FACTORS AFFECTING BIRTH AND DEATH RATES

There are many different reasons why some countries have high or low birth and death rates. Birth rates and death rates are inter-related, i.e., higher death rates leads to high birth rates.

High death rates occur in developing countries where poverty means that people have a poor diet, lack of access to medical care and unhygienic living conditions that cause disease and often death.

10 million children under the age of 5 die every year. 99% of these deaths occur in developing countries.

The Infant mortality rate is the number of infants per 1000 of the population who die before their 1st birthday. The Childhood mortality rate is the number of children who die before their 5th birthday. The chances of surviving past your 5th birthday depends on where you live in the world. These rates are linked, i.e., countries with high infant and childhood mortality rates have high birth rates.

The factors that contribute to a high childhood and infant mortality rate include mother’s level of education, sanitation and access to clean drinking water, the available medical care, including immunisation and other public health measures.
In countries where fathers have no formal schooling, the infant mortality rate is double that of countries where fathers have been educated. This is mainly due to the standard of living.

The **total fertility rate** has an impact on the birth rate. This is a measure of the average number of children that a woman is expected to have over her life. In developing countries, this can be as high as 6.89 children in Niger and in developed countries, as low as 0.8 in Singapore.

A fertility rate of 2 is considered the stable replacement rate in a population. Rates over 2 children show population growth and can result in difficulties that families could have feeding and educating their children, as well as the difficulties women could face pursuing a career. Rates below 2 show declining population growth and an ageing population. South Africa’s fertility rate is 2.2 (CIA World Factbook, 2014). The trend in industrialised countries, especially in Western Europe, is declining fertility rates.
We have seen that overall, death rates have reduced and life expectancy has increased in many parts of the developed world. This is a result of improved standards of living and medical care. When death rates reduce in a country, it is a sign of progress.

There are several factors that affect an individual’s life expectancy, as opposed to the life expectancy of the population in general. These include:

- Diet and exercise
- Genetic disorders
- The use of tobacco, drugs and alcohol

The factors described below affect the birth and death rates of a population, rather than an individual.

**Disease**

Diseases have had an impact on the population throughout history and still kill millions of people a year.

An *epidemic* is a disease that spreads rapidly among a community, at the same time.

A *pandemic* is an epidemic that spreads across a large region, for example, across continents or even worldwide.

Tuberculosis and smallpox pandemics have occurred in historical times and more recent pandemics include HIV and H1N1.
Historical epidemics and pandemics have affected vast numbers of the population, with the main ones being described below:

The **Plague of Athens** in 430 BC was caused by typhoid fever that killed a quarter of the population over a 4-year period.

The **Antonine Plague** from 165 to 180 AD was thought to be smallpox and was brought to the Italian peninsula by returning soldiers. It killed an estimated 5 million people.

The **Plague of Justinian** from 541 to 542 was the first recorded outbreak of the Bubonic Plague. It started in Egypt and went on to kill a quarter of the world’s population, reoccurring until around 750 AD.

The **Third Pandemic** in China in the mid 19th century spread the plague throughout the world and killed an estimated 10 million people in India alone.

The **Black Death** started in the 14th century and killed around 75 million people throughout the world, including between 30 and 60% of Europe’s population. It was the 1st cycle of European plague epidemics that continued until the 18th century. During this period, over 100 plague epidemics hit Europe and reduced the population of England by the 1370s, by 50%.

The **Great Plague of London** was the last major plague in England and killed 100,000 people (20% of the population at the time).

Local epidemics often occurred when European explorers brought diseases to the communities in the parts of the world that they discovered. Over the years, the explorers developed immunity to these diseases, but the indigenous people had no immunity. In Australia for example, over 50% of the indigenous population were killed by smallpox.

In South Africa, the first epidemic to hit was smallpox. It arrived on a Dutch ship in 1713. The crew had been suffering from smallpox and sent their laundry to the Dutch East India Company to be laundered. The slaves employed there contracted the disease and by May 1713, smallpox had become an epidemic, spreading through the area and even to the interior parts of South Africa.
The Khoisan people were hit the hardest and had no indigenous medicine to cure the disease. Many fled inland but died on the way or were killed by groups in the interior, who had not been affected. Only 10% of the Khoisan population of the south-west Cape survived.

Smallpox is caused by a virus and is a highly contagious disease. In the late 18th century, it killed an estimated 400,000 Europeans a year. It also wiped out huge populations in Mexico, South America and native Americans.

