

An Examination of Cases of Drowning in Water in Sinop Province

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Abstract

The water environment offers a wide range of opportunities for people to have fun, organize activities for sports and recreation. Drowning in water; is a chain of events that starts with respiratory inhibition caused by sinking in the water environment and ends with complete cessation. Drowning can be considered as an important problem within the scope of public health. The aim of this study was to examine the deaths caused by drowning in the province of Sinop in terms of the number of people drowning on a yearly basis, the reasons for being there, the demographic characteristics of these people, how the drowning took place and the environment in which drowning events took place. In this research, online search engines were crawled with the following keywords, "drowned in the sea", "drowned in the water", "dropped into the water and drowned", "victim saved but savior drowned", "couldn't save and drowned", and news about drowning were collected on a daily basis based on the years of 2005 and 2016. In the light of the information obtained from these news, the information of the people who drowned, the place of the drowning event, the water environment were recorded. The analysis of the data was carried out with the SPSS 21 package program and data were presented descriptively using frequency and percentage. As a result, the number of people who died by drowning in the city of Sinop in 12 years was determined to be 64. Swimming and water safety training should be provided from a young age in order to prevent deaths as a result of drowning.

Keywords: Water Safety, Swimming Education, Recreational Activity, Sinop

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Sinop İlinde Suda Boğulma Vakalarının İncelenmesi

Öz

Su ortamı, insanlara eğlenceli vakit geçirebilecekleri, sportif amaçlı ve rekreasyonel etkinlikler düzenleyebilecekleri çok çeşitli imkânlar sunmaktadır. Suda boğulma; su ortamı içerisinde batmadan kaynaklanan solunum engellenmesi ile başlayan ve tamamen kesilmesi ile sonuçlanan bir olaylar zinciridir. Halk sağlığı kapsamında boğulma önemli bir problem olarak değerlendirilebilir. Bu çalışmanın amacı Sinop ilinde, suda boğulma sonucunda meydana gelen ölümleri yıl bazında boğulan kişilerin sayıları, ne sebeple ilgili ortamda buldukları, bu kişilerin demografik özellikleri, boğulmaların gerçekleşme şekilleri ile boğulma olaylarının yaşandığı ortam açısından incelemektir. Bu araştırmada çevrimiçi arama motorlarında şu anahtar kelimelerle tarama yapılmış, "denizde boğuldu", "suda boğuldu", "suya düştü boğuldu", "kurtardı boğuldu", "kurtaramadı boğuldu", "yüzerken boğuldu" vb. ve boğulma ile ilgili haberler 01.01.2005 ile 31.12.2016 tarih aralığı baz alınarak günlük olarak toplanmıştır. Bu haberlerden elden edilen bilgiler ışığında boğulan kişilerin bilgileri, boğulma olayının gerçekleştiği yer, olay yerinde bulunma sebepleri, su ortamı vb. veriler kayıt altına alınmıştır. Verilerin analizi SPSS 21 paket programı ile gerçekleştirilmiş ve tanımlayıcı istatistik yöntemlerden frekans ve yüzde testleri kullanılmıştır. Sonuç olarak 12 yılda Sinop ilinde suda boğularak hayatını kaybeden kişi sayısı 64 olarak belirlenmiştir. Boğulma sonucu ölümlerin önüne geçilebilmesi için küçük yaşlardan itibaren yüzme ve su güvenliği eğitimi verilmelidir.

Anahtar kelimeler: Su Güvenliği, Yüzme eğitimi, Rekreasyonel Aktivite, Sinop

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Introduction

In the present day, drowning in water is even now a medical challenge and a major cause of unintentional death around the world (Markarian et al., 2020) and a leading global killer (Thakuria, Singha and Mazumder, 2016). Additionally drowning mortality presents a serious global burden, causing 320,000 deaths each year (World Health Organization, 2018), and accounted for approximately 9% of the global injury disability-adjusted life years (Haagsma, 2016). Drowning is defined as respiratory impairment as a result of submersion in a liquid that can cause death or morbidity (van Beeck, 2005).

