

Drowning in Ancient Greek History and Mythology

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The purpose of this article was to describe the prevalence of drowning as a cause of death in the mythology and ancient Greek history and under what circumstances it occurred. From all the names and references ($n = 40,000$) recorded in a database of the ancient and mythological Greek literature (Devouros, 2007), the number of drowning incidents was identified: $n = 37$, 17 males (45.94%), 6 females (16.22%), and 14 reports of multiple casualties (37.84%). The review of the database confirmed that drowning was attributed to “acts of demigod” but was more often due to human accidental submersion or to “acts of God” such as disasters like heavy rain, flooding, or tsunamis. Based on this review, the causes and rates of drowning (down from 57.5 to 2.69 per 100,000 population) may have changed through the centuries, but death by drowning remains a major health problem in Greece. **Keywords:** swimming, lifesaving, lifeguarding, water safety

It has been hypothesized that Paleolithic humans swam for the first time to escape from enemies or from wild animals. Wall paintings in an African cave depict humans swimming using the “doggy style” and an Assyrian anaglyph from the palace of Nineveh shows soldiers trying to swim across a river in an effort to escape from enemy archers (Plithakis & Plithaki, 1978). The Greek civilization has thousands of years of naval history with many reports about swimming appearing in both historical as well as mythological accounts from ancient Greece. Several angiographies and statues draw people swimming or diving (Avramidis, 2005; Plithakis & Plithaki, 1978).

Considering the above, the question that arises is whether all this aquatic activity actually leads to drowning. Being able to swim is often perceived as a primary means of preventing drowning. Although the ability to swim is not new to humankind, even during the last few decades, drowning has remained a leading cause of death worldwide, although rates in some countries have continued to decline. Currently, it has been argued that drowning is related to participation in aquatic activities (Department of National Heritage, 1993; Manolios & Mackie, 1988), and therefore, an interest or participation in aquatics (Euraire, 1996; Sillitoe & Thorpe, 1986) logically increases the risk and probability of increased drowning incidents.

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The situation in terms of drowning is not different to that in modern Greece. Today, Greece is the country with the 7th highest drowning mortality rates in all age groups within the 22 countries of the European Union (EU). The average drowning rate among EU countries is 1.27 per 100,000 population, while in Greece the average is 2.69 per 100,000 population (World Health Organization, 2002). In Greece, during a six-year period (1990–1995) drowning deaths among men (77% of all victims) far outnumbered those among women (23%; $n = 1806$; Alexe, Dessipris, & Petridou, 2002).

Although the drowning problem is more or less well established in many countries that maintain statistics about the causes of death, very little is known about what happened in the past. For example, what was the burden of drowning in ancient times? How, where and when did people drown? While existing knowledge affords us some insight into the nature of drowning as it occurs in contemporary society, a study examining its causes in ancient times is clearly interesting from several points of view.

First, it may show if drowning occurred due to the same or different causes during antiquity, allowing comparisons between ancient and contemporary aspects of life and culture. As the first lifesaving organization in the world, the Foundation of the Rescue of Drowned Persons in Netherlands was founded in 1767 (Bierens, 1996), and the World Health Organization produced world drowning statistics in 1948 (World Health Organization, 2007). So far we have been able to know about drowning only by making comparisons between the present and the last century. Drowning has been the subject of extensive research, but mostly from epidemiological, preventative, and/or forensic perspectives (Bierens, Knape, & Gelissen, 2002) and not from a historical view as the author is using in this review. One reported study examined the thoracic trauma at the battle field in Homer's *Iliad* (Barbetakis et al., 2004), but as far as we know, no similar report has yet been produced on a historical look at drowning using the literature on mythology. Clearly, by going as far as possible into the past and comparing it with the present, it is likely that more differences might emerge.

Second, this comparison can serve as a feedback by revealing whether the technological advancements that society has developed through the centuries (e.g., formation of water safety organizations, establishment of lifeguard services that work preventatively, improvements in weather forecasting that allow the safe planning of an aquatic activity, evolution in resuscitation, defibrillation and emergency disaster management, etc.) were actually successful in reducing drowning.

Finally, it may enable people to learn how drowning as a mode of death was perceived by ancient writers. The purpose of this review was, therefore, to examine whether there is ancient literary evidence to identify rates of drowning as a cause of death in ancient Greek mythology and history and under what circumstances it occurred.

