UNIT 3 TRENDS IN DEMOGRAPHIC TRANSITION

Structure

3.0 Objectives

3.1 Introduction

3.2 Key Concepts and Definitions

3.2.1 Mortality

3.2.2 Crude Death Rate (CDR)

3.2.3 Age Specific Mortality Rate (ASMR)

3.3 Global Demographic Transition

3.3.1 Stages of Demographic Transition: A Historical Background

3.3.2 Global Trends in Population Growth

3.4 Regional Analysis of Mortality and Fertility

3.4.1 Trends of Mortality in the Developing World: Past, Present and Future

3.4.2 Trends of Mortality in the Developed World: Past, Present and Future

3.4.3 Trends of Fertility in the Developing World: Past, Present and Future

3.4.4 Trends of Fertility in the Developed World: Past, Present and Future

3.5 India’s Demographic Transition: National Trends in Population Growth

3.5.1 Regional Analysis of Stages of Demographic Transition

3.5.2 Implications of Demographic Transition and Future Population Projections

3.6 Let Us Sum Up

3.7 Key Words

3.8 References and Suggested Readings

3.9 Answers to Check Your Progress

3.0 OBJECTIVES

After reading this unit, you will be able to:

- identify the key concepts and definitions to study the various dynamics of population growth;
- explain the determinants of fertility and method of its calculation;
- analyse the demographic transition theory;
- access and analyse the spatiotemporal trends of fertility and mortality in the developed and the developing world;
- access and analyse the spatiotemporal trends of fertility and mortality in India; and
- describe the implications of demographic transition.

3.1 INTRODUCTION

A recent survey by the Population Division of the UN’s Department for Economic and Social Affairs has highlighted wide concerns with population
dynamics amongst policy makers. More than two-thirds of the governments of the world’s least developed countries have expressed major concerns with high population growth, high fertility and rapid urbanization. In order to understand the role of ‘population dynamics’ on sustainable development, there is a need to recognize that population dynamics have a significant influence on sustainable development. Efforts to promote sustainable development that do not address population dynamics have, and will continue to fail to achieve the goal of sustainable development. However a change is possible through a set of policies which respect human rights and freedom and contribute to a reduction in fertility, notably access to sexual and reproductive health care, education beyond the primary level, and the empowerment of women.

In this unit we will try to understand the relevance of population dynamics in the light of the demographic transition theory and look at the historical trends of mortality and fertility rates to understand the dynamics of population growth in the world. It not only highlights the important historical events under which population underwent a transition, it also gives a brief understanding of the population dynamics which will influence the future population growth to conceptualize policies to address population dynamics.

3.2 KEY CONCEPTS AND DEFINITIONS

Let us first learn about some key concepts and definitions. These terms are important to understand as they will be frequently used in the analysis of facts and events in this unit.

3.2.1 Mortality

The term mortality is used to describe the occurrence of death among a definite population. According to United Nations mortality has been defined as ‘permanent disappearance of all evidence of life at any time after birth has taken place’. The study of mortality is useful for analysing current demographic conditions as well as for determining the prospects of potential changes in mortality conditions of the future. Public health administrations depend heavily on the study of mortality. For statistics on death in the population cross classified by age sex and cause of death are of great importance for the formulation, implementation and evaluation of public health programmes. Statistics on death also forms the basis of the policies of insurance companies.

3.2.2 Crude Death Rate (CDR)

It is expressed as a ratio of the total number of deaths during one year among a population per thousand total population of the middle of the year at a particular place over a specified time.

\[
CDR = \frac{\text{Number of total deaths in a year}}{\text{Mid-year population}} \times 1000
\]

It is the simplest widely available measure of mortality rates. It provides a basis for compiling the rate of natural increase in population. Crude death rates provide a useful guide to mortality measure in a region. When it is coupled with crude birth rates, population growth due to natural factors can be estimated. But in other instances it can be misleading, especially in temporal or spatial comparisons.
3.2.3 Age Specific Mortality Rate (ASMR)

It is expressed as the number of deaths of persons of a certain age, usually by whole years, against an estimate of the population of that age in parts per thousand. Referring to ASMR adds considerable accuracy to any analysis of mortality and also reveals distinctive relationship with age.