In the 20th century, an estimated 300 to 500 million deaths were caused by smallpox. Fortunately, from 1979, the successful vaccination programme eradicated smallpox completely. It is the only human infectious disease to have been completely eradicated.

**Malaria**

Malaria is a life-threatening, mosquito-borne disease that causes an estimated million deaths a year, throughout the world. It is a common disease in many countries in Africa and affects mostly children. A child dies every minute from malaria.
Malaria was once common in Europe and North America but now mainly occurs in Africa, Asia and the Americas. The deadliest countries for malaria include Burkina Faso, Mozambique and Mali in Africa.

![World Map Showing Malaria Areas](image)

The World Health Organisation (WHO) estimated that there were over 200 million cases of malaria in 2010, of which between 660,000 and 1,2 million people died from the disease.

About 125 million pregnant women are at risk of infection from malaria each year and in sub-Saharan Africa, around 200,000 infants die every year of malaria.

Malaria is caused by parasites that are transmitted to people through the bites of infected mosquitoes. Malaria cannot be transmitted directly from person to person, like the common cold or flu.

Not all mosquitoes carry the malaria parasite. A certain type of mosquito, the female *Anopheles*, carries the malaria parasite.
A person can suffer from malaria more than once, and even after recovery, they can still experience repeated fever attacks for some time after, which may go on for years.

If treatment is received, malaria can usually be cured in 2 weeks, but without treatment, death might be inevitable, especially in children who are poorly nourished. Malaria can be diagnosed by a simple blood test.

A person suffering from malaria needs to get immediate medical help, as it is a life-threatening disease. There is currently no vaccine available for malaria.

According to the World Health Organisation (WHO), deaths from malaria reduced by a third from 2000 to 2010, mainly due to the use of insecticide-treated nets and other preventative measures.

**Tuberculosis (TB)**

This is a common form of infectious disease caused by bacteria which attacks the lungs, but also affects other parts of the body. It is an airborne disease that spreads when people cough or sneeze. If left untreated, it can kill up to 50% of infected people.
An estimated one third of the world’s population are thought to be infected with TB, with new infections occurring in 1% of the population every year. In Asia and Africa, around 80% of the population test positive for TB. About 1 in 10 of these cases progress to the active disease. In 2010, there were 8.8 million new cases, with 1.5 million deaths, mainly in developing countries.

The diagram below shows the occurrence of TB per 1000 people in the population in 2007. The highest incidence of TB occurs in sub-Saharan Africa and is also relatively high in Asia.

A vaccine for TB is available, but is only effective in childhood cases and is not consistently effective against some forms of the disease. However, 90% of children in the world are vaccinated. New vaccines are currently being developed.

**Diarrhoea**

Diarrhoea is the condition of having three or more loose bowel movements in a 24-hour period. The most common cause is gastroenteritis. It leads to dehydration and deficiency of minerals such as potassium.

Dehydration from diarrhoea is the second most common cause of infant mortality worldwide, after acute respiratory infections.

Rehydration solutions have saved the lives of 50 million children in the last 25 years.
In 2009, diarrhoea killed an estimated 1.1 million people over the age of 5 and 1.5 million people under the age of 5, worldwide, mainly in developing countries.

The map below shows the number of years lost due to diarrhoea, from ill health, disability and early death. It is a measure of the overall disease and clearly shows the areas where it occurs the most.

![Map showing number of years lost to diarrhoea in 2004 per 1000 inhabitants](image)

*Number of Years Lost to Diarrhoea in 2004 per 1000 inhabitants*

*Wikimedia Creative Commons, Attribution Share-Alike: Lokal Profil*

![Image of unsanitary disposal of rubbish](image)

*Unsanitary Disposal of Rubbish*

![Image of unhygienic living conditions](image)

*Unhygienic Living Conditions*
In developing countries, poverty leads to unhygienic living conditions, such as poor sanitation and this can result in diarrhoea.

**HIV/AIDS**

The HIV virus was discovered in 1981 and up to 2012 has caused 36 millions deaths worldwide. As at 2012, over 35 million people were living with HIV throughout the world. It is a global pandemic.

The HIV/AIDS pandemic has had dramatic effects on the death rate, causing a reduction in life expectancy in many parts of the world and a decrease in population growth.

