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<https://www.shiftcomm.com/thinking/never-let-go-titanic-survival-101>

<https://www.britannica.com/story/timeline-of-the-titanics-final-hours>

<https://www.cruisemummy.co.uk/titanic-vs-modern-cruise-ships/>

问题:

1. what factors affected the possibility of survival most?
2. timeline of the titanic's final hour
3. how big was the titanic compared to a cruise ship?

文章:

“Mr. Andrews, forgive me. I did the sum in my head and with the number of lifeboats times the capacity you mentioned, forgive me, but it seems that there are not enough for everyone aboard.”
– Kate Winslet as Rose DeWitt Bukater in Titanic
According to Wikipedia, there were approximately 1,317 passengers and 900 crew members aboard the Titanic when it crashed into an iceberg in the North Atlantic Ocean on its maiden voyage in 1912. The ship was considered under capacity, as inventors estimated it would be able to carry 2,435 passengers and 900 crew members at any given time. As Rose Kate, so modestly pointed out, however, there were only 20 lifeboats on the ship at this time — enough to save approximately 1,178 people. While this was a non-issue for the fictional Mr. Andrews and his unsinkable ship, hindsight is 20/20. Only 705 people survived the horrific event, now considered one of the deadliest commercial peacetime maritime disasters in modern history. Not all survivors are created equal, though — there were some passengers aboard the Titanic who statistically had a higher chance of survival than others. Lucky for you, we analyzed the demographic information of 1,307 of the Titanic's passengers, published by the Vanderbilt University School of Medicine's Department of Biostatistics, to figure out what factors affected the possibility of survival most. If you ever find yourself in a Titanic-like situation, don't say we didn't warn you!

One of the first ways we sliced and diced the data was by class. While in Kate and Leo's version of events the lifeboats were not seated by class, turns out there was a difference in survival rates depending on what class ticket you held. 61.9% of First Class passengers survived while only 43% of Second and 25.5% of Third Class passengers survived. We also broke the data down by class and gender. Turns out, the blockbuster hit was right in terms of women getting on the lifeboats first. Women had a much higher chance of survival — regardless of what class they were in — than men did. Of the 466 women on board, 339 survived. Of the 843 men on board, only 161 survived — a measly 19% compared to the 73% of women who made it safely back to shore.

Next, we wanted to determine how much age played a factor in whether or not someone survived the Titanic. According to our data set, the oldest person aboard the Titanic was 80 years old while the youngest was just a few months. The women on board the ship were generally a bit younger than the men, the average age of the males was 30.6 while the average age of the females was 28.7. As you can see, however, there was more of a discrepancy in terms of the average age of survivors versus the average age of those who perished. For men, the younger you were, the more likely you

were to have survived the tragedy. For women, the older you were, the more likely you were to have survived. We already know that overall women had a higher chance of survival, so that's another point for the movie — of the males, looks like the children were sent to the lifeboats first.

Were you alone onboard like Jack or surrounded by family (albeit people you may not want relations with..) like Rose? Would either scenario make you more likely to survive on that fateful night in April? The graph below breaks out not only average number of family members but also the average number of spouses/siblings and parents/children aboard. Take a gander at the results: To no surprise, you had a better chance of survival if you had more family members aboard. It seems the presence of siblings or spouses had little to no bearing on your chances of getting out alive, as the average number is about the same for both those who perished and those who survived. Once again it seems like “women and children first,” as most Hollywood depictions show, may not have just been a trope. Being a parent or child gave you a lifeline - the greater number of parents or children you had accompanying you on the ship, the better your chances of survival.

Not many people realized that Titanic had three ports of call before sailing the high seas across the great Atlantic. The three ports were Quesstown, Ireland (present day Cobh, Ireland), Southampton, U.K., and Cherbourg, France. The highest rate of survival - shown below - was from Cherbourg, France where over half of the passengers departing from this region survived the accident. Those whom called Ireland their port of call had the second-highest survival rate at 35.8% while Southampton, U.K. came in last with a survival rate of only 1/3. When you look at Average Class per passenger, it most certainly makes sense as to why France boasts such a high survival rate with an average of 1.8. As for Ireland coming in second, most likely due to the female:male ratio than the class with 48% female passengers vs. UK's 32%.