Population growth experiences a transition from one stage to another stage. This transition is called “demographic transition.” This theory is stated as a modern theory as it aims to understand population change taking into consideration three aspects:

i) *Descriptive generalisation* which aims to empirically explain the trends of fertility and mortality over time.

ii) *Ex-post facto explanation* which analyses the casual mechanisms which create the pattern of change.

iii) *Prediction* which states what will happen in the future.

This theory has no one statement. Earlier demographers Adolph Landry in 1909 and Warren S. Thompson in 1929 constructed a typology to describe the transition from conditions of high mortality and high fertility to conditions of low mortality and low fertility. Thompson argued that there were differences of population structures of major world regions and those differences were in a stage of flux but eventually all regions will follow a pattern of decline in death rate followed by decline in birth rate.

In 1945, Frank W. Notestein presented the demographic transition theory in its matured form with explanations for the change in fertility. He suggested the three stages in the transition:

1. **High growth potential** where mortality is high and variable and is the chief determinant of growth. Fertility is also high showing no decline.

2. **The transitional growth** where birth and death rates are still high and population growth is rapid but the decline of birth rate is well underway.

3. **The incipient decline** is the stage where fertility has fallen or is about to fall below replacement level.

Demographic transition theory is clearly inductive in origin. The theory provides a model of historical trends. The real importance of Notestein’s contribution is that he outlines the mechanism by which the demographic transition had occurred and could take place in the future together with the causes of the inferred changes. So in the next section let us see how the change in population growth happened in the world in order to understand the demographic transition at the global level.

### 3.3 GLOBAL DEMOGRAPHIC TRANSITION

As already discussed about the theory of demographic transition, it was seen that the population growth in the world came from the decline of mortality. While so far we can tell from the available evidences that no substantial part of the modern population growth has come from a rise in fertility. It was industrialization; urbanization and modernization, the three phases which went hand in hand in Europe to bring about the transition in population growth.
The initial decline in mortality was caused, at least in Europe, by a period of peace being followed by a series of agricultural innovations that greatly increased the food supply which was further augmented by the vast resources of the new world. Industrial innovation began to bring spectacular increase in production. Finally sanitary and medical advances brought control over the diseases of childhood and adult life. In short, the whole process of modernisation in Europe and Europe overseas brought rising levels of living, new controls over diseases and reduced mortality.

According to Notestein fertility decline did not immediately follow that of mortality because the high mortality level of pre-transition society would have required the creation of social organizations with goals and equipment for the maintenance of high fertility merely to enable the population to survive. These propositions were removed gradually. Birth rates were reduced largely by means of contraception, but in response to drastic changes in the social and economic setting that radically altered the motives and aims of people with respect to family size. The essential stimuli came from the joint process of industrialization and urbanization and modernization. So, under the impact of urban life, the social aim of the families is to focus on the health, education and material welfare of the individual child. Thus limiting the family size becomes evident and widespread. Thus in this period population shows a negative decline.

3.3.1 Stages of Demographic Transition: A Historical Background

We can sum up the stages of demographic transition as stated by Notestein by four simple propositions.

1. The demographic revolution is initiated by the secular decline in mortality.
2. Mortality decline is caused by the cumulative influences of the agricultural, industrial and the sanitary revolutions which respectively led to better food supplies, an improvement in the factors of production and the standard of living in general and improvements in public health.
3. Rapid population growth is the result of the temporal lag between the decline of mortality and that of fertility.
4. Fertility decline eventually occurs because of social and economic supports to high fertility are removed. The materialism and individualism associated with the urban way of life give impetus to the rational control of fertility by means of contraceptive processes.

