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Statistics

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How does Child Mortality Affect Life Expectancy in Trinidad and Tobago, South Korea, and Japan?

Child mortality is an unfortunate event that happens to all countries and it heavily affects the life expectancy of a country. Child mortality and life expectancy are two measures that are closely related. When there is a large number of children dying, those who live to old age will be canceled out when calculating the life expectancy of a country.(Kiersz,A.) When that occurs, the average life expectancy of that country drops due to the change of balance between the low values (younger ages) and the higher values (older ages). I will investigate and research the life expectancy and child mortality rates of the following countries: Japan, South Korea, and Trinidad and Tobago. The tool that I will be using is Gapminder. Gapminder is a tool that uses reliable statistics to make the world more understandable by showing how countries change over time due to certain factors like income and CO2 emissions for example. Like all countries, with improvements in healthcare, including medical technology and vaccines, female literacy, and water supply to the inhabitants of a country, child mortality rates will decrease which then, in turn, causes life expectancy to increase.

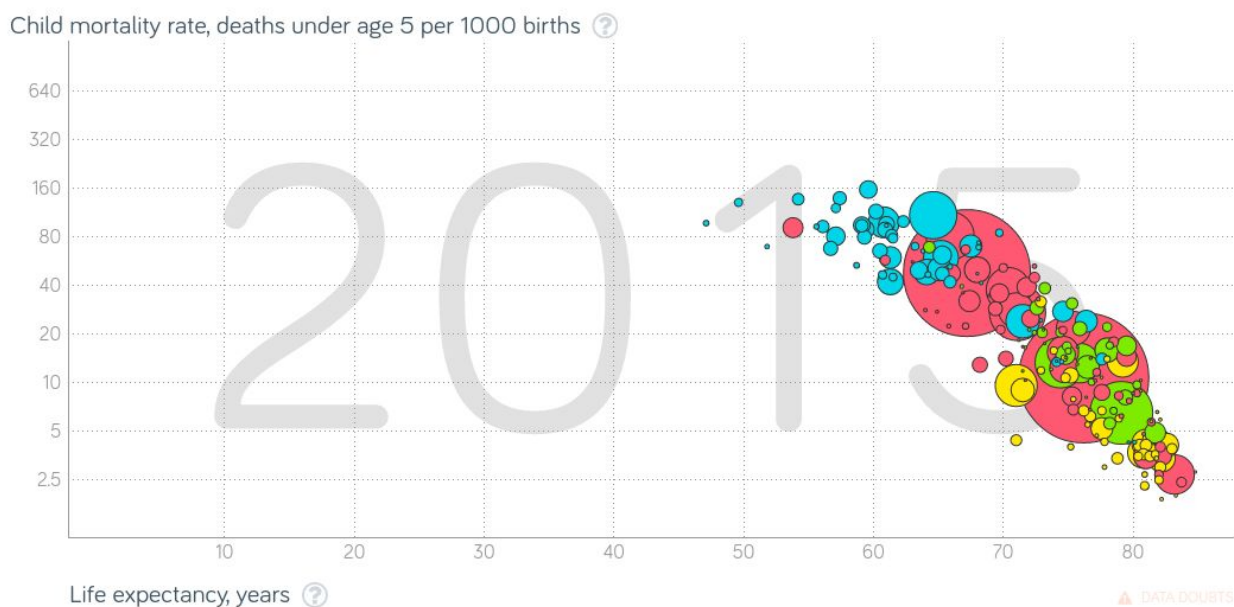
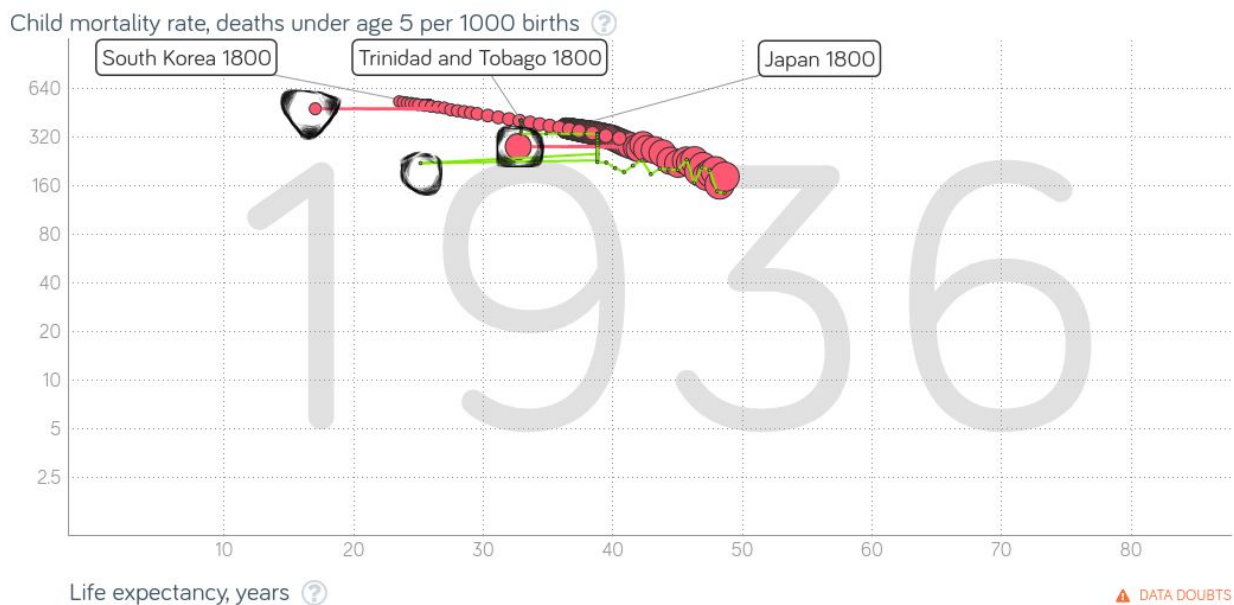