As shown in the data, Hollywood's depiction of the Titanic wasn't far from the mark. If you were in fact a late 20-something female, had a parent or child on board and were a first class passenger (optimally from France) on the boat —; you had the greatest likelihood of survival. Historically speaking, the 58 men that survived the incident in real life received loads of criticism —; mainly from the press —; since there were more than 150 women and children who perished instead. Women and children first, indeed. That being said, there was an opportunity to save at least one more male from the wreckage, *cough, cough* ROSE! And while Jack Dawson's survival would not have had a significant effect on our overall analysis, it would have made for a much better ending to the epic blockbuster film.

April 14, 1912

Morning

Capt. Edward J. Smith cancels a scheduled lifeboat drill.

5:50 PM

After receiving iceberg warnings throughout the day, Captain Smith changes the Titanic's course, heading slightly south. However, the ship's speed is not lowered.

9:40 PM

The Mesaba sends a warning to the Titanic about an ice field that includes “heavy pack ice and [a] great number [of] large icebergs.” Wireless operator Jack Phillips—who works for the Marconi Company—is handling passengers' messages and never passes the warning on to the Titanic's bridge.

10:00 PM

The shift changes on the bridge, with First Officer William Murdoch relieving Second Officer Charles Lightoller as the officer of the watch.

Lookouts Frederick Fleet and Reginald Lee begin their watch in the Titanic's crow's nest. The night is unusually calm, making icebergs more difficult to see—because there are no waves breaking at the icebergs. Adding to the difficulties is the fact that the crow's nest's binoculars have been misplaced.

10:55 PM

The nearby Californian radios the Titanic: “Say, old man, we are stopped and surrounded by ice.” An annoyed Phillips responds: “Shut up! Shut up! I am busy. I am working Cape Race.” (A wireless station is located at Cape Race, Newfoundland, Canada.)

11:00 PM

Most of the Titanic's passengers have retired to their rooms for the evening.

11:35 PM

The wireless operator on the Californian turns off his radio.

Fleet sees an iceberg in the Titanic's path and rings the bell three times to indicate that something is ahead. He then calls the bridge. Murdoch orders the Titanic “hard-a-starboard” (to the left) and the engines reversed. He also closes the doors to the supposedly watertight compartments.

11:40 PM

The starboard side of the Titanic scrapes along the iceberg.

Captain Smith arrives on deck and is told that the ship has struck an iceberg. Shortly thereafter he is informed that the mail room is filling with water. Other reports soon come in of water in at least five of the ship's compartments.

Designer Thomas Andrews surveys the damage. The Titanic was built to remain afloat with only four compartments flooded. Andrews predicts that the ship has only about one to two hours before sinking.

April 15, 1912

12:00 AM

The lifeboats begin to be readied for launch. The 20 boats have space for only 1,178 of the more than 2,200 people (about 50%) on board. An order is later given for women and children to board first, with crewmen to row and guide the boats.

12:15 AM

Captain Smith orders Phillips and Harold Bride to send out a distress signal. Although SOS became the official distress signal several years earlier, many still use CQD. (CQ signifies a general call, and the D means distress.) Over the next several hours, Phillips will send out both.

The Frankfurt is among the first to respond, but the liner is some 170 nautical miles (315 km) away, to the south. Other ships also offer assistance—including the Titanic's sister ship the Olympic—but are too far away.

12:20 AM

The Carpathia receives a distress signal from the Titanic: "Come at once. We have struck a berg. It's a CQD, old man." The Cunard liner immediately changes course to aid the stricken ship some 58 nautical miles (107 km) away. It will take the Carpathia more than three hours to arrive.

Fourth Officer Joseph G. Boxhall, tasked with determining the Titanic's position, revises the coordinates. The location is now given as 41°46' N 50°14' W in the distress signals.

Passengers waiting to enter lifeboats are entertained by the Titanic's musicians, who initially play in the first-class lounge before eventually moving to the ship's deck. Sources will differ on how long they perform—until shortly before the ship sinks, according to some. Speculation will also surround the last song they perform—likely either "Autumn" or "Nearer My God to Thee." None of the musicians will survive the sinking.

12:45 PM

Number 7 on the starboard side is the first lifeboat lowered. It carries some 27 people even though it has room for 65. Many of the first lifeboats will be launched well below capacity, partially because of the crewmen's worry that the davits would be unable to hold a fully loaded lifeboat. In addition, many passengers are initially afraid to leave the ship, believing that the Titanic is unsinkable.

The Titanic fires the first of eight distress rockets. A ship has been sighted less than 10 nautical miles (18.5 km) away, but the crew is unable to contact it through telegraph or Morse lamp. The rockets also prove unsuccessful.