![Fig. 3.1: The Demographic Transition](image-url)
The broad outline of the descriptive model incorporated in the demographic transition theory is being followed by many developing countries today. The death rates have fallen and the birth rates are beginning to fall. Empirical evidences show that many developing countries are now passing through the final stage of demographic transition from high to low death and birth rates. The death rate declined first, so initiating a period of rapid population growth before the birth rate began to fall, but just as there were leads and lags in the way that pattern emerged in the west so there are also temporal and spatial variations to be seen in Africa, Asia and Latin America.

We can make several distinguishing observations between the demographic experiences of today’s developed and developing countries. The death rates in today’s developing countries began a slow but significant decline during the late eighteenth and the nineteenth century. You must note two important points here. Firstly the period of time required for lowering the death rate was longer for developed than for the developing nations. Secondly, by the time the death rate began its rapid decline for the developed nations, the birth rate also began its decline but the same is not for the developing nations. The result is that the developed countries overall never had the explosive growth rates of today’s developing countries. Added to that the European countries also have the safety valve in the form of migration opportunities (at the time of their high growth stage) is not available for today’s high growth nations. Scholars have argued that the slow growth in the developed nations was a function of delayed period with high death rate as time was needed to discover, invent and diffuse medical technology to decrease mortality. In today’s world, reducing the death rate is a less matter of discovery and more a matter of diffusion of medical technology. In addition at present the developing countries experience a long stage II and a stage III during which major economic developments are curtailed. Most of the developing countries have not experienced an economic growth at a similar rate but they are experiencing population growth at a much higher rate. Moreover the base population is so high in these nations that even with falling fertility rates; a large (absolute) number of persons are added every year to the current population. Thus at present about 80% of the world’s population live in the developing world.

3.3.2 Global Trends in Population Growth

From our earlier sections it is quite clear that trends in population growth majorly happened by the combinations of two factors, that is trends of fertility and mortality. It is not an unknown fact to us that most of the incidences of
so called ‘population explosions’ are in the developing regions of the world. Over the past 150 years improvements in health care and sanitation around the world have led to a drop in the death rate all over the world. While birth rates have dropped in developed world, birth rates are still high in the developing regions which are contributing to the total population growth of the world. In the next section we will see some of the historical trends in mortality and fertility in the developed as well as the developing regions to understand the current pattern of population growth and the future projections.

Check Your Progress 1

Note: a) Use the space below for your answer.
  b) Compare your answers with those given at the end of the unit.

1) The first and the last stage of demographic transition theory have low population growth. What is the reason?

................................................................................................................
................................................................................................................
................................................................................................................

2) What determines the population growth trends in the developing world?

................................................................................................................
................................................................................................................
................................................................................................................

3.4 REGIONAL ANALYSIS OF MORTALITY AND FERTILITY

In this section let us understand the regional analysis of population growth by studying the trends of mortality and fertility in the developed and developing regions of the world.

3.4.1 Trends of Mortality in the Developing World: Past, Present and Future

Mortality in the developing countries dropped remarkably during the period from 1950 to 1975. The implementation of relatively inexpensive public health and disease control programmes brought a sudden and dramatic drop in the death rate. This rapid decline in mortality was experienced by many developing countries after the Second World War, was independent of economic development as health and disease control measures were imported from the developed countries. This included DDT spraying, use of antibiotics like penicillin and vaccines. Scientific communication and international cooperation have made it possible for the developing countries to import techniques developed by the economically advanced countries and apply them in mass public health programmes at relatively small cost. The assistance provided by the world health organization to eradicate such mass killers as malaria, smallpox enormously contributed to the mortality decline. Dramatic improvements happened in the infant mortality rate which was more than 200% in nearly all developing countries. By 1975, this rate was well under 100 in many of these
countries. Once the easily controllable diseases were reduced, however, the pace of morality decline slackened. Degenerative diseases are difficult to control and rose in prominence as the cause of death. By 1975, many countries in the Latin America, Asia and Polynesia recorded a life expectancy above 60 years. Improvement in mortality conditions after this point requires more investments and hence more time and thus is becoming difficult to accomplish for many developing countries.