Africa as a continent, has been affected the most. In some parts of Africa, populations are decreasing, rather than increasing as a result of AIDS-related deaths.

The map below shows the percentage of the population infected with HIV/AIDS in various countries.
The % of the population infected with HIV/AIDS per continent is shown on the graph below.

**Graph Showing Fall in Life Expectancy in Some African Countries**

*Source: Population Reference Bureau (2013)*

HIV is widespread in Southern Africa, with around 16% of the population being infected, compared to a world average of 1%. In some countries, such as Zimbabwe, Swaziland and Botswana, up to 25% of the population are infected with the virus.

Life expectancy has fallen drastically in southern Africa as a result of HIV/AIDS, as shown on the graph below.
In South Africa, the United Nations stated that life expectancy would be 70 years instead of the current 50 years, without the impact of AIDS.

The percentage of people infected with HIV/AIDS in South Africa is 17.9%, the fourth highest in the world. There are an estimate 6 million people living with HIV/AIDS in South Africa, the highest number of any country in the world. Many of the people who die from AIDS are economically active, resulting in over 1 million AIDS orphans already in South Africa.

HIV/AIDS affects not only death rates, but also means that infected people are often unable to work and require a great deal of medical care. This results in a smaller skilled population and workforce, which in turn can lead to a decrease in productivity. The economic as well as the social impact of HIV/AIDS is huge.

**Wars and Conflicts**

"Even if they have never seen a gun, millions of children suffer from wars, as resources that could have been invested in development are diverted into armaments. Indeed, one of the most distressing realities of our time is that most wars have been fought in precisely those countries that could least afford them."

*State of the World's Children, United Nations Children's Fund (UNICEF), 1996*

War-torn countries have higher death rates. For example in 2009, Sierra Leone had the second highest death rate of any country, followed by Afghanistan. Both countries were at war at the time.
Many countries are affected by *civil war* among their own people. This is a war between political factions or regions, within a country. In some countries, such as Somalia, the whole country is involved in the conflict, while in others, such as Kenya, only certain areas are affected. Many of these conflicts continue for years.

The main consequence of war and conflicts is obviously death. This can be direct death from combat, as well as indirect deaths caused by disease, starvation and lack of health care.

Children in war-torn areas are greatly affected by conflict-related deaths, with acute respiratory infections and diarrhoea being the main causes of death. In war-torn areas, health care systems often cannot cope and conflict leads to among other things, a reduction in the number of children vaccinated. This can cause outbreaks of disease, such as measles.

Health care systems break down and qualified people leave war-torn areas. For example, in 1990 in Iran, there were more than 34,000 doctors. Of these 20,000 have left the country since 2003 and around 2500 doctors and nurses were killed or kidnapped.

Food supplies can also collapse in war-torn areas and cause malnutrition during pregnancy, which increases the neo-natal death rate (the number of babies who die before they reach 28 days of age), as well as a high infant mortality rate. Many war-torn countries rely on food aid provided by relief agencies.
The table below shows the estimated number of people killed in major wars in the 20th and 21st century. The figures include deaths from disease and famine, as well as deaths of soldiers in battles and genocides.

<table>
<thead>
<tr>
<th>War</th>
<th>Dates</th>
<th>Estimated number of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican Revolution</td>
<td>1911-1920</td>
<td>500,000 to 2 million</td>
</tr>
<tr>
<td>World War I</td>
<td>1914-1918</td>
<td>15 to 56 million*</td>
</tr>
<tr>
<td>Russian Civil War</td>
<td>1917-1921</td>
<td>5 to 9 million</td>
</tr>
<tr>
<td>Spanish Civil War</td>
<td>1936-1939</td>
<td>500,000 to 1 million</td>
</tr>
<tr>
<td>World War II</td>
<td>1939-1945</td>
<td>40 to 71 million</td>
</tr>
<tr>
<td>Korean War</td>
<td>1950-1953</td>
<td>400,000 to 4.5 million</td>
</tr>
<tr>
<td>Vietnam War</td>
<td>1956-1975</td>
<td>800,000 to 3 million</td>
</tr>
<tr>
<td>Nigerian Civil War</td>
<td>1967-1970</td>
<td>1 to 3 million</td>
</tr>
<tr>
<td>Iran-Iraq War</td>
<td>1980-1988</td>
<td>500,000 to 2 million</td>
</tr>
<tr>
<td>Soviet War in Afghanistan</td>
<td>1980-1988</td>
<td>600,000 to 2 million</td>
</tr>
<tr>
<td>2nd Sudanese War</td>
<td>1983-2005</td>
<td>1 to 2 million</td>
</tr>
<tr>
<td>Gulf War</td>
<td>1990-1991</td>
<td>20,000 to 35,000</td>
</tr>
<tr>
<td>2nd Congo War (DRC)</td>
<td>1998-2003</td>
<td>2.5 to 5.4 million</td>
</tr>
<tr>
<td>Iraq War</td>
<td>2003-2011</td>
<td>150,000 to 1 million</td>
</tr>
<tr>
<td>Croatian War of Independence</td>
<td>1991-1995</td>
<td>20,000</td>
</tr>
<tr>
<td>Afghanistan Civil War</td>
<td>1979-present</td>
<td>1, 5 to 2 million</td>
</tr>
</tbody>
</table>