Image above: Where all the countries in the world stand in terms of child mortality and life expectancy

Starting the world in 1800 with a graph on Gapminder, the life expectancy is the X axis and child mortality rates under the age of 5 per 1,000 births are the Y axis. The size of the bubbles represents the country's population. The colors represent the region that country belongs to. Red represents Asia, Green represents the Americas, Blue represents Africa, and Yellow represents Europe. The life expectancy scale goes by 10s and the child mortality rates varies a bit from going by 5's, 20's, 40's, etc. Japan (large red circle on graph), Trinidad and Tobago (green circle on graph), and South Korea (smaller red circle on graph), all start out with a life expectancy between the ages of 25 to 36 years. All three countries have very high child mortality rates with South Korea having a life expectancy of 25.8 and a child mortality rate of 503 deaths per 1,000 births, Trinidad and Tobago having a life expectancy of 32.9 and a child mortality rate of 406 per 1,000 births, and Japan having the life expectancy of 36.4 and the child mortality rate of 363 deaths per 1,000 births. As time goes on all the way to 1918, all three countries took a sharp decline in life expectancy.



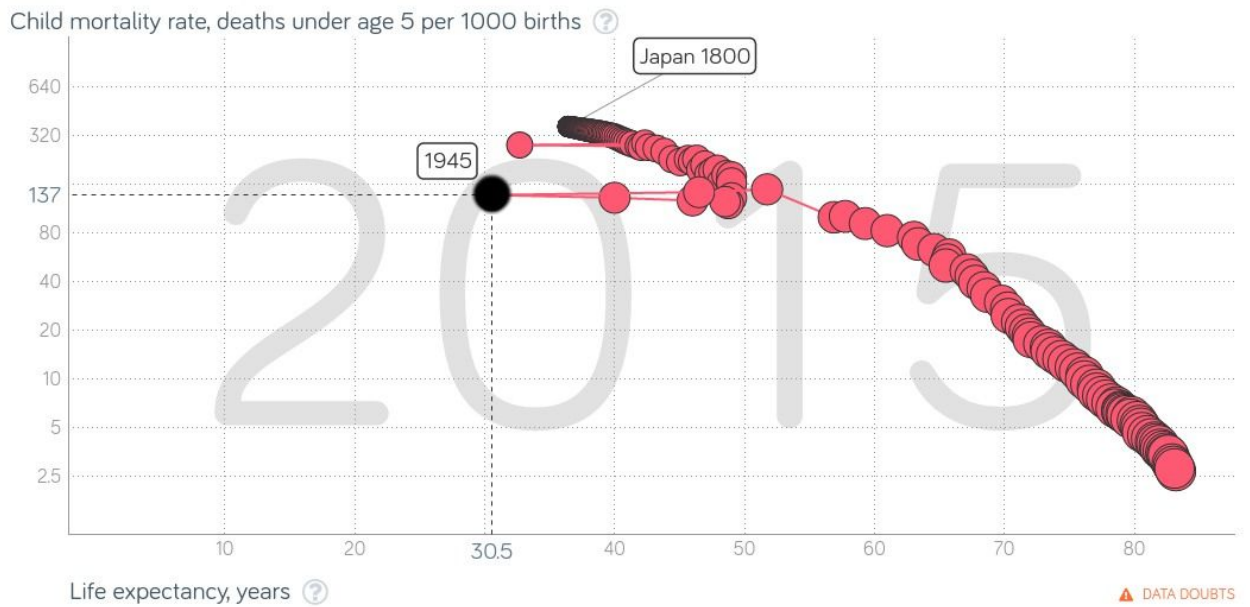
This sharp drop is due to World War I and the Spanish influenza outbreak.(History.com)
 For Trinidad and Tobago, men were sent to fight in the war alongside Britain, mainly in Seaford, Sussex. The trip there to Britain was hazardous and deadly for the men, leaving the life expectancy for Trinidad at 25.2 years of age. The ships that the soldiers were on sailed to Halifax in Canada where hundreds of men were left with severe frostbite. The South Coast Leader recalled that the winter of 1914/15 was cold and harsh. The West Indian soldiers were confined to their poor accommodation and unsuitable clothing for the duration of the winter and, consequently, their health and morale began to suffer. Following this, pneumonia and mumps swept throughout the camp, resulting in many casualties.(Kempshall C.)