The decline in mortality reveals that death control has progressed so quickly in the developing world that continued rapid gain in life expectancy was not envisaged. By 2000 most of the developing countries have reached a life expectancy of about 60 years similar to those of the developed world in 1950s. The major consequence of this rapid decline in mortality in the developing world has thus lead to a steep increase in population growth as fertility continued to rise for a longer period and a simultaneous trend of falling mortality led to an enormous population growth.

Although some individual countries have already achieved same level of life expectancy as that of the developed world, but there are many concerns. The AIDS epidemic, the return of other infectious diseases such as malaria, increasing uncertainty about future food supply, environment problems and disasters significantly questions the optimistic view of mortality decline. Local political crisis and environmental damages along with distributional problems may cause temporary famines leading to excess mortality in several regions of Africa and Asia.

3.4.2 Trends of Mortality in the Developed World: Past, Present and Future

In the developed countries like North America, Europe and Oceania, continuous economic progress resulting from agricultural and industrial revolutions have been the main reasons for the reductions in the mortality rates which first began to decline rather weakly in the seventeenth century, and then with an increase tempo throughout the eighteenth and nineteenth century and now slowly in the twentieth century. One of the most important factors affecting the decline in mortality was the increase in the food supply. With the agricultural revolution, the productivity of land and labour began to increase. The incidence of crop failure had reduced and the supply of food became steady. Further, a system of crop rotation, improvement of farm machinery, introduction of high quality seeds in the wake of agricultural revolution improved the availability of quality and quantity of food which arrested the death rates caused by starvation. With development of better transport facilities it was possible to transport and distribute surplus food from regions of surplus productions to deficit regions, leading to mitigation of local famines and hence decreasing deaths caused by famines.

Sanitary reforms introduced in the nineteenth century brought about major changes in public health measures and sanitary improvements such as public utilities for provision of water supply, purification of water, sewage disposal etc. By twentieth century better drainage systems developed. As disinfection of water came into practice many communicable water borne diseases such as cholera, diarrhoea and dysentery was brought under control. The growing importance of personal cleanliness led to fall in mortality. Social reforms in the
nineteenth and twentieth century made people conscious and working conditions in factories improved. The immunization of diseases like small pox was introduced. Better medical facilities shoot up the life expectancy. As the income of people increased with better standard of living they were able to avail nutritious food, better clothing and housing. With more technological innovations and research and development, health services and medical facilities improved leading to further decline in mortality.

Major advances in life expectancy took place prior to 1965, after which it was only a slow improvement till 2000 (0.6%). Very little scope exists for further reduction in mortality. Heart diseases, cancer and stroke are the three main causes of death in the developed world. These primarily affect the aged. Currently deaths due to accidents and violence are far greater than communicable diseases.

Here you must know a very interesting fact. As the developed world is experiencing a very slow rate of improvement in life expectancy along with gradual ageing of its population due to declining mortality, a curious phenomenon is taking place. The crude death rates are increasing in the developed nations approximately from 9.4% to 10.1%. This increase is in opposite direction from the actual mortality conditions and is more likely in the developed countries in the last stage of demographic transition showing an aging population. Moreover, you must understand that decline in mortality has led to two different phenomena in the developed and developing countries because of different fertility conditions. Decline in mortality in developed world has led to aging population and same decline in developing world is leading to population explosion. Population phenomena cannot be studied by only studying the variations and trends in mortality; it needs to be studied with an understanding of changing levels of fertility. So now let us look at the trends in fertility in developing and developed world.