Method

The present study examined the ancient period which covered drowning incidents that happened BC, or before the Christian era. A major literature search of that period was conducted by Devouros (2007). This search compiled a list totaling

40,000 Greek names that represent all the people who were mentioned through the centuries in the ancient Greek historical and mythological literature. Devouros' (2007) list of names from this literature was used as the primary source for information in the current study. The names, along with details about the individuals' lives and causes of death, were inserted into a database. A criterion sampling method (Patton, 1990), using two steps and based on two criteria, was used. The first step identified all cases that mentioned drowning, whether leading to death or survival. The second step compiled a subset of those cases that specifically referred to human drownings. The first criterion then excluded any cases that did not refer to instances of individual human drowning (e.g., references to "drowning cities" or "drowning animals"). The second criterion excluded any examples that relied upon unsupported assumptions or extrapolations. For example, when an objective description mentioned that "the town Heliki drowned," this instance was not included as a human drowning unless the text specifically identified that all (or a portion) of Heliki's inhabitants drowned.

From the total of 40,000 names identified by Devouros (2007), a total of 42 (0.10%) mentioned some form of drowning. Only 37 (0.09%) referred to cases of individual human drowning, thus meeting both sampling criteria. These 37 individual human drowning cases were chosen for subsequent analysis in this study.

Of the total of 37 human drowning cases from the ancient Greek historical or mythological literature, resulting in either death or survival, males comprised 17 cases (45.9% of the sample), females comprised 6, or 16.2% of the sample, and instances of multiple casualties of unknown sex comprised 14 cases (37.8% of the sample).

A careful observation of those 37 human drowning cases was attempted to detect emerging key variables that would be interesting to measure in terms of cause, outcome, and location of drowning. It was found that the reported drowning incidents occurred due to either an "act of God," an "act of demigod" or human accidental submersion. Act of God was defined as every case where one of the 12 mythological Gods of Olympus was involved in the drowning incident (e.g., Zeus, Artemis, etc.). Act of demigod was defined as every case where one of the demigods of the mythological Greek literature was involved in the drowning incident (e.g., Pan, Ino, etc.). A human accidental submersion was defined as each incident for which the primary cause of drowning was the unintentional action of the victim who was always a human. The outcome of drowning was either death or survival. Finally, drowning incidents were reported as occurring in the sea, lakes, and rivers or during disasters.

Drowning mortality rates extrapolated from the ancient and mythological Greek literature were computed using a descriptive analysis of the above variables to appreciate the overall reported incidence of drowning in the literature during the examined period.

Results

Our subsequent analysis of Devouros's (2007) review of the literature showed that 21 or 56.8% of the 37 drowning casualties were reported in the mythological literature, while 16 or 43.2% of the incidents came from actual historical literature

references. Among all 37 drowning incidents, the majority (i.e., 23 or 62.2%) resulted in death, while approximately one-third (i.e., 14 or 37.8%) had a favorable outcome leading to survival.

The three categories of causes of drowning, as identified and defined previously, varied from human accidental submersion (i.e., 20 or 54.1%), so-called acts of God (i.e., 14 or 37.8%), or acts of demigods (i.e., 3, or 8.1%). While all three causes were attributed to drowning in the mythological incidents, in the historical literature only the human accidental submersion was attributed to drowning. The categories of places where drowning occurred included the sea (i.e., salt water) where 28 drowning incidences or 75.7% occurred, lakes (i.e., still bodies of fresh water) where 2 incidents or 5.4% occurred, and rivers (i.e., moving bodies of fresh water) where 3 or 8.1% of drownings were reported. The remaining reported drowning incidents occurred in great disasters like heavy rains, flooding, or tsunamis (i.e., 4 or 10.8% of drownings; see Table 1).

As indicated previously, 23 (62.2%) of the victims died as a result of the reported drowning incidents while 14 (37.8%) were rescued and survived. Based upon the initial database sample of 40,000 names, 37 (0.09%) participants were involved in a drowning incident, which extrapolates to a drowning frequency of 92.5 per 100,000 population. Using the fact that 23 (0.06%) of the 40,000 names had an unfavorable drowning outcome leading to death we can estimate that the

Table 1 Demographics, Causes, and Outcome of Drowning in Greek Ancient History and Mythology ($n = 37$)

		Mythology ($n = 21$, 56.8%)	Ancient History ($n = 16$, 53.2%)	Total ($n = 37$)
Gender	Male	10	7	17, 45.94%
	Female	4	2	6, 16.22%
	Multiple Casualties	8	6	14, 37.84%
Place of occurrence	Sea	16	12	28, 75.7%
	Lake	1	1	2, 5.4%
	River	2	1	3, 8.1%
	Disaster	3	1	4, 10.8%
Cause of Drowning	Human	5	15	20, 54.1%
	Accidental Submersion			
	Act of God	14	0	14, 37.8%
	Act of Demigod	3	0	3, 8.1%
Outcome of Drowning	Death	12	11	23, 62.2%
	Survival	9	5	14, 37.8%

projected fatal drowning rate in the examined sample, based on ancient historical and mythological Greece, would have been 57.5 per 100,000 population.

