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Sociology

Population and Demographic Variables

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ology/Methods-Study-Guides/Sociology/an-integrated-
ides/Sociology/Groups-and-Organizations/
ology/Study-Guides/Sociology/study-
ation/cognitive-development-age-06)
ides/Sociology/Deviance-and-Social-Control/
ology/Study-Guides/Sociology/ethics-in-
ation/cognitive-development-age-711)
ides/Sociology/Social-Stratification/
ology/Study-Guides/Sociology/study-of-people)
ation/cognitive-development-age-1219)
ides/Sociology/Family/
ology/Study-Guides/Sociology/study-
ation/cognitive-development-age-1824)

All Subjec

Back to Top

Population and Demographic Variables

Humans throughout history have generally favored large families—for the most part to assure survival of particular family lines or racial group. High death rates from plagues, predators, and wars led people to produce as many offspring as possible. However, the situation has changed dramatically in the 20th century as technological advances of one sort or another have caused a global population explosion, with the world currently gaining 90 million people each year (most of this increase in poorer countries). Given this trend, the global population will exceed 6 billion in the early 2000s, and 8 billion by the 2020s. Understandably, sociologists around the world exhibit urgent concern about increases in the global population.

Demography (from the Greek word meaning "description of people") is the study of human populations. The discipline examines the size and composition of populations, as well as the movement of people from locale to locale. **Demographers** also analyze the effects of population growth and its control.

Several demographic variables play central roles in the study of human populations, especially *fertility* and *fecundity, mortality* and *life expectancy,* and *migration*.

Back to Top

Fertility and fecundity

A population's size is first affected by **fertility**, which refers to the number of children that an average woman bears during her reproductive years—from puberty to menopause. People sometimes confuse the term fertility with **fecundity**, which refers to the number of children an average woman is capable of bearing. Such factors as health, finances, and personal decision sharply affect fecundity.
To determine a country's fertility rate, demographers use governmental records to figure the **crude birth rate** (the number of live births for every thousand people in a population). They calculate this rate by dividing the number of live births in a year by the total population, and then multiplying the result by 1,000. As one might expect, the governmental records used in this type of research may not be completely accurate, especially in third-world countries where such records may not even exist.

While the world's average fertility rate is about 3 children per woman, its fecundity rate is about 20 per woman. The highest fertility rate (nearly 6 children per woman) in the world occurs in Africa, whereas the lowest occurs in Europe (about 1.5). The fertility rate for women in the United States is about 2.

Mortality and expectancy

Mortality, or the number of deaths in a society's population, also influences population size. Similar to the crude birth rate, demographers calculate the **crude death rate**, or the number of deaths annually per 1,000 people in the population. Demographers calculate this figure by dividing the number of deaths in a year by the total population, and then multiplying the result by 1,000. The crude death rate in the United States normally stays around 8 or 9.
Infant mortality rate, which is the number of deaths among infants under age one for each 1,000 live births in a year, provides demographers with another measure. Compared to other countries, North American infant mortality rates tend to be low. Still, the figures can vary considerably *within* a society. For example, African Americans have an infant mortality rate of about 19 compared to those of whites who have a rate of about 8.

A low infant mortality correlates with a higher **life expectancy**, which is the average lifespan of a society's population. U.S. males and females born today can look forward to living into their 70s, which exceeds the life expectancy of those in low-income countries by 20 years.

Migration

Finally, **migration** (the movement of people from one place to another) affects population size. While some migration is involuntary, such as when slaves where brought to America, other migration is voluntary, such as when families move from cities into suburbs.
Migration into an area, called **immigration**, is measured as the **immigration rate**, which is the number of people entering a region per each 1,000 people in the population. Migration out of an area, or **emigration**, is measured as the **emigration rate**, which is the number leaving per each 1,000 people in the population. **Internal migration** is the movement from one area to another within a country's borders.

Back to Top

Population growth

Fertility, mortality, and migration all influence the size of a society's population. Poorer countries tend to grow almost completely from internal causes (for example, high birth rates due to the absence of reliable contraception), while richer countries tend to grow from both internal causes and migration. Demographers determine a population's natural **growth rate** by subtracting the crude death rate from the crude birth rate. The world's low-growth nations tend to be more industrialized, such as the United States and Europe. The high-growth countries tend to be less industrialized, such as Africa and Latin America.