Drowning is a significant global problem in public health with a serious impact on the health standards of adolescents and children (Kiakalayeh, 2008; Rahman, 2006; Rein et al., 2012; Shrivastava, 2016). Drowning disproportionately impacts those from low- and middle-income countries, males and children (Tyler et al., 2017, Rahman, Giashuddin, Svanström and Rahman, 2009; Gupta, Zwi and Jagnoor, 2020), and also, a significant cause of mortality in children in most parts of the world (Chauvin et al., 2019; Brenner et al., 2002; Jessula, Asbridge, Romao, Green and Yanchar, 2019). Children aged between 1–9 years are at particular risk of drowning, mostly in coastal and rural contexts where they are exposed to open water (Meddings et al., 2014, Tyler et al., 2017). WHO (2020) has reported that drowning is the 3rd leading cause of accidental injury death around the world and for children aged 1–14 years its in the top 5 causes of death in 48 countries (World Health Organization, 2020).

Aquatic environment open ups a world of opportunity for recreation activities and sportive performance, and it is not a natural habitat for human. Each year, approximately 1,000 people drown in Turkey. From 1999 to the end of 2008, a total of 1407 (1139 males and 268 females) Turkish citizens drowned in Turkey (Turkish Statistical Institute, 2009). Additionally, between the years 2007 and 2011, 3216 persons (2703 males (84.0%), and 513 females (16.0%) who died cause of drowning in Turkey (Turgut & Turgut, 2014). Despite all these numbers, Turkey still lacks an efficient data collecting and reporting system for the deaths by drowning. To take preventive measures and develop new safety rules or policies, collecting, saving and reporting detailed information about drowning incidents is very important (Turgut & Turgut, 2014).

Sinop is an attractive place for summer with its natural wonders, and with legends and historical heritages for visitors, especially in between May and October. Sinop is in the Black Sea region and has 175 km-long coasts to the Black Sea.

The current study was aimed to examine the deaths caused by drowning in the province of Sinop between 2005 and 2016, in terms of the number of people drowning on a yearly basis, the reasons for being there, the demographic characteristics of these people, how the drowning took place and the environment in which drowning events took place.

Method

To collect data, the news was searched online via search engine “www.google.com” and Turkish daily newspapers online reports using keywords including “drowning in the sea, drowning, drowned by falling in the water, rescuer drowning” between the period of January 1, 2005 and December 31, 2016. Details such as age, the places of drowning, the reasons for being there, water environment, the time of the day, were recorded. Data were presented descriptively using frequency and percentage.

Results

In this study, it was aimed to examine the deaths that occurred as a result of drowning in water, number by years, some demographic characteristics of the drowned people, the reasons for their occurrence at the scene, the way of drowning, the water environment and the area in which they took place. For this purpose, the following findings have been identified.

Table 1
Distribution of Drowned in Water by Years

Year	f	%
2005	3	4,7
2006	5	7,8
2007	5	7,8
2008	5	7,8
2009	5	7,8
2010	3	4,7
2011	7	10,9
2012	6	9,4
2013	7	10,9
2014	7	10,9
2015	4	6,3
2016	7	10,9
Total	64	100,0

As shown in Table 1, Number of drowning by years, 7 people in 2011, 2013, 2014 and 2016; 6 people in 2012; 5 people in 2006, 2007, 2008 and 2009; 4 people in 2015; 3 people each in 2005 and 2010.

Table 2

Distribution of Drowned in Water by Age

Age	f	%
1-9	3	4,7
10-19	22	34,4
20-29	13	20,3
30-39	11	17,2
40-49	4	6,3
50-59	4	6,3
60+	7	10,9
Total	64	100

Table 2 presents the age ranges of people drowned in Sinop between 2005 and 2016. the mortality was lowest in the group aged 1-9 years, reached the highest level in the age group 10-19 years, and then decreased with age.

