

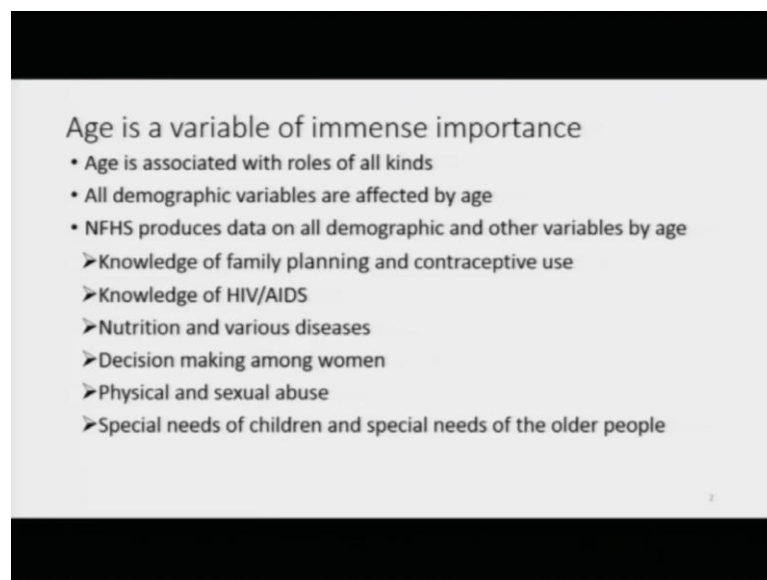
Population Studies
Prof. Arun Kumar Sharma
Department of Humanities and Social Sciences
Indian Institute of Technology, Kanpur

Lecture - 19
Population Concepts and Aging-I

Dear friends, in the previous lectures we were talking about the relationship between population growth and gender. Actually the population is such a subject that it is area is very broad because it interacts with so many disciplines in social sciences and to some extent also with biology. So, it depending on the interest of the researcher you may bring in economic concepts, social concepts, geographical concepts psychological concepts and so on. In these two lectures now we particularly focus on the concept of age and what is the relationship between Population Concepts and Aging.

Aging is becoming one of the most serious problems of population these days. Now in sociology age refers to a status and it is part of ascribed status there are two types of status is ascribed and achieved, ascribed is attached to a person by birth and age is one such status gender religion these are other ascribed statuses.

(Refer Slide Time: 02:00)



Age is a variable of immense importance

- Age is associated with roles of all kinds
- All demographic variables are affected by age
- NFHS produces data on all demographic and other variables by age
 - Knowledge of family planning and contraceptive use
 - Knowledge of HIV/AIDS
 - Nutrition and various diseases
 - Decision making among women
 - Physical and sexual abuse
 - Special needs of children and special needs of the older people

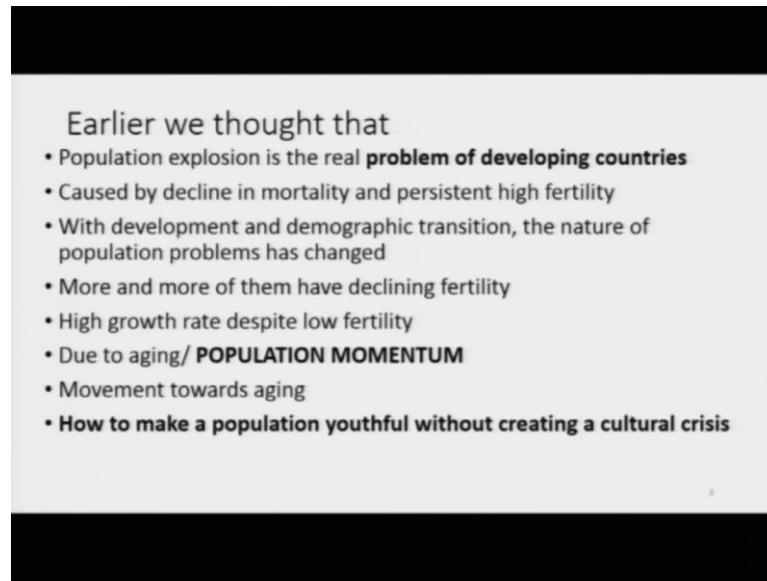
And achieved statuses are those which one achieves through his or her own efforts like income education etcetera. Now age as an ascribed status is associated with rules of all kinds economic rules, social rules, administrative rules everything and all demographic

variables are also affected by age. Again to repeat demographic variables are fertility mortality migrations social mobility marriage and age, sex, marital status work status occupation industry and urban rural residents etcetera. And therefore all major surveys including national family health survey produce data on all demographic variables and other socio economic variables by age.

