abuse, neglect, and exploitation in an aging America. Panel to Review Risk and Prevalence of Elder Abuse and Neglect (National Academies Press 2003). — 11. DURAKOVIĆ Z, MISIGOJ-DURAKOVIĆ M, *Coll. Antropol* 30 (2006) 1 213. — 12. BRADSHAW D, SPENCER C, The role of alcohol in elder abuse cases. In: PRITCHARD, J (Eds) *Elder abuse work: best practice in Britain and Canada*, (Jessica Kingsley Publications, London, 1999). — 13. KARGER B, LORIN DE LA GRANDMAISON G, BAJANOWSKI T, BRINKMANN B, *Int. J Legal Med. Apr.* 118 (2004) 90. — 14. STEINMETZ SK, *Aging*, January February (1981), 6–10, 315–316. — 15. KOSSBERG JI, *Journal of Elder Abuse and Neglect*, 9 (1998) 69. — 16. LARUE, G.A., Elder abuse, In: GERALD L (Eds) *Geroethics: a new vision of growing old in America* (Prometheus Books, New-York, 1992). —

17. ANSELLO EF. Causes and Theories. In: BAUMHOVER A, BEAL, SC (Eds) Abuse, neglect and exploitation of older persons: strategies for assessment and intervention, (Health Professions Press, Baltimore 1996). — 18. CANETTO SS, HOLLENSHEAD JD, Omega (Westport), 42 (2001) 83. — 19. AGHAYEV E, THALI M, JACKOWSKI C, SONNENSCHNEIN M, YEN K, VOCK P, DIRNHOFER R, Forensic Sci. Jul, 49 (2004) 809. — 20. EHRLICH E, MAXEINER H, Med. Law, 21(2002) 773. — 21. ORTMANN C, FECHNER G, BAJANOWSKI T, RINKMANN B, Int J Legal Med, 114 (2001) 191. — 22. WALLACE H, Family violence; Legal, medical and social perspectives (Allyn& Bacon, California, 2004). — 23. WYATT JP, MARTIN A, BEARD D, BUSUTTIL A, Med Sci Law, 41(2001) 21. — 24. ZHU B, ORITANI S, ISHIDA K, QUAN L, SAKODA S, FUJITA MQ, MAEDA H. Forensic Sci. Int, 113 (2000) 215. — 25. MEEL BL, J Trauma, 57(2004) 125. — 26. GUPTA A, RANI M, MITTAL AK, DIKSHIT PC, Med Sci Law, 44 (2004) 127. — 27. HEINEMANN A, PÜSCHEL K, J Gerontol, 27 (1994) 306. — 28. HUDSON MF, CARLSON JR, Journal of Elder Abuse and Neglect, 9 (1998) 77. — 29. KLEINSCHMIDT KC, Ann Emerg Med, 30 (1997) 463. — 30. TUETH MJ, Am J Geriatr Psychiatry, 8 (2000) 104. — 31. JHONSSON A, HOLMGREN P, J Forensic Sci Int, 30 (2004) 53. — 32. HAVASI B, MAGORI K, TOTTH A, KISS L, Forensic Sci Int, 17 (2005) 25. — 33. OSTROM M, ERIKSSON A, Accid Anal Prev, 33 (2001) 173. — 34. SCHAFER AT, Arch Kriminol, 183 (1989) 65. — 35. MARCIKIC M, UGLJAREVIC M, DIJANIC T, DUMENCIC B, POZGAIN I, Coll. Antropol. 27 Suppl 1 (2003) 101. — 36. NG D W, LAU G, Med Sci Law, 43(2003) 141. — 37. KARLOVIĆ D, GALE R, THALLER V, MARTINAC M, KATINIC K, MATOSIC A, Coll. Antropol. 29 (2005) 2 519. — 38. BERZLANOVICH A M, MISSELIWETZ J, SIM E, FAZENY-DORNER B, FASCHING P, MAROSI C, WALDHOER T, MUHM M, Am J Med, 1 (2003) 365. — 39. NASHIELSKY M B, LAWRENCE C H, Am J Forensic Med Pathol, 24 (2003) 313.

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KARAKTERISTIKE KRIMINALNIH SMRTI STARIJIH OSOBA U TURSKOJ

SAŽETAK

Zbog socio-kulturnih i demografskih promjena u Turskoj, na vidjelo izlaze razlike u vrstama nasilja. Postotak učestalosti i vrste nasilja povećavaju se do razine problema javnog zdravstva, a nasilje usmjereno prema starijima predstavlja najupadljiviji oblik od svih. Svrha je ove studije otkriti broj kriminalnih smrti, uzroke takvih smrti i varijacije kroz vrijeme u vrstama nasilja koje rezultiraju smrću starijih osoba u dobi od i iznad 65 godina u Turskoj. Koristeći retrospektivnu (opisnu) epidemiološku metodu, ova je studija provedena na 1.326 subjekta u dobi od i iznad 65 godina, na 17.015 kriminalnih autopsija obavljenih između 1996. – 2001. godine. Od ukupno 17.015 autopsija, 7,8% (u brojkama: 1.326) su bili subjekti u dobi od i iznad 65 godina. Prema istraživanjima mjesta zločina, postotak smrti uzrokovan ozljedama od vatrenog oružja povećao se s 1,9 % 1994. godine na 4,0 % u 2001. godini. Promjene stopa smrti uzrokovanih ozljedama od hladnog/ubodnog oruđa su 1,9% i 4,3 %. Populacija starijih osoba u dobi od 65 godina navise u Turskoj će za 25 godina doseći brojku od 12.1 milijuna. Potrebni su propisi koji bi osnažili i financijski pomogli obitelji, osigurali humanije standarde života za starije te osigurali kućnu njegu do optimalnog stupnja.