Table 3

Distribution of Drowned in Water by Gender

Gender	f	%
Female	10	15,6
Male	54	84,4
Total	64	100,0

The gender distributions of drowned people are presented in Table 3. Males (54 men) have a higher mortality rate than women (10) drowned in water.

Table 4

Distribution of Drowned in Water by Month

Month	F	%
January	3	4,7
February	1	1,6
March	1	1,6
April	2	3,1
May	4	6,3
June	6	9,4
July	21	32,8
August	17	26,6
September	3	4,7

October	1	1,6
December	5	7,8
Total	64	100,0

Drowning mortality frequencies by months are shown in Table 4. Accordingly, in both July(21) and August(17) mortality rates were the highest level and during rest of the months were lower level (6 in June, 4 in May, 3 in January, 3 in September, 2 in April and 1 in February, March and October).

Table 5

Distribution of Drowned in Water by Districts

Town	F	%
Ayancık	6	9,4
Boyabat	3	4,7
Durağan	3	4,7
Erfelek	3	4,7
Gerze	7	10,9
Merkez	21	32,8
Türkeli	7	10,9
Unknown	14	21,9
Total	64	100,0

In Table 5, the distribution of drownings in water was presented. City Center has the highest drownings with 21 people (32.8%) followed by Gerze with 7 people (10.9%) and Türkeli with 7 people from Türkeli (10.9%). Other drownings were noted as 6 people in Ayancık (9.4%), 3 people in Boyabat (4.7%), 3 people in Durağan(4.7%), and 3 people in Erfelek (4.7%). There were 14 people (21.9%) whose districts are not known in terms of the place they drowned.

Table 6

Reasons of the drowned at the crime scene.

Reasons	F	%
Swimming	38	59,4
Fishing	4	6,3
Traffic accident (1)	8	12,5
Travel	1	1,6
Game	2	3,1
Residence	1	1,6
Stroll	4	6,3
Repairs	1	1,6
Business	2	3,1
Holiday	3	4,7
Total	64	100,0

(1) Drowning in the vehicle falling into the water.

Table 6 shows the reasons of drowning people at the scene. 38 (59.4%) people swimming, 8 (12.5%) people traffic accident, 4 (6.3%) people fishing, 4 (6.3%) people walking, 3 (4.7%) people 2 people (3.1%) were on holiday, 2 people (3.1%) were at the scene for vacation, 1 person (1.6%) was on the spot for travel, residence and repairs.

Table 7

Ways of Water Drowning

	f	%
Swimming	39	60,9
Suicide	1	1,6
Traffic Accident (*)	9	14,1
Falling into the Water	6	9,4
While Fishing	1	1,6
Falling from Boat-Boat	5	7,8
Rescued Drowned	1	1,6
Flood	1	1,6
Unknown	1	1,6
Total	64	100,0

(*) Drowning in the vehicle falling into the water.

Table 7 shows how drowning takes place, while 39 (60.9%) swims, 9 (14.1%) traffic accidents, 6 (9.4%) waterfalls, 5 (7.8%) boat falls, and respectively, 1 person for each way of drowning such as suicide, fishing, rescue, flood and unknown.

Table 8

Numbers of Drowning in Water in the Same Case

	f	%
1	43	67,2
2	12	18,8
3	9	14,1
Total	64	100,0

Table 8 shows that how many people drowned at the same case and 1 people in 43 (67.2%) cases, 2 people in 12 (18.8%) cases and 3 people in 9 (14.1%) cases were drowned.

Table 9

Whether Those Drowned in Water Are Alone.

	f	%
No	57	89,1
Yes	7	10,9
Total	64	100,0

In Table 9, 57 (89.1%) of those drowned in water were not alone and 7 (10.9%) were alone.

Table 10

Water Environment in Drowning

	f	%
Creek-Stream-River	7	10,9
Lake-Pond	2	3,1
Coast-Sea	53	82,8
Flood	1	1,6
Irrigation Channel	1	1,6
Total	64	100,0

As shown in Table 10, the water environment where drowning took place is coast-sea 53 people (82.8%), creek-stream-river 7 people (10.9%), lake-pond 2 people (3.1%), in each flood and irrigation channel was 1 person.