For example one talks about the relationship between knowledge of family planning and contraceptive use with age, we expect that as age increases the knowledge of family planning and contraceptive use will also increase, knowledge of HIV and AIDS. Nutrition and various diseases are also affected by age, relationship of age with communicable diseases may not be so clear although they also affect persons at certain ages more like infants and children. But certainly other diseases such as cancer, stroke, cardio vascular diseases, hyper tension diabetes, they are diseases of old age they are also called life style diseases and they are very much determined by age.

Decision making among women is determined by age and traditional Indian society newly married women relatively have lesser decision making power, as age increases and especially after they have become mother of grown up sons, in other words like mother in laws then they have that dominant decision making power in the family. Similarly physical and sexual abuse they are also affected by age, special needs of children and special needs of the older people make us more sensitive to problems of age or the age distribution of the population.

(Refer Slide Time: 05:43)



Earlier we thought that

- Population explosion is the real **problem of developing countries**
- Caused by decline in mortality and persistent high fertility
- With development and demographic transition, the nature of population problems has changed
- More and more of them have declining fertility
- High growth rate despite low fertility
- Due to aging/ **POPULATION MOMENTUM**
- Movement towards aging
- **How to make a population youthful without creating a cultural crisis**

Earlier in course of our lectures we thought that population explosion is the real problem of developing countries and this started in 1950 mainly this was caused by decline in mortality and persistent high fertility. We also assume that the development and demographic transition the nature of population problems. Now in course of time we find that more and more of the countries including the so called less developed countries have decline in fertility and our own country is no exception to that we have almost reached the replacement level fertility at 2.1 India has 2.2.

And despite that we have high growth rate of population a high natural growth rate of 1.4 and this is 1.0 on which I have been stressing, because from all points of view from the point of view of descriptive demography from the point of view of policy making, from the point of view of analytical demography. It is an important issue that this high rate of growth of population, whether census or natural growth rate based on SRS data. That is not so much because of high fertility TFR of 2.2 is not high, but it is due to aging and this is called population momentum.

Population momentum means that as fertility or mortality start changing, their impact on the growth rate of population takes some time there is a time lag that a fertility starts declining today. And suppose the growth rate of a stable population comes down to 0 age specific fertility rates and age specific mortality rates are such that the growth rate of the corresponding stable population is 0. Even then for almost 50 years the population will

continue to change grow or decline mostly grow when fertility rates are high. And this characteristic population that it continues to grow. Despite the fact that the stable population growth rate is 0 is called population momentum.

Similarly, in the developed countries if today total fertility rate which is 1.2 1.3 1.4 that improves to 2.1, it does not mean that the population will start growing at a higher rate immediately it will again take some time. Something which must be said in relation to age is that worldwide more developed countries less developed countries least developed countries everywhere there is a movement towards aging. Means median age of population is going up everywhere and there is no easy solution to the question. How does one make a population youthful without creating a cultural crisis means dependence on migration? The whole world is aging population reference bureau 2018 world population report gives detailed data on age and other demographic factors.

(Refer Slide Time: 10:09)

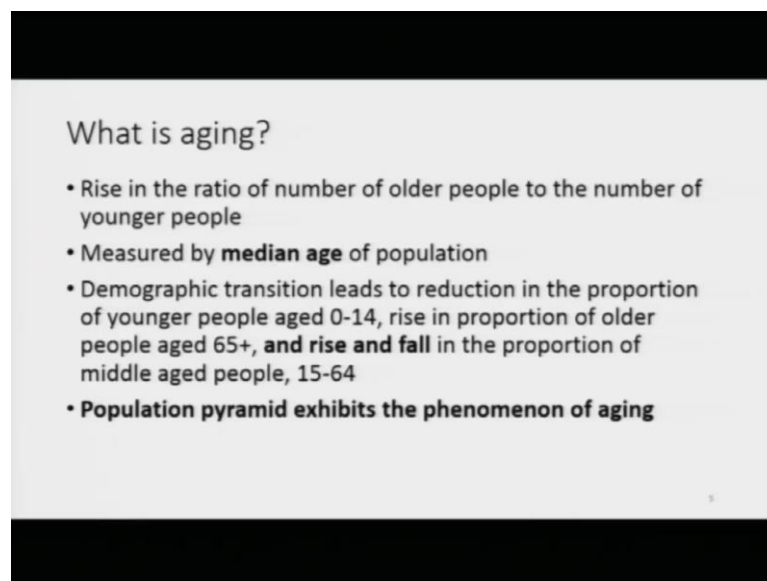


9 percent of the world population today is in the age group 65 plus which is called the age group of older people old population or senior citizens constitute about 9 percent of the world population this was not always the case. The respective percentage is for the more developed countries and the less developed countries are 18 and 7, which means in the developed countries 18 percent of the entire population s in the age group 65 plus old age and in less developed countries it is 7 percent not so much because of improvement

in mortality in the developed countries but more importantly because of decline in fertility.