In Korea during 1918, Korea was under Japanese Rule. During this time, the Japanese, with new land conquered, began its resettlement program and that had greatly affected the lives of Koreans, including their life expectancy, which had dropped to only 17 years. Korean farmers were deprived of their own land and forced to work for the Japanese government. Unfortunately, the reward of their hard work went to the Japanese and left them constantly on the brink of starvation. Also, about 200,000 Korean women were forced to sexual servitude for the Japanese military gaining them the term “comfort women”. Venereal diseases still ran rampant and left many women women swollen with infection. (Park) Also, Korea had been swarmed

with influenza in 1918. According to Dr. Schofield, the number of Influenza-population in Korea in 1918 was estimated to be 4,000,000 to 8,000,000, which corresponds with other resources (6.7 per 1,000 in Gwangwon province). Considering the cases that weren't registered as influenza infection by misdiagnosis of pneumonia complication, the sum should be higher. (IS,C.)

In Japan in 1918, they were also affected by influenza which had also dropped their life expectancy to 32.7 and WWI. During the pre- and post-pandemic years, P&I [pneumonia and influenza] mortality occurred with the highest rates in children and seniors with excess mortality rates that peaked in children <5 years.(Richard S.) The Spanish Influenza affected Japanese armed forces by admission lists showing a sudden increase in the number of inpatients with influenza in November 1918 and showed the effect of the first wave of this pandemic in Tokyo. Even though the patients were otherwise healthy male adults, the death rate was high (6%-8%). The number of influenza patients suddenly increased to 109 in November and 9 of them died (8%).(Kawana, A.) Child mortality also had increased during the Spanish influenza epidemic. Infant mortality rates exhibited a rising trend during the Taisho period, peaking in 1918 during the influenza pandemic. In fact, while infant mortality rate decreased in Western countries, they increased during the Taisho period in Japan from the end of the nineteenth century, widening the gap of relative disparity in infant mortality rates between Japan and the West. The reason for this was that while Japan's government was striving to become a military power, the government neglected to invest in public healthcare measures effective in combating infectious diseases. Behind these facts of infant mortalities during the Taisho period, lied the increased movement of people in Japan due to westernization, which then, in turn, increases the frequency of people coming into contact with germs.(Ogasawara, K.)