*Including deaths from Spanish flu.

In addition to the above wars, at least another 25 million people are estimated to have been killed in other wars around the world during this time period.

**Genocide** is the killing of a certain group of people by another group of people, based on their race, religion or tribe. For example, in the Rwandan civil war, genocide between the Hutu and the Tutsi tribes resulted in the deaths of nearly 1 million people.

The killing of over 6 million Jews in Nazi Germany, during World War II, also known as the **Holocaust**, was a mass genocide. Of the 9 million Jews who lived in Europe at the time, two thirds were killed, including a million children.

Concentration camps were set up during World War II by the Germans. Jews were used as slave labour. Many Jews died of exhaustion, disease or were transported to extermination camps to be killed in gas chambers, as well as being used in ‘medical’ experiments.
**Government Policies**

Governments in some countries have tried to influence birth rates by implementing various policies.

For example, in China, the ‘One Child Policy’ was introduced in 1979 in an attempt to control population growth.

Up until the 1960s in China, families were encouraged to have as many children as possible. China’s population grew from 540 million in 1949 to 940 million in 1976. In the 1970s, citizens were encouraged to marry later and only have 2 children.

In the ‘One Child’ campaign, the government provide free sterilisations and abortions. Those who follow the policies are given salary increases, better houses, better schooling and medical care. Families that have more than one child are fined.
The policy has thought to have decreased the number of births by between 200 and 400 million. Despite this, population growth continues in China, as shown in the diagram below.


**Population Growth in China**  
*Wikimedia Creative Commons, Attribution Share-Alike: Quilikos, Demmo*

Negative effects of the policy include an increase in the number of children put up for adoption, as well as an increase in abortions. Human rights organisations have claimed that babies have been killed as a result of this policy and that there are 100 million girls missing from China’s population.

In France, in the 1980s, there was a declining birth rate and the government tried to influence it to increase. Incentives for larger families were introduced, such as lump sum payments, doubling of maternity grants, an increase in maternity benefits to 6 months paid leave (previously 4 months), availability of 100% mortgages to enable families to own properties, reduction on public transport costs and a pension scheme for mothers.

**Economic Status**

Richer families (who could afford to have more children), have lower birth rates. The reverse is also true, poorer families have more children, so birth rates in developing countries are higher than in developed countries. 80% of the world’s population live in the poorer, developing countries.

The economic status of an individual affects their life expectancy, due to access to medical care, diet and lifestyle.
Social and Religious Beliefs

Birth rates can be affected by a population’s belief system, especially with regards to abortion, contraception and age of marriage.

Some cultures prefer to have many children who can look after their parents when they are older. These children are often put to work to earn money for impoverished families. Societies with high infant mortality rates also have high birth rates, as people feel the need to have more children, knowing some of them will die in infancy.

In developing countries with high birth rates, there is usually a lack of family planning education and access to contraception.

In developed countries, woman often want a career and families try to limit the number of children they have. Contraception is usually free and readily available.
The percentage of married women using contraception varies throughout the world, as shown in the bar chart below.

Religion used to play an important role in birth rates. For example, in the Roman Catholic religion, contraception was forbidden and so Catholics had large families. These days, people are guided less by their religion, so even in countries with a large percentage of Catholics, like Italy for example, birth rates are low.

In some societies, polygamy is practised. This is where a man has more than one wife. When a woman is married to more than one husband, this is known as polyandry. In these cases, birth rates are usually very high, as the families have many children.

Man Followed by His Three Wives Wearing Burqas, Afghanistan