Crewmen aboard the Californian see the rockets but fail to determine their source. Thought for some time to be the nearby ship seen by the Titanic, the Californian will later be believed to have been some 20 nautical miles (37 km) away. (The mystery ship will be thought to be a Norwegian fishing vessel that was illegally hunting seal.)

12:55 AM

Number 5 is the second lifeboat to leave the Titanic. As it is being lowered, two male passengers jump into the boat, injuring one of the female occupants.

Number 6 is launched, containing passenger Molly Brown and lookout Fleet. The lifeboat is commanded by Quartermaster Robert Hichens, who was at the wheel when the Titanic struck the iceberg. His subsequent actions—notably his refusal to look for survivors because they will only find "stiffs"—draw the ire of other occupants, notably Brown, who threatens to throw him overboard.

1:00 AM

Number 3 is lowered. It carries approximately 39 people, 12 (33%) of whom are part of the ship's crew.

Water is seen at the base (E deck) of the Grand Staircase.

Number 1 is launched with only 12 people; it can hold 40. (An emergency cutter, it is smaller than a standard lifeboat and was designed for quick lowering, as in cases of a person overboard.)

Among its occupants are first-class passengers Sir Cosmo Edmund Duff-Gordon and his wife, Lucy. Seven of the occupants are crewmen, and Duff-Gordon pays each of them £5, reportedly to replace lost clothing and gear but possibly—according to subsequent accusations—as a bribe to keep the crew from letting anyone else into the boat.

1:10 AM

Number 8 is among the first lifeboats lowered on the port side. It is launched with only 28 people,

including first-class passenger Lucy Noël Martha, countess of Rothes, who will later man the tiller. Isidor and Ida Straus are offered seats in the boat. However, Isidor refuses to disobey the order of “women and children first.” Ida, in turn, will not leave her husband's side, reportedly saying, “Where you go, I go.” Neither will survive.

1:20 AM

Number 10 is launched. Among the occupants is nine-week-old Millvina Dean, who will become the last living survivor of the disaster; she will die in 2009 at the age of 97.

Number 9 on the stern starboard side is lowered. With some 56 people on board, it is nearly full.

One of the occupants is American businessman Benjamin Guggenheim's alleged mistress.

Guggenheim and his valet later change into formal attire, and he reportedly says, “We've dressed up in our best and are prepared to go down like gentlemen.” His body will never be recovered.

1:25 AM

Possibly not understanding the direness of the situation, the Olympic radios: “Are you steering southerly to meet us?” The Titanic responds: “We are putting the women off in the boats.” While still hours away, the Olympic will be informed by the Carpathia of the Titanic's sinking.

Number 12 is lowered with about half of its seats empty. However, it will eventually carry more than 70 people.

1:30 AM

Amid the growing panic, several male passengers try to board number 14, causing Fifth Officer Harold Lowe to fire his gun three times. He is later placed in command of the boat. After the sinking of the Titanic, Lowe will transfer people into lifeboats 4, 10, 12, and collapsible D so he can return to look for survivors in the water. He will pull several men to safety and rescue those in the partially flooded collapsible lifeboat A. (The collapsible lifeboats have canvas sides that can be folded for easy storage. Their capacity is 47.)

Phillips continues to send out distress calls with growing desperation: “Women and children in boats. Cannot last much longer.”

Number 13 is launched and is soon followed by number 15, which holds many third-class passengers. As it is being lowered, number 15 nearly lands on number 13, which has drifted under it. However, the crewmen in number 13 are able to cut the launch ropes and row to safety.

1:35 AM

Number 16 is launched.

1:40 AM

Collapsible C is lowered. Among its occupants is White Star chairman J. Bruce Ismay. Although he will later claim that no women or children were in the area when he boarded the lifeboat, others will refute that assertion. His decision not to go down with the ship will result in many branding him a coward.

1:45 AM

Number 2, an emergency cutter, is launched under the command of Fourth Officer Boxhall. Aboard are some 20 people.

Number 11 is lowered with some 50 people aboard.

Number 4 is readied for launch. Madeleine Astor, some five months pregnant, is helped onto the boat by her husband, John Jacob Astor. When Astor asks if he may join her, Second Officer Lightoller—who has strictly followed the order of women and children first—refuses. Astor does not press the issue and steps away. His body will later be recovered.

2:00 AM

The only lifeboats that remain on the Titanic are three of the collapsible boats.

The Titanic's bow has sunk low enough that the stern's propellers are now clearly visible above the water.