Now, by 2050 in the world the aged population will constitute more than double the present size, almost 2.3 times means in 2050 32 years, from now the aged population will be 2.3 times the aged population of the world today and this will grow at different rates in different countries. It will be 1.5 times the population of the aged people in the developed countries. So, developed countries aged population will not grow that much as in the less developed countries, where it will become 2.8 times of the present size is it good or bad or from sociological point of view. Is it dysfunctional to have a large proportion of population in the old age or functional, in literature there are more arguments in support that it is dysfunctional than in support of that it is functional though there are some functions also.

(Refer Slide Time: 12:49)



What is aging?

- Rise in the ratio of number of older people to the number of younger people
- Measured by **median age** of population
- Demographic transition leads to reduction in the proportion of younger people aged 0-14, rise in proportion of older people aged 65+, **and rise and fall** in the proportion of middle aged people, 15-64
- **Population pyramid exhibits the phenomenon of aging**

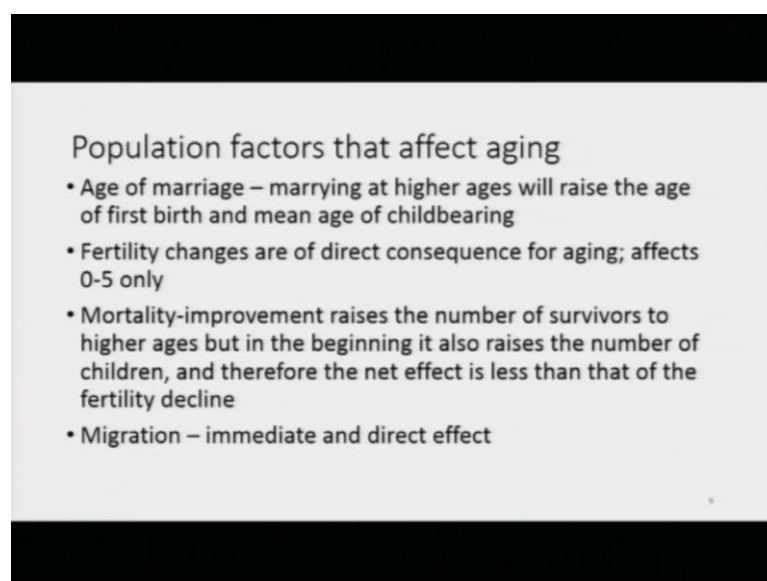
So, there is ageing and this is reflected in the rise in the ratio of number of older people, so the number of younger people this is another way of defining the aging of the population or median is a good parameter you can calculate median age of the population that will show aging. If the median is of the population is increasing it means population is aging, median is considered to be an advantageous more advantageous measure of central tendency than mean. Because it divides population into two equal halves 50 percent below the median 50 percent above the median and is not biased towards higher

values as is the case with arithmetic mean and calculation of arithmetic mean is also more difficult.

Demographic transition leads to reduction in the proportion of younger people aged 0 to 14 and rise in proportion of older people aged 65 plus and rise and fall. Rise and fall because initially the population in the middle aged 15 to 64, proportion of population in the middle ages rises and subsequently it falls. Initially it rises because proportion of children declines and eventually it falls because the proportion of old people starts increasing and this intermediate period during which proportion of middle aged people 15 to 64, see that 15 to 64 is also the age group in which people participate in economic activities.

So, from demographic perspective it is the number of workers or number of people who are available for work. So, this people available for work is a good thing and this phenomenon of rise in 15 to 64 initially and then subsequent decline this leads to what we call increase in the proportion of workers from demographic perspective or demographic dividend. India is one of the youngest countries of the world and presently is reaping the benefit of lower dependency ratio or the demographic dividend. Population pyramid once we have talked about this population pyramid age and sex structure shown in a graphical manner also exhibits the phenomenon of aging.