3.4.3 Trends of Fertility in the Developing World: Past, Present and Future

The fertility of population in the developing world is generally higher than the developed world, but it is by no means spatially uniform. There is evidence that in more urbanised and economically developed regions fertility has declined in recent decades. Between the period 1950 to 55 to 1970 – 75 there was a 15% decline in the third world birth rate. Not all regions participated in this declining trend. The birth rate for Africa declined very little and that for south Asia dropped only slightly more. Most of the decline in the developing world was in fact due to the 35% decline in Chinese birth rate. Scholars argue that in the developing countries there are higher returns from larger number of children, in terms of their value as labour and wage earners. They are also considered to be assurance for old age. The added incentive is that the cost of child rearing is much lower as compared to developed nations. It is projected and empirically validated that all the countries are moving toward lowering of their fertility rates although the rate of decline varies. Socio-economic and cultural factors may retard the onset of fertility decline and slow its pace in certain areas for example in sub Saharan Africa. Active support for fertility reduction programmes by government is also assumed to have affected the speeding up of the process, especially in South Asia. It is estimated that the transition from high fertility replacement level will take only thirty years for
some countries and as many as ten years for others. However it is further envisaged that fertility decline will come with three preconditions. Firstly fertility must be subjected to rational decision making. Secondly birth control methods must be known and thirdly reduced fertility must be regarded as advantageous within the perceived socio-economic environment.

3.4.4 Trends of Fertility in the Developed World: Past, Present and Future

In the pre-industrialised Europe economic and social structure of fertility was relatively low. This was achieved by the Malthusian preventive checks as large numbers of women remained unmarried even at the end of their reproductive period. During the nineteenth and twentieth century marital fertility in the developed countries was itself restricted by the mass application of the birth control technology. After 1930s low fertility rates were as a result of curbing marital fertility rate like in North America, Australian and New Zealand. In 1940’s and 1950’s there was an upsurge of marriages throughout Europe in North America, Australia and Europe and women’s average age at first marriage dropped by two to three years. This period is popularly known as the ‘baby boom’. However this was a temporary trend and a downward trend started again after 1970’s called the ‘Birth dearth’.

Check Your Progress 2

Note: a) Use the space below for your answer.
   b) Compare your answers with those given at the end of the unit.

1) What do you think will be the determining factor of mortality rates in Africa in the next decade?

................................................................................................................
................................................................................................................
................................................................................................................

2) Why do you think most of the European countries did not experience a ‘population’ explosion’ like many countries in Asia did?

................................................................................................................
................................................................................................................
................................................................................................................

3.5 INDIA’S DEMOGRAPHIC TRANSITION: NATIONAL TRENDS IN POPULATION GROWTH

India is the second most populous country in the world after China. Its population reached 1 billion on May 11, 2000 and according to 2011 census it has reached 1210.2 million from 1028.6 million in 2001. Presently every 6th person in the world is an Indian whereas India accounts for only 2.4% of the total world area. Population of India has increased three times after independence. It is a little over twice the population of Latin America and 1.2
times the population of whole Africa. In terms of annual increase we add almost the total population of Australia every year.

We can see in the diagram above that historical trend of population growth in India since 1901. In light of the demographic transition, India’s population growth can be divided into four distinct phases.

Stage 1 Stagnant population (1901 to 1921) – This is the stage where there is not much population growth as there is an incidence of high birth rate and high death rate keeping the population growth low.

Stage 2 Steady growth of population (1921 to 1951) – In this stage there is steady growth of population because of falling mortality rates.

Stage 3 Rapid high growth of population (1951 to 1981) - In this stage there is steady growth of population because of falling mortality associated with high fertility.

Stage 4 High population growth but signs of slowing down (1981 onwards) – In this stage the population growth is declining mostly because of falling fertility rates.