Population composition

Demographers also take an interest in the composition of a society's population. For example, they study the **gender ratio** (or **sex ratio**), which is the number of males per 100 females in a population. The sex ratio in the United States is about 93 males for every 100 females. In most areas of the world, the gender ratio is less than 100 because females normally outlive men. Yet in some cultures that practice female infanticide, such as among the Yanomamo, the ratio can reach well above 100.

Malthusian theory

The field of demography arose two centuries ago in response to the population growth of that day. **Thomas Robert Malthus** (1766–1834), English economist and clergyman, argued that increases in population, if left unchecked, would eventually result in social chaos. Malthus predicted that the human population would continue to increase *exponentially* (1, 2, 4, 16, 256 …) until the situation is out of control. He also warned that food production would only increase *arithmetically* (1, 2, 3, 4, 5 …) because of limitations in available farmland. To say the least, Malthus provided a disturbing vision of the future that included massive, global starvation as a consequence of unrestrained population growth.

As it turned out, Malthus' predictions were mistaken because he failed to account for technological advancements and ingenuity that would increase agricultural and farm production, not to mention the increasing development and acceptance of birth control methods. Yet Malthus' forebodings do not lack merit. As noted by the New Malthusians, a group of demographers, assets such as habitable and fertile land, clean air, and fresh water are finite resources. And with medical advances increasing fertility and lowering death rates, the global population continues to grow exponentially with no end in sight.

Demographic transition theory

Replacing Malthus' ideas today, **demographic transition theory** defines population growth in an alternating pattern of stability, rapid growth, and then stability again. This theory proposes a three-stage model of growth.

- **Stage 1: Stable population growth.** In this stage, birth and death rates roughly balance each other. Most societies throughout history have stayed at this stage.

Back to Top

- **Stage 2: Rapid population growth.** Death rates fall sharply while birth rates remain high in Stage 2. Most poor countries today fit into this stage. Malthus formed his ideas during one such high-growth period.

- **Stage 3: Stable population growth.** In this stage, fertility falls because high living standards make raising children expensive. Women working outside the home also favor smaller families, brought about by widespread use of birth control. Death rates drop because of technological advances in medicine. With low birth rates and death rates, the population only grows slowly, if at all. It may, in fact, witness **population shrinkage**, in which deaths outnumber births in a society.

Stage 3 suggests that technology holds the key to population control. Instead of the out-of-control population explosions that Malthus predicted, demographic transition theory claims that technology will ultimately control population growth and ensure enough food for all.

Population control: The importance of family planning

Historically, many groups and societies have discouraged **contraception** (the prevention of conception, or birth control) to assure survival of its members and humanity as a whole. Certain religious groups strongly disapprove of sexual activity that does not culminate in coitus and the possibility of conception. Other groups place little importance on the matter of contraception. The Yanomamo of South America, for instance, harbor little or no concept of contraception. Instead, they parent as many children as possible, and then kill off those they view as the undesirable, such as some females and deformed infants.
Modern medicine has spread throughout different parts of the world, and people of all ages now live longer, causing the world's population to explode in growth. In fact, at five billion today, the world's population doubles, on average, every 35 years, with most of this growth occurring in developing countries. Given this population crisis, certain governments, like that of China, regulate the number of births allowed per household.

Besides the issue of controlling overpopulation, other benefits to practicing contraception exist. For example, a young couple may want to postpone having children until their finances improve. Or an unmarried, sexually active teenager may wish to finish her education or get married before starting a family, thereby reducing her chances of eventually relying on the government for financial support.

Family planning also plays an important role in protecting the physical health of both mother and child. The older or younger a woman is, and the closer together she bears children (that is, more frequently than every two years), the greater the risk of pregnancy and birth complications, early infant mortality, and maternal death. For example, women over age 40 or under age 19 have an increased risk of bearing a child of low birth weight, and thus a variety of birth defects and even outright death. Estimates say that approximately one million teenage women in the United States become pregnant each year.

Back to Top

< **PREVIOUS**
Health and Medicine

(/study-guides/sociology/health-

and-medicine/medical-establishment-and-professions)

NEXT
Urbanization and Its Historical Stages > (/study-guides/sociology/population-and-urbanization/urbanization-and-its-historical-stages)

Back to Top

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Back to Top