Table 11

Place of Drowning

	f	%
Dereköyü Creek	1	1,6
Gökırmak	2	3,2
Karacaören Dam	1	1,6
Karacaören Village Pond	1	1,6
Black Sea	52	81,3
Kumkapı Beach	1	1,6
Yalı Creek	3	4,7
Unknown	3	4,7
Total	64	100

In Table 11, it was determined that the Black Sea with 52 (81.3%) people has the highest rate where the water environment in which drowning occurred. Respectively, other places of drownings were noted as 3 people in Yalı Creek, 3 people whose districts are not known in terms of the place they drowned, 2 people in Gökırmak and 1 people in Dereköyü Creek, Karacaören Dam, Karacaören Village Pond, Kumkapı Beach.

Table 12

Drowning in an environment where there should be lifeguards

	f	%
No	56	87,5
Yes	8	12,5
Total	64	100,0

In Table 12, the drowned people are 8 (12.5%) drowning in the life-saving environment and 56 (87.5%) drowning in the environment that does not have to be lifeguards.

Discussion

In the current research it was found that 64 people drowned in these 12 years period (2005-2016) in the province of Sinop. The numbers of drowning have increased year by year (7 people in 2011, 2013, 2014 and 2016; 6 people in 2012; 5 people in 2006, 2007, 2008 and 2009; 4 people in 2015; 3 people each in 2005 and 2010). Turgut & Akdağ (2017), reported that 97 people drowned 12 years period in the province of Gaziantep in Turkey.

Those drowned in water are 22 people between the ages of 10-19 (34.4%), 13 people between the ages of 20-29 (13%), 11 people between the ages of 30-39 (17.2%), 7 people over the age of 60 (10,9%), 4 people in the 40-49 age group (6.3%), 4 people in the 50-59 age group (6.3%) and 3 people (4.7%) in the age group 1-9. People can face drowning at any stage in life but deaths by drowning are much higher among children (Tyler et al., 2017; Rahman et al., 2009; Rahman et al., 2006). Drowning is a very important cause of mortality in children around the world. WHO (2020) has reported that drowning is the top 5 causes of death for children aged 1–14 years old in 48 countries. In 1998, drowning caused approximately half a million deaths worldwide, and 57% were among children aged up to 14 years (Brenner, 2002; Jessula et al., 2019). In Vietnam, the highest mortality rates in children were aged between 1–4 years, and followed respectively by aged between 5–9 and 10–14 years. Regarding the provincial level, having a coastline was not associated with a higher mortality rate (Nguyen et al., 2018). This study has the same result as other research.

Gender distributions of drowned people 54 men (84.4%), 10 women (15.6%) drowned in water. Drowning disproportionately impacts those from middle- and low-

income countries (MLICs), males (Tyler et al., 2017; Rahman et al., 2006; Gupta et al., 2020). Kiakalayeh et al. (2008) reported that regarding to gender males were the vast majority of drowning victims (296 victims, 86.5%). Turgut & Orhan (2018), when the drowned people were evaluated in terms of gender, it was determined that there were 77 (77%) men and 23 (23%) women. According to Pedens & McGee (2003), drowning mortality in males has higher rates than females for all ages and in all regions. Also in the current study results of drowning mortality of males has higher rates than females.

This study showed the distribution of drowned people by months. Accordingly, 21 (32.8%) in July, 17 (26.6%) in August, 6 (9.4%) in June, 4 (6.3%) in May, 3 (4.7%) in January, 3 (4.7%) in September, 2 (3.1%) in April and 1 (1.6%) drowned in water in February, March and October. Seasonal drownings were well documented and most of them occurred in the summer. When the temperature is warmer and naturally influenced by the water bodies for children to cool down (Shinsugi et al., 2015; Suominen et al., 2002; Clemens et al., 2016).