The history of India’s population growth can be markedly divided into two distinct parts, one is before 1981 and the other is after 1981. While the first period is characterised by rapid population growth, the second registers definite signs of slowing down. The decline in death rate became sharper after independence in 1947, with the result that the population doubled in 34 years from an estimated 347.5 million in 1947 to 683.3 million in 1981. In the beginning of 1970s decline in birth rate was observed. But it is in the past three decades that have witnesses decline in birth rate along with that in the death rate. Decline in the birth rate seems to be slightly faster during the second half of 1980’s than the decline in the death rate resulting in a slight decline in the 1981-91 population growth rates. The first decade of the 21st century has shown a faster decline in birth rate and consequently in the growth rate.

3.5.1 Regional Analysis of Stages of Demographic Transition

The average growth rate of the country do not confirm to the regional variations of growth rate. Rather the different regions of the country are in a different
Population, Sustainable Development and Human Development

stage of demographic transition is further classified this point with the help of trends of decadal growth rates of different states from 1901 to 2011. Although India is one of the first countries to formulate a population policy, decline in fertility has been a slow process with moderate achievements. However, some areas have shown remarkable changes in fertility decline which is getting reflected in the average value of decadal growth rate of the country.

Let us analyse the regional variations in population growth in the post-independence period.

**Population growth during 1951 to 1981**

During the thirty years from 1951 to 1981, India’s population almost doubled increasing from 361.1 million to 683.3 million. The north eastern states experienced highest growth rate of 141.2% followed by northern zone which is 107.8%. At the regional level, northern, north eastern and north western zones had their population more than doubled in the thirty years’ time. The southern zone showed the lowest growth rate of only 74.8% which also had lower than average fertility of the nation.
While high fertility was noticed in the north eastern states during 1950-55, the low to moderate areas were the states of south India consisting of Southern Kerala and Tamil Nadu and the mountain districts of Lahaul, Spiti and Leh in the western Himalayas. Low and moderate fertility was also noticed in the interior Deccan in the rural districts central parts of India stretching across Maharashtra and Madhya Pradesh, baring Bhopal and Nagpur, because of low fertility among the tribal population.

Post 1956 there was record decline in death rate but fertility was still high. This period can be compared to that of the pre industrialised European societies. Fertility showed an increasing trend in all parts of the country till 1960s, apart from the areas of low to moderate fertility as mentioned earlier. Beginning of the fertility decline came after 1960 in some pockets in south India. Please see the changes in decadal growth rate in the south Indian states of Kerala and Tamil Nadu. The first fertility decline was noticed in the Coimbatore and Chennai regions of Tamil Nadu, southern tip of India and centred at Alappuzha. These initial areas of fertility decline within a decade spread into south Karnataka and Andhra Pradesh.
While fertility was declining in south India, the Green Revolution belt consisting of the states of Punjab, Haryana and western Uttar Pradesh further recorded high fertility trends. Some scholars argue that the Malthusian theory of population growth with increase in food production holds true in this case. There were no signs of decline in fertility in the states of Rajasthan, Madhya Pradesh, Bihar and Uttar Pradesh.

Even the north eastern states did show decline in fertility trends till late 1960s. 1970s was the era of forced family planning. The forced fertility control resulted in gradual fertility decline in Gujarat and West Bengal, especially around Kolkata. There were pockets of fertility reduction seen along industrial belts, e.g., Surat to Ahmedabad in Gujarat, in the coastal areas, urban and industrial regions in Punjab, especially around Ludhiana and Chandigarh and the Kumaon region in Himachal.
After 1980, the regional picture becomes much more complex. The high fertility zones and the high population growth rates are in the states of Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Rajasthan and Uttar Pradesh. Even the urban areas show no response to any fertility decline. The western districts of Assam and Arunachal Pradesh show lower fertility than the eastern states of Manipur, Mizoram, Tripura and Meghalaya records steady decline. In the south all the states show a declining trend but the Kochi, Alappuzha and Kottayam triangle has the lowest fertility levels.