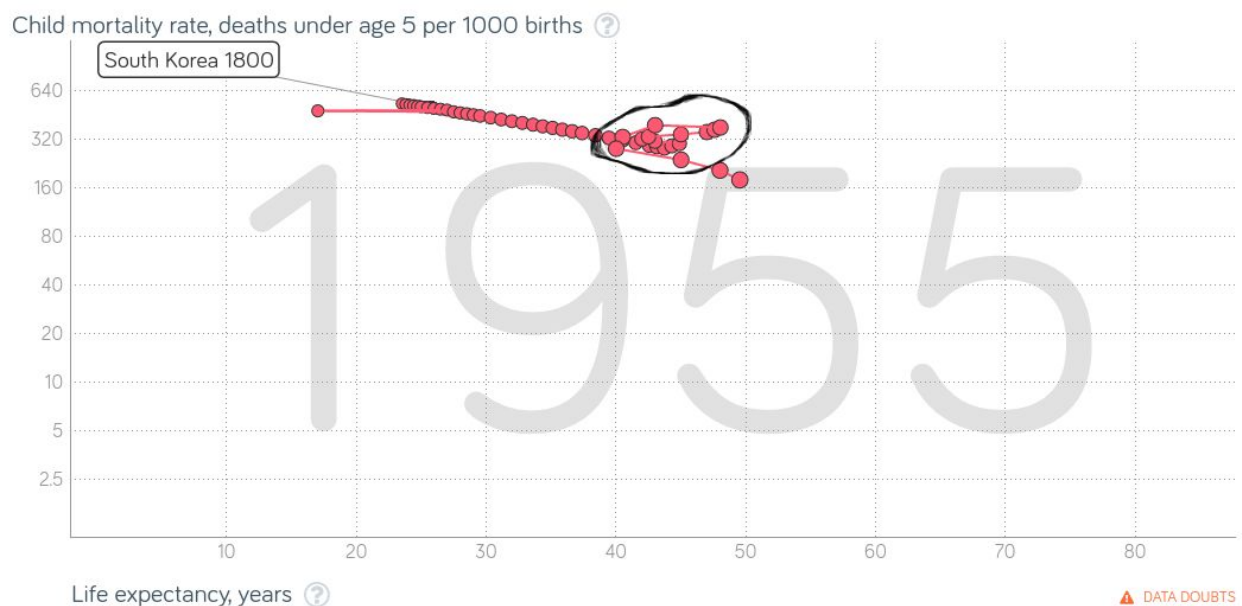
With the graph on Gapminder continuing on from 1918, all three countries are on a steady decline in terms of child mortality and increasing in terms of life expectancy. Until 1945 hits, Japan takes another large dip in life expectancy.



This is because, during World War II, the U.S had dropped two atomic bombs on Hiroshima and Nagasaki.(Taylor, A.) The atomic bomb had greatly affected the mothers and fetuses/children. One of the initial studies done by the Atomic Bomb Casualty Commission conducted in Nagasaki in 1950 revealed that the incidence of miscarriage, stillbirth, and death during infancy was 43 percent, seven times the incidence in a control group who received no radiation. In an interdisciplinary laboratory investigation initiated at UCLA, the study showed that the effect of radiation alone revealed the marked vulnerability of the developing brain.(Aasc.ucla.edu.) After WW2, Japan didn't have enough economic support to improve their healthcare due to the costs of the war. As a result of the war, the military operations had depleted the public health budget. The Japanese faced health problems on an unprecedented scale at the end of WW2. The country's morale had declined drastically due to the economic blockade in effect since 1940, the loss of 2.3 million lives in combat, and the 996,000 lives lost to air raids and bombings. Food was scarce because the means of production, transportation, and rationing were malfunctioning and malnutrition made the Japanese more susceptible to disease and untimely death. Crowded living conditions and lack of opportunities to bathe exacerbated their vulnerability.(Nishimura, S.)