Summers can last longer with more intense and frequent waves of hot air (Meehl & Tebaldi, 2004; Luber & McGeehin, 2008) and potentially affect choking frequency (Chauvin et al., 2019).

When the distribution of the drowned in water by districts were examined, the places where the drowning were respectively, 21 people (32.8%) in Merkez, 7 people (10.9%) in Gerze, 7 people in Türkeli (10.9%), 6 people in Ayancık (9.4%), 3 people (4.7%) in Boyabat, 3 people (4.7%) in Durağan, and 3 people (4.7%) in Erfelek were drowned. The reasons of drowning people at scene 38 (59.4%) people swimming, 8 (12.5%) people traffic accident, 4 (6.3%) people fishing, 4 (6.3%) people walking, 3 (4.7%) people 2 people (3.1%) were on holiday, 2 people (3.1%) were at the scene for vacation, 1 person (1.6%) was on the spot for travel, residence and repairs. How drowning took place, while 39 (60.9%) swims, 9 (14.1%) traffic accidents, 6 (9.4%) waterfalls, 5 (7.8%) boat falls.

Turgut et al. (2018), conducted research to determine cases of unintentional death by drowning in water during picnicking as an outdoor activity in Turkey province between 2005 and 2010. Their study result was 125 people (53%) were swimming, 39 people (16.5%) dropped in water, 37 people (15.7%) could not save people, 15 people (6.4%) saved people, 7 people (3%) falling from boat-boat, 5 people (2.1%) picking up / rescuing,

3 people (1.3%) fishing, 2 people (0.8%) were identified as vehicle accidents. This result same as our result of the study.

Drowned persons at the same time in 43 (67.2%) cases, 2 people at the same time in 12 (18.8%) cases and 3 people at the same time in 9 (14.1%) cases were drowned. Turgut & Orhan (2018), determined that when the number of drowning in the same case was examined, 1 person was drowned in 61 cases, 2 people in 11 cases, 3 people in 3 cases and 4 people in 2 cases. According to the studies of Turgut and Akdağ (2017), one person drowned in water in 67 cases, 2 people in 12 cases and 3 people in 2 cases were drowned. Orhan & Turgut (2018) their study In Turkey, reported that in 2011, 29 multiple drownings occurred. A total of 34 people, including two women and thirty-two men, intervened in the case of drowning, formed multiple drowning cases. Drowning in relatives who want to save the drowned person or people in the vicinity has increased the number of deaths in the same case.

The water environment where drowning took place were beach-sea 53 people (82.8%), creek-stream-river 7 people (10.9%), lake-pond 2 people (3.1%), flood and irrigation channel it has been determined as 1 person. In a study in Samsun in Turkey, Turgut and Orhan (2018) determined the water environment, where drowning was the most, as coast/sea (54%), creek-stream-river (18%), lake/pond and dam (9%), respectively it was determined that the water environment in which drowning occurred was the Black Sea with 52 (81.3%) people in this study.

The drowned people were 8 (12.5%) drowning in the life-saving environment and 56 (87.5%) drowning in the environment that does not have to be lifeguards in this study. Venema et al., (2010), if the preventative precautions fail, responders should be able to take the necessary steps to stop the drowning. The first difficulty is to recognize an endangered person and, where possible, activate rescue and emergency medical practices appropriately. Rescuers should take precautions not to be another victim by engaging in dangerous actions. It is extremely dangerous and not recommended for an untrained person to enter the water to rescue someone else. (Venema et al., 2010; Turgut & Turgut 2012 A rescuer should bring a source of buoyancy to help the victim to reduce risk during the rescue. (Szpilman et al., 2014).

Rescuers should take the necessary measures to assist the casualty by reducing the risk during the rescue.

When the results of our study were examined, it is understood that it is important to make the necessary arrangements regarding educational curricula, those close to the water environment. It is thought that providing proper training to individuals on lifesaving in water and water safety and disseminate this to their families seems quite important to save lives.

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