Although the decadal population growth rate at the national level is declining, at regional level northern states continue to lead other zones while the southern zones record the lowest growth rates. In the last decade the central zone had the highest decadal growth of 20.4%. While the southern zone shows consistent decline in the past three decades. The northern zone had shown a remarkable decline of almost 10% in the last decade.
3.5.2 Implications of Demographic Transition and Future Population Projections

Globally, over the past decades, life expectancy has been increasing and fertility rates have been falling in most of the developing world, with some exceptions, particularly among the least developed countries. But even if fertility were to fall immediately to replacement level, populations would continue to grow for some time. This is explained by the population momentum, or inertia in population growth: Because of high fertility in the past, many countries now have a relatively large number of women in reproductive age, and even if each woman has a relatively small number of children, countries will continue to have a growing population for years to come.

Decisions made today have long-term implications. In the developed world, the ability to plan families is taken for granted, but well over 200 million women in the developing world continue to lack access to family planning. Universal access to sexual and reproductive health care and family planning for women of all ages is an essential and integral aspect of their empowerment. The decisions of how many children to have and when to have them are two of the most fundamental and consequential decisions of anybody’s life. It affects people’s health and education, and can influence their participation in economic, social and political life, their earnings and their living standards.

First, countries can direct individual choices and opportunities through incentives rather than controls, and can address population dynamics by enlarging, rather than restricting, individual choices and opportunities. Better access to health care services, including sexual and reproductive health care and education beyond the primary level not only contribute to falling infant, child and maternal mortality and help to arrest the spread of communicable diseases, but also contribute to the empowerment of women and falling fertility levels. Improving access to sexual and reproductive health care is particularly important in the world’s least developed countries, which continue to have high fertility and a large unmet need for family planning. But even in the poorest countries, there are considerable inequities as regards access to sexual and reproductive health care. In general, access is better for women in urban areas, and for those from higher economic and social strata, than for women in the rural areas or who live in poverty. Second, countries must empower women not only to decide on the number and timing of their children, by providing adequate access to sexual and reproductive health care, but also to promote their active participation in economic, social and political life. For economic and cultural reasons, many countries continue to effectively exclude women from many economic and political positions. Greater gender equality requires changes in mind sets and legislation, but it can also be furthered through practical investments infrastructure. Because many households are not connected to power and water supplies, many women continue to spend a considerable share of their time fetching fire wood and water. Women who lack education and economic opportunities often have more children. And because they have more children many of them devote more time in bearing and rearing of children which leaves them with no time to develop their skills. Many times they have to forgo many economic opportunities which otherwise they could have had. Thus while changes in population size have important implications for sustainable development, other population dynamics, needs attention, like how many people will be added to the world matters; it also matters where they will live, how old they are and what they do, produce and consume.
Like many countries across the world, the statistical analyses of data from India have so far supported this classical theory of demographic transition. According to the conventional demographic transition theory, a decline in fertility level below a certain threshold level cannot be achieved without changes in material conditions, an increase in female literacy, improvement in the economic well being of the people, exposure to urban values and way of life and improvement in child survival. Studies show that an increase in female literacy and education level of women has direct bearing on the decline in fertility trends. Increased education level keeps girls in school in longer years increasing the age at marriage and hence declining the marital fertility rate. But interestingly it was noticed that decline in fertility in the southern states of India happened because of adoption of contraceptives by even the illiterate women. The theory of social capillary can be attributed to the demographic transition. The diffusion of new ideas and increased aspirations for the children among the uneducated parents encourage poor people to limit their size of the families.

Fertility is also found to be highly correlated with infant mortality. When not all children born to a couple are expected to survive to adulthood, couples have more children. In spite steady decline in the infant mortality rate over several years, the perception among parents that it has indeed been declining comes with a time lag. Another factor associated with fertility decline is the status of women. Women in south India have greater decision making power, access to money and income, ownership of assets, degree of freedom than their sisters in north India. While in Andhra model of demographic transition, the government designed family planning programmes and access to the family planning services easier and linking them with incentive payment to lower fertility, in Tamil Nadu along with providing family planning services efforts were made to address the reproductive health needs of woman in health care facilities. It is still important to understand in depth the extent and impact of vigorous promotion of family planning and also whether men and women respond to accept the methods promoted by the government.