(Refer Slide Time: 16:03)

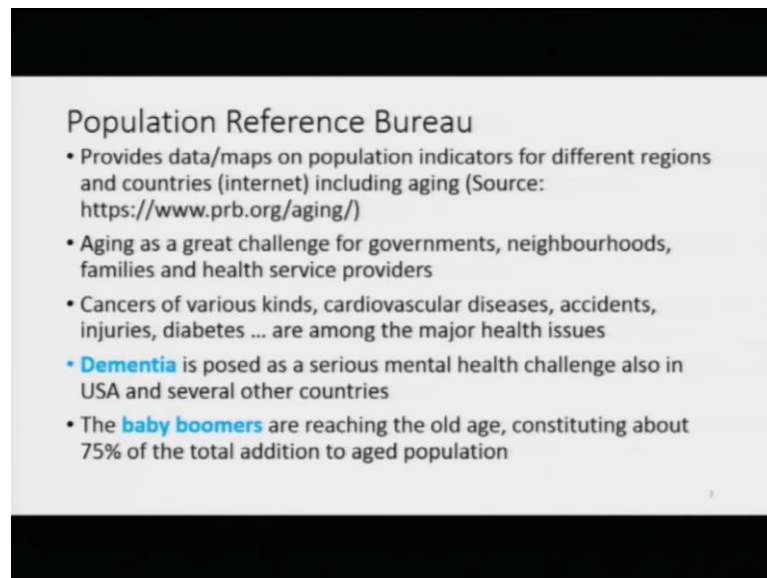


Population factors that affect aging

- Age of marriage – marrying at higher ages will raise the age of first birth and mean age of childbearing
- Fertility changes are of direct consequence for aging; affects 0-5 only
- Mortality-improvement raises the number of survivors to higher ages but in the beginning it also raises the number of children, and therefore the net effect is less than that of the fertility decline
- Migration – immediate and direct effect

Factors which affect aging are several age of marriage is one, marrying at higher ages will raise the age of first birth and mean age of child bearing. This will have indirect effect on median age of population or this will determine aging. Fertility changes are of direct consequences for aging because it affects 0 to 5 or young children directly mortality improvement raises the number of survivors to higher ages. But in the beginning when mortality starts improving in the first stage of demographic transition it also raises the number of children, because earlier infant mortality neonatal mortality post neonatal mortality they are high and therefore the net effect on age distribution is less than that of fertility decline. Migration affects the age distribution of population immediately and directly.

(Refer Slide Time: 17:13)



Population Reference Bureau

- Provides data/maps on population indicators for different regions and countries (internet) including aging (Source: <https://www.prb.org/aging/>)
- Aging as a great challenge for governments, neighbourhoods, families and health service providers
- Cancers of various kinds, cardiovascular diseases, accidents, injuries, diabetes ... are among the major health issues
- **Dementia** is posed as a serious mental health challenge also in USA and several other countries
- The **baby boomers** are reaching the old age, constituting about 75% of the total addition to aged population

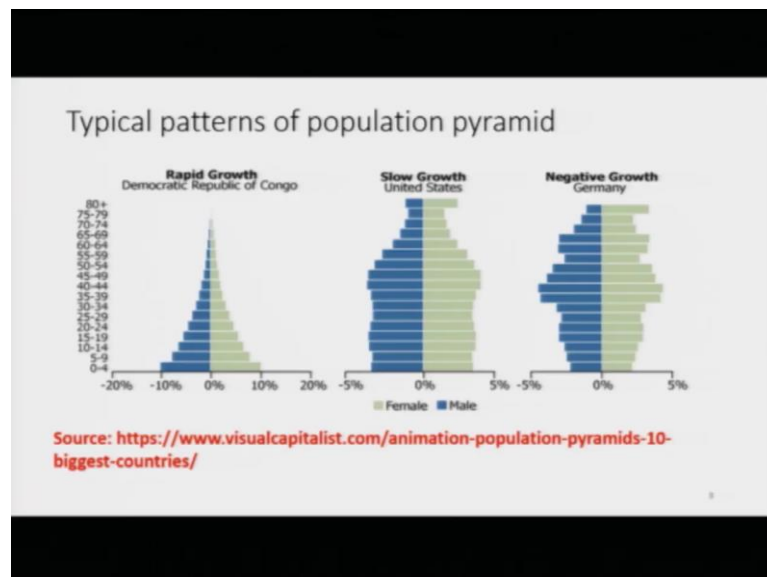
Now, again population referring to population reference bureaus data maps on population indicators for different regions and countries including aging. This is the internet site at which you can find all these data [www dot prb, prb stands for population reference bureau dot org slash aging slash](http://www.prb.org/aging/). Ageing it is a great challenge for governments neighborhoods families and health service providers, because the treatment of problems of aged cancer, cardiovascular diseases, accidents, injuries, diabetes are among the major health issues among the aged people and their treatment is more expensive and prolong.