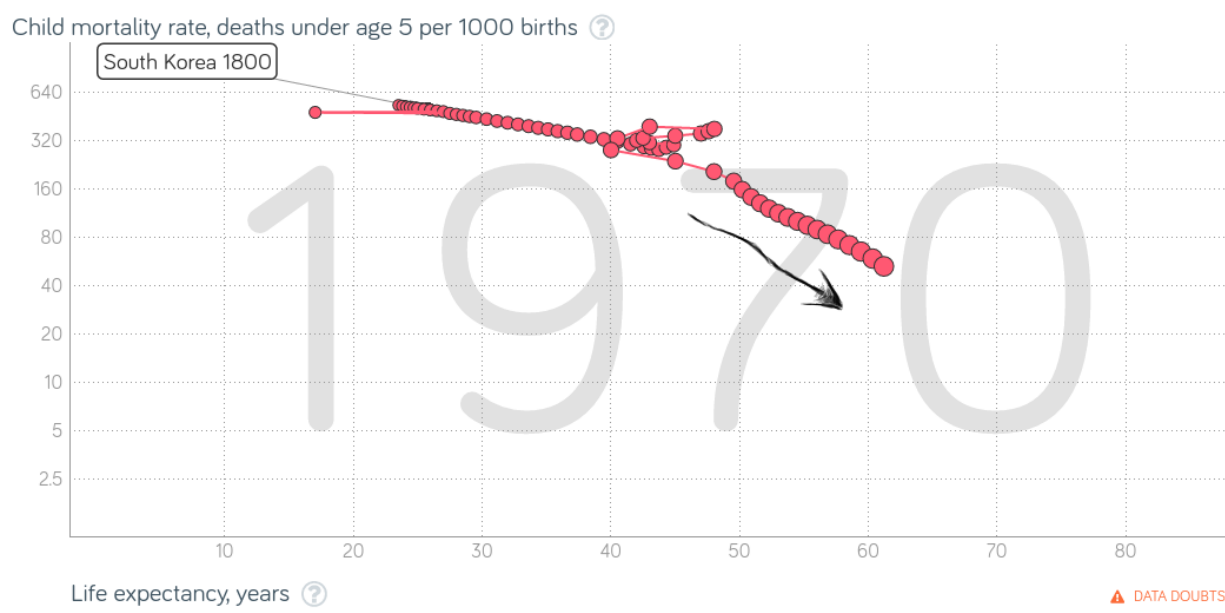
Since World War II, civilians, especially women and children, have increasingly been targeted during wars with a profound impact on the health of mothers and babies. Community public health services for new mothers included formula kitchens and well-baby clinics. Infant mortality statistics from 1942 to 1945 at Heart Mountain were comparatively better for the same time period than for the state of Wyoming or the United States. These outcomes have reflected the camp's extensive social and family support, adequate housing and food, and universal access to maternity services.(McKay, S.) In general, it is noted that with access to maternal services, clean water, and sufficient housing, child mortality rates decrease as stated, *“Many of the diseases that kill children younger than 5-years-old are caused by lack of access to healthcare facilities, improper hygiene and sanitation, unclean water and not enough food, and low levels of education and information.”*(The Borg. Proj.)

In the time period of the late 1940s and mid-1950s, on the graph on Gapminder, South Korea goes through a bizarre yoyo-ing with their life expectancy increasing and decreasing and child mortality rate going on a slight decrease.



This is due to the Korean War which led to about 3 million killed or wounded and many homeless or separated from families.(Chang-Bae, C.) Overall, even after the casualties from the Korean War, South Korea had greatly improved their healthcare system which made millions insured and the child mortality rate to significantly drop. The availability of medical services

increased enormously after the Korean War, covering the basic needs of the country, including the remote rural areas, to a satisfactory level. Most people have medical insurance coverage at this point. Public health and sanitation have greatly improved, thus reducing epidemics, increasing life expectancy, and reducing child mortality sharply. (Im, H., Yu, W.) In 1962, South Korea began its national family planning campaign to reduce women's unwanted births through a program of information, basic maternal and child health services, and the provision of family planning supplies and services. By 1970, the TFR [total fertility rates] had fallen to 4.5 against a background of rapid industrialization and the waning of the country's largely agrarian character. (Haub, C.)



In Trinidad and Tobago, child mortality was on a steady decline while life expectancy was on the rise. However, child mortality did slightly increase from the 1990s to 2005 as shown below:



This was due to disorders during perinatal period, which is the period of time immediately before and after birth. Causes of infant mortality reveal that disorders originating during this time generally were responsible for over 50% of deaths in the 0 to 1 year age group for the period 2000-2004. Infant mortality increased from 1990-2005 while maternal mortality declined over the same period. A review of infant mortality identifies areas of concern that were addressed through hospital-based interventions including the recruitment of additional neonatal specialists, acquisition of needed equipment and supplies, and capacity building for staff. Other interventions included increased health promotion through the Baby Friendly Initiative and the Breastfeeding Initiative. These interventions have resulted in a decline in infant mortality. An improved water supply for Trinidad or any other country, has been proven to not only increase the population of a country but also contribute to the decline of children under the age of 5. The population with access to an improved water supply increased from 71.4% in 1990 to 82.2% in 2005. (Alexis P.) According to the World Health Organization, six solutions to the most preventable cases on under-5 deaths include:

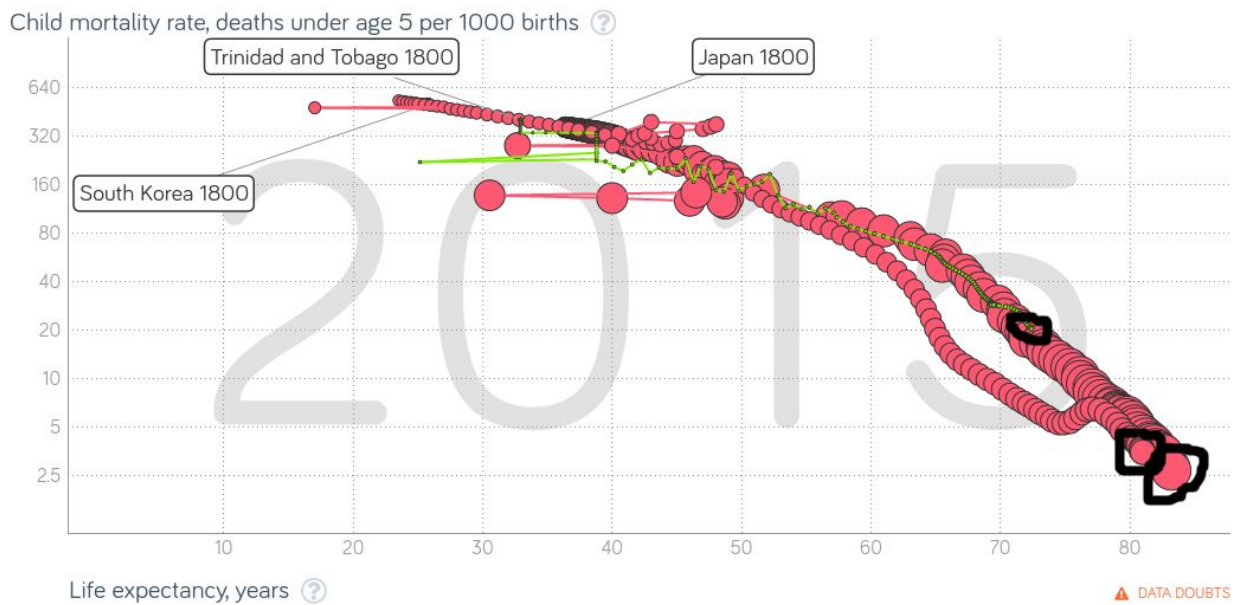
1. Immediate and exclusive breastfeeding
2. Skilled attendants for antenatal, birth, and postnatal care
3. Access to nutrition and micronutrients
4. Family knowledge of danger signs in a child's health

5. Water, sanitation, and hygiene

6. Immunizations (Huber, C.)

For the health in Korea, one of the sources states that as society and the economy have developed, the health status of the population also improved. These improvements in life expectancy and crude death rate are largely attributable to improvements in nutrition, the population's enhanced concerns about their health, the development of medical technology, and increased provision of healthcare services. Furthermore, life expectancy will increase as the healthcare system allocates more resources to areas such as health improvement, prevention, and quality of care. (Chang-Bae, C. p. 9, p.161) The quality of Korean people's lives has been increasingly improved in general due to the development of medical technology. (Song, Y.)

In Japan, contrary to previous studies that focused on such improvements in nutrition, in recent years, it has been revealed that other public health measures, such as the development of water and sewerage systems, also contributed to the decrease in mortality rates from the nineteenth to the twentieth centuries. More recently, it has been revealed that national health insurance systems, which expanded between the end of the nineteenth and the beginning of the twentieth centuries, contributed to reductions in mortality risk. Also, in general, Bowblis revealed that maternity benefits, supplemental income to new mother, and proper infant care practices provided by health insurance also reduced the infant mortality rate. (Ogasawara, K. pg 171 & 172)



Overall, with all that is presented here, evidence shows that with better healthcare/benefits, female literacy, and better nutrition/water, the child mortality rates decrease and the life expectancy increases. On the Gapminder graph, for 2015, we can see that all 3 countries, Trinidad and Tobago, South Korea, and Japan, all have much lower child mortality rates and higher life expectancies, especially Japan, than when they had started out as depicted above. Looking into child mortality rates and life expectancy averages of a country can give you a view of one of the many ways a country has changed and continues to change over time. With less children dying due to a lack of nutrition, vaccines, and proper care from their mothers/guardians, the life expectancy of a country is going to increase. With Gapminder and reliable statistics, we can all see and experience the advancement of developed and developing countries together.

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