Discussion

This historical review reveals that although swimming was considered a common activity in ancient Greece, drowning was an unavoidable fact of life as reported in both mythological and historical narratives that were reviewed by Devouros, sometimes in the form of oral history, anaglyphs, or angiographies.

The place of occurrence of the drowning incidents was, for both the mythological and the historical incidents, mainly the sea. In mythology, some drowning casualties were flying before the incident (e.g., Icarus fell into the sea when his waxed wings melted from the sun; Elle fell from the Golden Fleece that was flying), some committed suicide (e.g., Aegeas, because he thought that his son was dead; Iro, because his lover was drowned, etc.), some were trying to escape from enemies (e.g., Vritomartis jumped into the sea and eventually drowned while trying to escape from King Minos who was sexually attracted to her, etc.; see Cotterell, & Storm, 2004), and some were engaged in recreational activity (e.g., Sharon drowned when he fell into the water while trying to hunt a deer; a young boy named Taras drowned while playing with a dolphin, etc.). In ancient history, drowning incidents occurred in the sea during a battle (e.g., battle of Salamis) or as a result of a criminal action (e.g., Arion, the greatest singer of the known ancient world, who was forced to jump overboard after pirates stole his money). The lakes and the rivers were underrepresented as places of occurrence in both historical and mythological drowning incidents. All the incidents in rivers and lakes were accidental (e.g., Antinous fell in the Nile river possibly accidentally; Hylas fell in a lake attracted by the Nymphs, demigoddesses of the water, etc.).

In mythology, drowning was attributed to two variables that are not used in the modern statistics, while, as expected, it was attributed exclusively to human accidental submersion in those incidents that were mentioned in ancient history. More precisely, drowning in mythology was attributed less often to a human accidental submersion (e.g., Aegeas committed suicide; Leadros drowned while trying to reach the shore where his lover was waiting for him, and Iro committed suicide by drowning following her lover; Dedalus fell while flying and drowned; Arion was asked by pirates to jump into the sea from the ship; Parmenion fell overboard from a boat; Saron drowned while he was hunting, etc.), and more often was perceived as an act of God or act of demigod (e.g., in the Great Flood that was caused by Jupiter and Neptune all the inhabitants on Earth drowned except Deucalion and Pyrrha; Hekatonkheires, three gargantuan figures from the archaic stage of Greek mythology drowned many inhabitants on Earth during the War of the Titans, etc.). In contrast, in ancient history, drowning was attributed exclusively to human accidental submersion (e.g., Xerxes's soldiers drowned in the battle of Salamis; Hector, the son of Parmenion and friend of Alexander the Great fell overboard from a boat and drowned; Anna drowned in the river Numicus and since then she was treated like a Nymph, etc.).

The outcome of a drowning incident was either death or survival in both mythological and historical cases. More specifically, in mythology, people died

(e.g., the husband of Alkyone, Keyx, drowned at sea in a storm, etc.) or survived from a drowning incident (e.g., Danae was abandoned by her father with her baby son in a small wooden box to drown, but they survived; Vritomartis, in her desperation to escape from King Minos, jumped into the sea but was saved by Goddess Artemis; Voutis was seduced by the melodic song of the Sirens and jumped into the sea but he was saved by Goddess Aphrodite who fell in love and rescued him for making him her lover; Dionysus, feeling sorry for his kidnappers, saved them from drowning by changing them into dolphins, etc.). Similarly, in the historical narratives, some people drowned (e.g., the army of King Sanherib drowned in tidal waves; Xerxes's military navy drowned in the battle of Salamis, etc.), and others were rescued (e.g., a fisherman from Rhodes was saved by a dolphin; Ino saved Odysseus with a reach rescue, etc.).