Mental health issues are also are more prevalent among the aged people and worldwide dementia is posed as a serious mental health challenge in USA and several other

countries. Actually it is a worldwide problem only thing that in USA and some other developed countries more attention has been paid to dementia to mental disorders in general and dementia among the aged people in particular. But it is everywhere only a few years back we had the first survey of mental disorders in which NIMHANS of Bangalore was involved IIPS was also involved otherwise we are lacking in India, accurate data on the mental health and dementia among the aged.

Now, we have some tentative estimates, but there is a need to repeat these surveys at the national level state level district level and no more about the issue and it is determinants. The baby boomers are reaching the old age constituting about 75 percent of the total addition to aged population, baby boomers means that immediately after Second World War, there was a mood of happiness relaxation development creativity people became more enterprising more hopeful more confident and in developed countries fertility increase suddenly. So, you find that after second world war for a few years the rate of fertility suddenly goes up, it had being declining for centuries and suddenly after the depression of period between two world wars it goes up and the babies born during that period are called baby boomers.

(Refer Slide Time: 20:27)



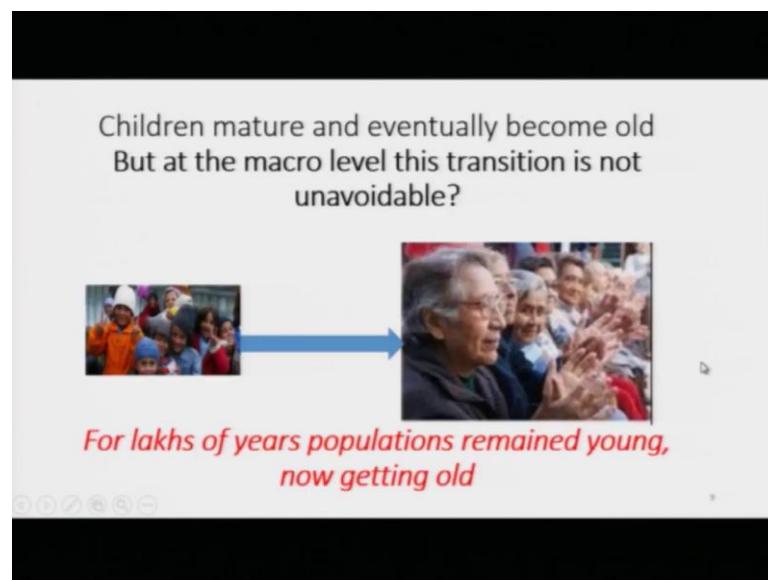
These are typical pyramids of age you can see that in the first pyramid which refers to pyramid of a country a population, undergoing rapid growth of population there is a broad base and there is a steep fall in the number of persons as age advances on both

sides, on one side females another side males and on x axis we have numbers on y axis we have age. So, a typical age pyramid of a country in the first stage or even before in before demographic transition starts will look like this. This is when you have slow growth of population as of United States fertility is not below replacement level, but the growth rate is a small.

They are you have a shorter base because fertility has declined and all those born you can see that the number does not change appreciably from age 0 to age 45 or so that is because all those who survive, all those who are born almost all of them survive probability of dying or infant mortality and under five mortality and early adult mortality are so low. That anybody born here is going to survive till the age of 45.

There is some bulging at these two ages 40 to 45 and 45 to 50, this bulging reflects the number of migrants at ages at which there are more migrants there is bulging of age pyramid. This is more in case of Germany where fertility has declined to below replacement level. So, narrow base increase in numbers highest number at middle ages and migration is one important factor in this.