Before ending our discussion on the demographic transition theory, let us draw our attention attention to some of the very pertinent and thorny issues which needs to be addressed while discussing the desired fertility decline as being the ideal situation to contain population growth. First of all there is no dearth of evidence to believe that demographic transition is taking place in all Indian states though at varying rates, and that total fertility rate will plateau for long at a level that is far above replacement level. The issues which we may be concerned with are varied. First, the process of sterilization among young women many times suffers from lack of proper health care. Incidences of AIDS may be on a rise as once the women are sterilized there will be little incentive for their partners to use condoms. With an aspiration to have a small family with preference for sons, sex selective foetus abortions will be at its peak even with the existing PNDT Act in place. In spite of all these challenges it is a fact that Indian couples have changed their fertility behaviour in a whole range of different economic, social, cultural and kinship contexts. There is no denying fact that today women throughout the country desire fewer children to whom they can provide a good education and health care. Therefore a comprehensive package of care and well executed health programs will go long way in changing perceptions of a small family norm.
Check Your Progress 3

Note: a) Use the space below for your answer.

b) Compare your answers with those given at the end of the unit.

1) India is in which stage of demographic transition?

................................................................................................................
................................................................................................................
................................................................................................................

3.6 LET US SUM UP

Demographic transition theory is a modern theory of population growth which states: “population condition is a function of birth rate and death rate. Population growth experiences a transition from one stage to another stage. This transition is called demographic transition.” The demographic revolution is initiated by the secular decline in mortality. Mortality decline was caused by the cumulative influences of the agricultural, industrial and the sanitary revolutions which respectively led to better food supplies, an improvement in the factors of production and the standard of living in general and improvements in public health in the developed world. In the developing world rapid population growth is the result of the temporal lag between the decline of mortality and that of fertility. Fertility decline eventually occurs because of social and economic supports to high fertility are removed. The materialism and individualism associated with the urban way of life give impetus to the rational control of fertility by means of contraceptive processes.

It is interesting to note that the different regions of our country, India are at different stages of demographic transition. The average growth rate of the country do not confirm to the regional variations of growth rate. Although India is one of the first counties to formulate a population policy, decline in fertility has been a slow process with moderate achievements, especially in the states of Indo-Gangetic plains. However, some areas have shown remarkable changes in fertility decline like the south Indian states, which is getting reflected in the average value of decadal growth rate of the country which is consistently declining with time.

3.7 KEY WORDS

Demographic Transition : Demographic transition is a model used to represent the transition from high birth and death rates to low birth and death rates as a country or a region.

Mortality : It is the permanent disappearance of all evidence of life at any time after birth has taken place.

Fertility : It is the physiological capacity of an individual to conceive and/or bear children.

Death Rate : The ratio of deaths in an area to the population of that area; expressed per 1000 population per year.
Birth Rate: The ratio of live births in an area to the population of that area; expressed per 1000 population per year.

3.8 REFERENCES AND SUGGESTED READINGS


3.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress Exercise 1

1) Your answers must include the following points:
   - High birth rate and high death rate
   - Low birth rate and falling death rates

2) Your answers must include the following points:
   - Falling mortality rates
   - High fertility

Check Your Progress Exercise 2

1) Your answers must include the following points:
   - High mortality
   - AIDS
2) Your answers must include the following points:
- The advantages of medical science
- Medical heath discoveries took time
- Technology transfer to developing countries

**Check Your Progress Exercise 3**

1) Your answers must include the following points:
- Northern states show falling mortality and high birth rate
- Southern states show falling death rate and birth rate