Looking more carefully at the variables that constituted the drowning incidents in ancient and mythological literature, several similarities and differences were raised. The first similarity was that in both historical and mythological narratives, humans have often been rescued by dolphins. When Arion, the most famous singer of the known ancient world, was asked by pirates to jump overboard into the sea, he was saved by a dolphin (Cotterell, & Storm, 2004). Another report mentioned a fisherman from Rhodes who was saved by a dolphin (Avramidis & Devouros, 2008). Finally, Neptune sent a dolphin to rescue his young son Taras (Avramidis, 2005).

A second similarity was the fact that drowning incidents also occurred during naval expeditions in both ancient history and mythology. During the mythical journey of Jason and his Argonauts, one of the ships sunk and all its crew drowned. In another real sea journey, a ship capsized and some of the passengers drowned while others tried to escape from a sea creature, possibly a shark (Mouratidis, 1992).

A third similarity was that natural disasters were causes of drowning in various mythological and ancient incidents. Specifically, in mythology, Chrisopelia was living inside the whole of a tree. One very rainy day she nearly drowned when the tree fell down, but eventually was rescued by Arkadas who heard her desperate shouting for help. In the Great Flood, all the inhabitants on Earth drowned except Deucalion and Pyrrha. Mardonios's 20,000 marines drowned because of a storm, and finally, King Sanherib's army drowned because of tidal waves (de Meester, 2004).

Finally, suicide was attributed to drowning in several narratives in Greek mythology and ancient history. Aegeas drowned committing suicide when he mistakenly thought that his son, Theseas, was not going to return to Athens after his trip to the Island of Crete because presumably he was killed by the Minotaur (Brazouski, 2004). Hero committed suicide drowning herself when her lover, Leandro, drowned, failing to swim during the night to the shore where Hero was waiting for him.

As stated previously, apart from the similarities, a series of differences were also found while observing the literature. The first difference between the drowning incidents reported in Greek mythology and ancient history is that only in mythology casualties were saved by Gods or demigods who transformed them into something else. For example, when Vritomartis jumped into the sea to escape from King Minos, the Goddess Artemis, decided to save her from drowning by

transforming her into a fish-net (Cotterell & Storm, 2004). Goddess Hera was chasing Ino and her children, killing one of them. In her desperation, Ino jumped into the sea and the Gods saved her from drowning by transforming her into a Goddess of the sea with the name Lefkothea (Dede, 2004). According to Greek mythology, when Narcissus fell into a lake, instead of being drowned, the Gods transformed him into a flower that has his name (Cotterell & Storm, 2004). Another story tells that during a sea journey, the sailors decided to steal Dionysus and sell him as a slave. Dionysus got his revenge by making them crazy and they had hallucinations from which they jumped overboard. Dionysus felt sorry for them and transformed them into dolphins (Catton, 1990). Finally, in another story, Alkyone married Ceyx who swam toward her from the opposite shore. Zeus and Hera were angry with the young couple who called themselves 'Zeus-Hera', and decided to drown Ceyx by sending thunder into the sea. When Ceyx drowned, Alkyone was so upset that she fell into the sea to drown, but the Gods felt sorry for her and transformed her into a fish bird (Areopagus, 2000).

A second difference is that only in mythology did participation in flight activities lead to drowning. In two mythological cases, a flying casualty fell from the sky and drowned. The first was the case of Elle who fell from the Golden Fleece. The other was Icarus, who with his father, Daedalus, tried to escape from the Island of Crete while being pursued by King Minos. According to the legend, Daedalus and Icarus flew using wings made of feathers joined with candle wax. Icarus flew very high and the sun melted the candle separating the feathers, causing him to plunge to his death by drowning in the sea. On one ancient coin a second version of their story is depicted, claiming that they actually escaped, either by flying or using a ship (Bourdakou, 2000).

Another interesting difference between mythology and ancient history was the fact that when multiple drowning casualties were mentioned in ancient Greek history, this often happened on a battlefield as part of warfare. For example, during the battle of Salamis, many Persian soldiers drowned after falling overboard into the sea, while the Greeks, who knew how to swim, were able to swim safely to the shore. In another battle, during the siege of Tire by Alexander the Great, many soldiers died in the sea. Like in the Assyrian anaglyph from the palace of Nineveh (Plithakis & Plithaki, 1978), the soldiers who knew how to swim had better chances of avoiding drowning. Mardonios's ships sank and his 20,000 marines drowned when they passed a place near Macedonia during a storm (Sanderson Beck, 2004). King Sanherib's army drowned because an underwater earthquake between Greece and Turkey caused mysterious tidal waves (de Meester, 2004). It seems that in the past, like today, the ability to swim is an important skill for military personnel, and those who are poorly skilled are in greater danger of drowning in an aquatic emergency.