Crewmen lower collapsible lifeboat D from the roof of the officers' quarters. More than 20 people are in the boat.

As the Titanic's bow goes under, collapsible A is washed from the deck. Some 20 people manage to get into the boat, which is partly filled with water. By the time Lowe in number 14 comes to their aid, only 12 are alive. Three bodies are left in the boat, which will be discovered a month later by the Oceanic.

As crewmen try to release collapsible B, it falls, and, before it can be righted, it is swept off the Titanic. Some 30 men find safety on the still-overturned lifeboat, including wireless operator Bride and Second Officer Lightoller. The men will later be taken aboard numbers 4 and 12.

Captain Smith releases the crew, saying that "it's every man for himself." Smith is reportedly last seen on the bridge. His body will never be recovered.

2:17 AM

Phillips sends a final distress signal. He reportedly makes it to the overturned collapsible lifeboat B but succumbs to exposure. His body will not be found.

2:18 AM

The lights on the Titanic go out, plunging the ship into darkness.

As the Titanic's bow continues to sink, the stern rises higher out of the water, placing great strain on the midsection, and the ship breaks in two between the third and fourth funnels. Reports would later speculate that it took some six minutes for the bow section, likely traveling at approximately 30 miles (48 km) per hour, to reach the ocean bottom.

The stern momentarily settles back in the water before rising again, eventually becoming vertical. It briefly remains in that position before beginning its final plunge.

2:20 AM

The stern disappears into the ocean, and the Titanic is gone.

Water pressure allegedly causes the stern, which still has air inside, to implode as it sinks. The stern lands some 2,000 feet (610 meters) from the bow.

Hundreds of people are in the freezing water. Although there is room in most of the lifeboats, crewmen are fearful that the boats will be swamped. Several boats eventually return, but too late. A few people are pulled to safety, but most die of exposure.

Over the next several hours, numerous ships try in vain to contact the Titanic. At one point, the Birma's wireless operator, believing that he has heard the liner, sends a message: "Steaming full speed to you; shall arrive you 6 in morning. Hope you are safe."

3:30 AM

The Carpathia arrives in the area, firing rockets.

4:10 AM

Number 2 is the first lifeboat to reach the Carpathia. It will take several hours for the ship to pick up all the survivors.

Ismay writes a message to be sent to the White Star Line's offices: "Deeply regret advise you Titanic sank this morning fifteenth after collision iceberg, resulting serious loss life; further particulars later."

8:30 AM

The Californian—which at approximately 5:30 AM learned of the Titanic's sinking—arrives. It searches the area for several hours but fails to find any survivors.

8:50 AM

The Carpathia, carrying the 705 Titanic survivors, heads to New York City, where it will arrive to massive crowds on April 18.

While in 1912, the race was often to build bigger and bigger ships, that approach is slightly different today. While we are seeing new ships launching every few years that break the record in terms of size, we're also seeing many cruise lines launching smaller ships.

These smaller ships are sometimes aimed at offering a more luxurious experience to guests, ensuring a higher staff-to-guest ratio. Or they're built to explore areas of the world few passengers have been able to, including the polar regions.

I've taken a look at around 300 of the world's most popular cruise ships to get to some average figures in terms of the modern ship size, so we can compare them against the Titanic. I'll pick out a couple of key ships in the stats too, so you can see just how the Titanic ranks when put against modern ships.

Gross tonnage is one of the best ways to compare ships. The Titanic's gross tonnage was 46,328 while the average ship in today's world would have a gross tonnage of around 77,000. So the Titanic was around 40% smaller than your average cruise ship today.

Gross tonnage isn't anything to do with the weight of the ship, despite the word "ton" being in the term. That can confuse a lot of people. It's instead got to do with the internal volume of the ship.

One gross ton is the same as 100 cubic feet. The higher the gross tonnage, the bigger the ship is overall, as it has more internal space.

So this is the best way to compare the Titanic to modern ships since it takes into consideration all of the measurements and explains just how much more spacious today's ships would be.

While the Titanic may be slightly longer than the average cruise ship today, she has a much smaller gross tonnage, because she wasn't as wide nor was she as tall. She may have had a similar number of decks, but each deck would have felt more spacious.

It's worth pointing out that when you look at one of the smallest cruise ships you can book right now – Celebrity Xploration – she has a gross tonnage of just 319.5 – less than 10% that of the Titanic. So really, the Titanic size comparison depends on the type of modern ship you compare her to.