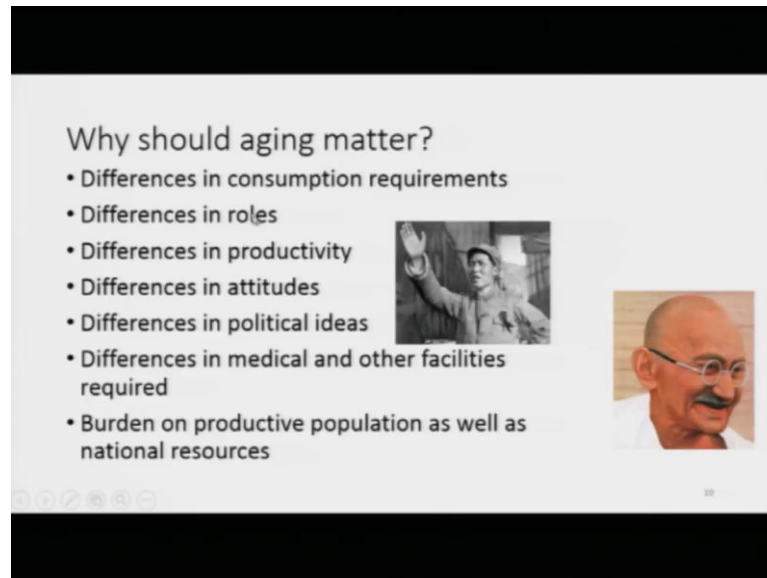
(Refer Slide Time: 22:45)



This is true that children mature and eventually become old, but at the macro levels situation is different. At the macro level population can age population can remain of same age for centuries or population age may decline. For lakhs of years population

remain young nearly 45 percent population remained in the age group 0 to 14 and now we are getting old and proportion of old peoples moving towards 20 to 25 percent.

(Refer Slide Time: 23:31)



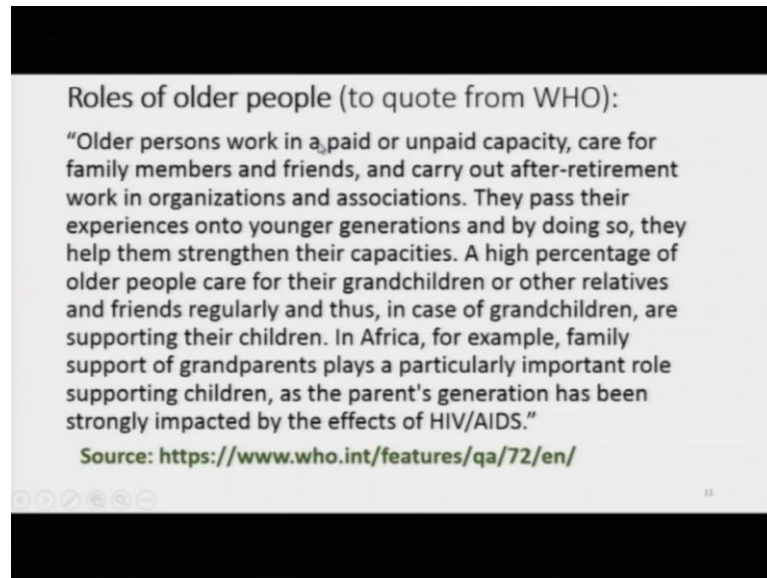
Why should aging matter?

- Differences in consumption requirements
- Differences in roles
- Differences in productivity
- Differences in attitudes
- Differences in political ideas
- Differences in medical and other facilities required
- Burden on productive population as well as national resources

The slide features two small images: on the left, a black and white photograph of a man in a military-style uniform with his hand raised; on the right, a color portrait of Mahatma Gandhi wearing his characteristic glasses and a white shawl. At the bottom of the slide, there are navigation icons and the number 18.

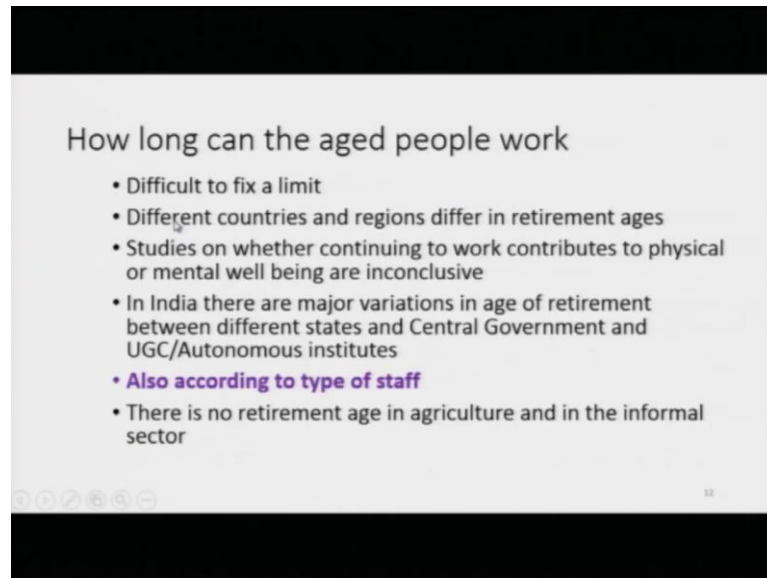
Aging matters because there are differences in consumption requirements in roles, in productivity, in attitudes, in political ideas in medical and other facilities and there is burden on productive population as well as national resources. When more people are old and they depend on pension or retirement benefits, provident funds etcetera and they do not directly contribute to production purposes. Then they become a burden on productive population.