The final difference between the historical and the mythological drowning incidents was the fact that only the historical ones had some impact on culture. For example, despite the fact that the mythological figure of Odysseus is widely known as a key person in the Trojan War because he proposed using the Trojan horse to get inside the citadel of Troy, only very few may recollect that on his way back to Ithaca, he was saved from drowning by Ino, a demi-goddess, who used a reaching rescue to save him from drowning. On the other hand, when a young boy named Antinous drowned in the river of Neil, the Roman Emperor, Hadrian, was

so upset that he commissioned many statues of Antinous's figure, actually named a town after the decedent, calling it Antinoupolis, and put his figure on coins, honoring him like a god. This story was included in the current study because at that time, Greece was part of the Roman Empire and Hadrian made statues of Antinous in Delfi and monuments in Athens. The story of young Antinous is considered by some historians to be one of the most notable deaths in ancient Greek history (Brokaw, 1998; Walter, 2004). These examples illustrate that historical and mythological drowning deaths had inconsistent implications or consequences. Despite his renown, many do not recall Odysseus's drowning incident, perhaps because Odysseus was rescued and returned safely to Ithaca. If he had died of his drowning incident, then it is possible that his mythological drowning death might be more widely known. Perhaps because he was a King, his rescue story was recorded and saved over the centuries, unlike the drowning deaths of all his sailors, whose names and details of their deaths are unknown. Likewise, if Antinous, a much less well-known historical figure than Odysseus, had not been under the protection of the emperor, it is likely that his story would be unreported and forgotten over the centuries. The above comparison between the mythological survival of Odysseus and the historic drowning death of Antinous, shows that a historic figure had greater impact on culture than the drowning of a mythological figure.

While the comparison between ancient history and mythology brought several similarities and differences, another comparison between ancient and contemporary Greece raised several other similarities and differences. From a historical perspective, it seems that the people of ancient times and the writers perceived the causes of drowning in different ways. Ancient Greeks tended to attribute many natural or unexplained causes of human activities to the intervention of the mythological gods to explain aspects of life and death. As Greek society, civilization, culture, and tradition made the transition from worshipping the 12 gods of Olympus to monotheistic religious traditions, such mythological attributions became very rare. Modern society focuses more on objective, documented scientific facts and much less, if at all, on spiritual and mythological attributions.

On the other hand, the results of the extrapolation from the ancient Greek literature confirm that drowning was a common cause of death in historical and mythological ancient Greece as it is today. More precisely, the male: female drowning ratio of this study was 3:1, which is consistent with another study examining drowning trends in modern Greece (Alexe, Dessipris & Petridou, 2002). In ancient and mythological Greece, 75.7% of the incidents occurred in the sea, a similar finding to a study which found that 67% of the drowning incidents that occurred to children below 15 years of age ($n = 5,704$ during 1980–1999) happened at sea (Center for Research and Prevention of Injuries, 2007). In the same study it was also shown that drowning occurred in lakes and rivers, a similar finding to that in the current study but also in swimming pools and bathtubs. Probably the most important finding of the study was the fact that from the initial sample of 40,000, 37 (0.09%) participants were involved in drowning incidents of which about 2/3 had an unfavorable outcome leading to death (i.e., 23 or 0.057% of the 40,000 ancient names). Obviously, these frequencies underestimate the actual ancient drownings, but the extent of the problem becomes more apparent when estimations using the contemporary sample scale of 100,000 population are made.

In Greece today the average drowning rate is 2.69 per 100,000 population. This number is much lower than the rate in ancient Greece and mythology (57.5 per 100,000 population). It is still double the average rate in the rest of the EU (1.27 per 100,000 population; World Health Organization, 2002). Apparently, modern Greece still needs to reduce its relative drowning rate.

Conclusions

According to the review of historical and mythological literature, drowning was a frequent cause of death in ancient historical Greece as well as in Greek mythology, occurring due to human accidental submersion, acts of God or acts of demigod in seas, lakes, rivers, and in such disasters as heavy rain, flooding or tsunamis. The most frequent risk factors for drowning were human accidental submersion and acts of God. Although some of the causes of drowning have changed through the centuries, drowning death was, and still is, a major social and health problem in Greece.

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