And if you look at one of the smaller luxury ships that aren't a specialist exploration ship – such as Silversea's Silver Shadow – she has a gross tonnage of just 28,258, only around 60% of the size of the Titanic.

We'll compare Titanic to the largest ships just below, but the key point to make is that Titanic wouldn't be completely dwarfed in today's cruising world, although from a gross tonnage perspective, she would be well below average.

One of the easiest ways to visually compare a cruise ship is by looking at the length. The Titanic was 882 feet long, and when you take all modern cruise ships into account, including dedicated exploration ships, the average is around 830 feet. So, the Titanic was actually longer.

Some context is important here, though – that average, as I've stated, includes the many small

exploration ships that are purpose-built to be smaller so that they can either get around the polar ice caps or into ports that aren't designed for larger ships.

If you were to take only the top 150 cruise ships in the world in terms of length, every single one of them would be longer than the Titanic. But we'll get to the comparisons against the larger ships shortly.

The Titanic is significantly longer than the smallest ships currently sailing. Going back to the Celebrity Xploration, which is only 98.3 feet long, the Titanic is almost 10 times the length.

But the Silver Shadow, one of the smaller luxury ships, isn't quite as dramatic a difference. She's 610 feet long, which puts her at around two-thirds of the length of the Titanic. That might still sound significant, but we're talking about one of the very smallest ships of 300 that currently sail.

The average of modern cruise ships is definitely weighted lower by these speciality exploration and luxury ships, but remember that there are many ships that are longer than the Titanic was too.

The Titanic may have been slightly longer than the average cruise ship, but in terms of width, she was slightly narrower. She measured 92.5 feet across, while the average cruise ship in the modern world is 110 feet across.

But again, there is context to consider as this also includes the smallest ships in the world, of which there are many. And these smaller ships are often designed for very small passenger numbers, meaning they aren't particularly wide at all.

If you once again restrict the stats to only the top 150 cruise ships in the world, the average width is even larger at 128 feet. That's over 35 feet wider than the Titanic was, around 33%.

But let's again see how she compares to the narrowest cruise ship, which again is Celebrity Xploration (although Le Ponant, a luxury yacht-style cruise ship, is the same width). These two ships are just 36 feet wide, so around 40% of the width of the Titanic, which was built around a century earlier.

And if we look at the Silver Shadow, she is 79 feet wide – around 85% of the width of the Titanic. As I've covered, a lot of modern cruise ships aren't built to be the biggest but instead target a particular market. And sometimes, they're built to certain dimensions to be able to sail to a specific destination.

And one of those is the canals of the world, including the Panama Canal – one of the most popular since it allows cruise ships to easily travel between the American coastlines.

The newest locks in the Panama Canal have a set of restrictions that ships cannot exceed if they want to be able to sail through. These ships are classified as New Panamax.

And it's interesting to note that, with the dimension restrictions set at 168 feet wide and 1,201 feet long, the Titanic would have been able to sail these locks quite easily. She could also navigate the Suez Canal.

The Titanic had 9 decks that passengers could access. While modern cruise ships can have between 3 and 18 decks, the average cruise ship will have a similar number to the Titanic – usually between 9 and 11.

The largest ships in the world often have more – of the 20 decks on the Icon of the Seas, 18 are passenger decks. And some MSC Cruises and P&O Cruises ships have decks numbered as high as 20, although not all of these are open to guests.

Of course, it's worth remembering that the Titanic had a class system in place, and some of the areas of the ship would be out of bounds to third- and second-class passengers. And conversely,

first-class passengers would have avoided the areas where third-class passengers tended to mingle. Modern cruise ships don't have anything like those restrictions. There will be some facilities that are exclusive to certain suite guests – things like the Haven on NCL, MSC Cruises' Yacht Club or the Family Lounge on Carnival – but the majority of the ship's decks are open to all guests at almost all times.

The Titanic, at maximum capacity, would have been able to hold 2,435 passengers and 892 crew, for a total combined capacity of 3,327 people. If you take the average cruise ship today, including all the small ships that often have fewer than 100 passengers, then the average is almost identical – around 2,450 guests and 750 crew.

Again, if we take that average to just being of the top 150 cruise ships in the world, it jumps up significantly to around 3,500 passengers and a crew of around 1,400, for a total capacity closer to 5,000.

Of course, there are some ships much larger than this again, but there are a lot of ships that have a passenger capacity between 3,000 and 3,500 so the super-ships don't skew these averages too much.