(Refer Slide Time: 24:11)



Regarding the role of older people WHO says I am quoting “older persons work in a paid or unpaid capacity, care for family members and friends and carry out after retirement work in organizations and associations they pass their experiences onto younger generations. And by doing so they help them strengthen their capacities a high percentage of older people care for their grandchildren or other relatives and friends regularly and thus in case of grandchildren are supporting their children. In Africa for example, family support of grandparents plays a particularly important role supporting children as the present generation has been strongly impacted by the effects of HIV/AIDS.

(Refer Slide Time: 25:03)



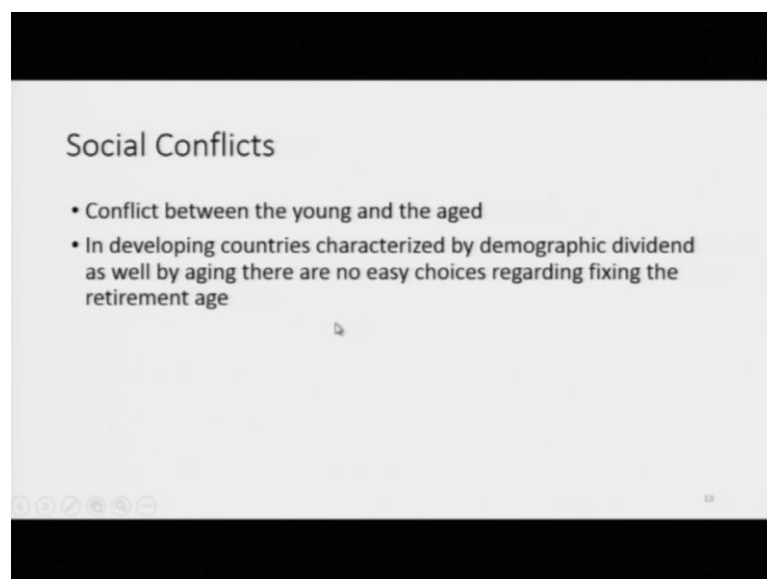
How long can the aged people work

- Difficult to fix a limit
- Different countries and regions differ in retirement ages
- Studies on whether continuing to work contributes to physical or mental well being are inconclusive
- In India there are major variations in age of retirement between different states and Central Government and UGC/Autonomous institutes
- **Also according to type of staff**
- There is no retirement age in agriculture and in the informal sector

12

Now, there is also a question regarding by the way this WHO quote, show the functions of aging not dysfunctions. How long can the aged people work difficult to fix a limit different countries and regions in our country states have different ages of retirement, studies of whether continuing to work contributes to physical or mental wellbeing are inconclusive. In India there are major variations in age of retirement and also according to type of staff there is no retirement in agriculture and in the informal sector.

(Refer Slide Time: 25:41)



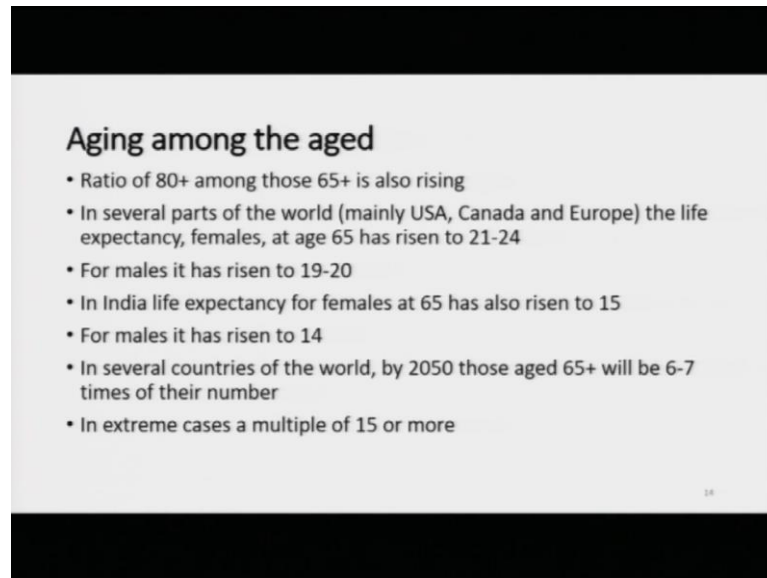
Social Conflicts

- Conflict between the young and the aged
- In developing countries characterized by demographic dividend as well by aging there are no easy choices regarding fixing the retirement age

12

Now, in the present time this aging is also leading to conflicts of interest between aged people and the young people.

(Refer Slide Time: 25:51)



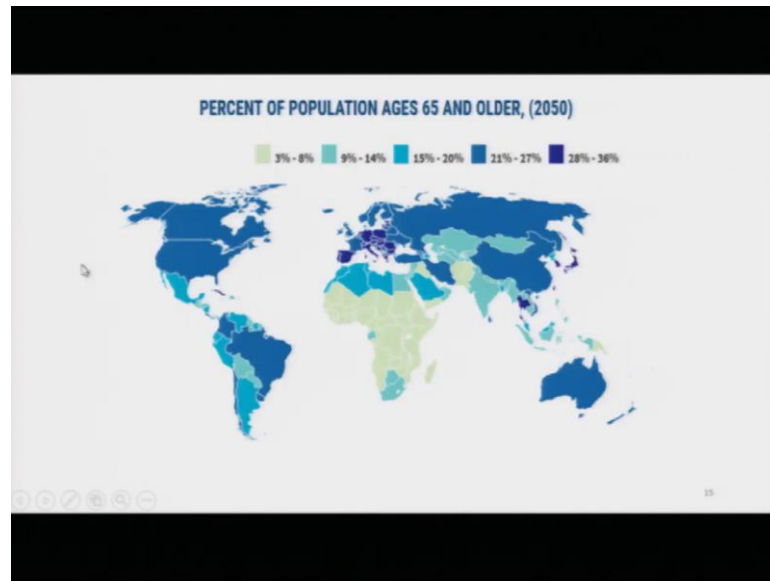
Aging among the aged

- Ratio of 80+ among those 65+ is also rising
- In several parts of the world (mainly USA, Canada and Europe) the life expectancy, females, at age 65 has risen to 21-24
- For males it has risen to 19-20
- In India life expectancy for females at 65 has also risen to 15
- For males it has risen to 14
- In several countries of the world, by 2050 those aged 65+ will be 6-7 times of their number
- In extreme cases a multiple of 15 or more

18

There is also another phenomena of aging among the aged ratio of 80 plus among, those 65 plus is also rising in several parts of the world USA, Canada and Europe the life expectancy of females at age 65 has risen to 21 to 24 for males also it has risen it has risen to 19 to 20. In India life expectancy for females at 65 has risen to 15 for males to 14 and in several countries of the world by 2050 those aged 65 plus will be 6 to 7 times of their number it is a serious issue and in extreme cases a multiple of 15 or more.

(Refer Slide Time: 26:41)



This picture shows the percentage of aged in the populations of different regions of the world. The oldest population of the world are found in Canada, USA, a few Latin American countries Russia parts of china Australia and New Zealand and the youngest population is found in certain African countries. So, the countries and the regions vary according to age also.

(Refer Slide Time: 27:23)

Need for planning

- For the welfare of the elderly people
- Next lecture is devoted to aging in the Indian context

There is a need for planning for the welfare of the elderly people, their number is increasing. So, there is a need to plan for the welfare of the elderly population. They

need not, they should not be rather they should not be seen as a burden on society and they must be involved as long as possible in the productive activities of society.

Recently I saw a paper in which it was said that aged populations are relatively more peaceful than the younger population, that may be one aspect of aging and certainly there are economic issues there are political issues, one political issue in our country is raising the age of retirement. If you raise the age of retirement it will directly benefit the aged people there is no doubt about that, but it harm the interest of the younger people. Every year more and more number of young people are entering the labour force first time and there is already a high rate of unemployment and quality of jobwise there are only about 8 percent good quality jobs means people in regulars formal sector regular in regular jobs, in the formal sector with a various kinds of securities.

So, if you raise age of retirement old people are benefited, but there is its effect on unemployment rate among the younger people. So, it becomes a political problem that way. Thank you we will spend some more time on the issue of ageing in the last lecture.

Thank you.