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

Lecture - 14
Population and Society- II

Friends, we are talking about the relationship between Population and Society. And in the last lecture, I gave the example two examples actually; one example from Emile Durkheim which shows that rise in the density of population can lead to confusion and disintegration in society. But then the economic division of labour comes to societies rescue and things are taken care off, so as population increases division of labour also increases.

Another theory by Kingsley Davis and Judith Blake, who gave a framework of eleven intermediate variables, this was called the theory of intermediate variables. According to which you can separately analyse the effect of any social change, say education, literacy, social mobility. I gave the example of social mobility, I showed how social mobility can affect fertility, it can it be fertility enhancing or fertility depressing; if the impact is seen, separately through this eleven intermediate variables.

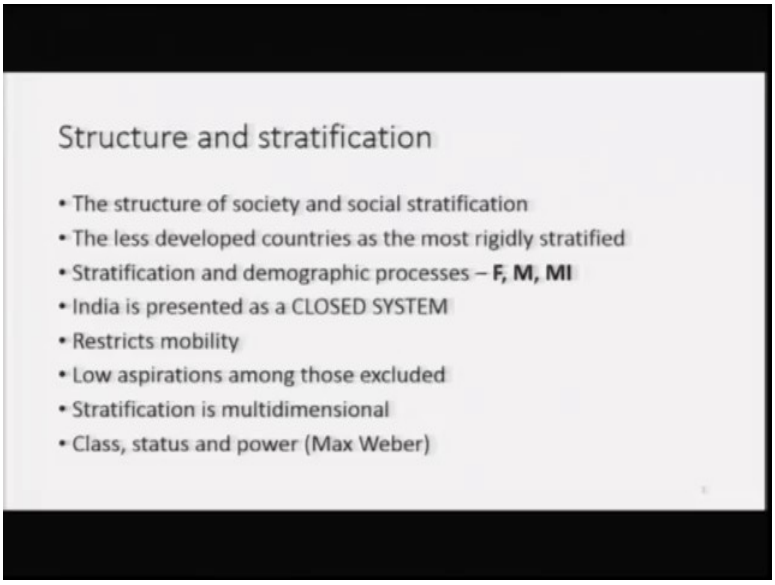
I also gave the example of migration; ah an in case of migration migration, migration is determined by socio-economic factors and factors affecting migrants. Factors at place of origin, factors at destination, personality factors and certain special conditions like natural disasters, etcetera can promote migration. And thus it is important to study the sociological variables behind migration.

Migration also has certain impacts on social structures, so the relationship between social structure and migration is reciprocal or symmetrical, both sides impact of migration on society and impact of society on migration have to be studied. I also mentioned about, proximate determinants of fertility which was an improvement over Kingsley Davis and Judith Blake's theory of intermediate variables, in the sense that now you can quantify the effects of different factors on fertility.

Here in this lecture, I will show some of the socio-economic differences in fertility and related variables according to variables of sociology, which means say cast, community,

wealth, etcetera. So, the structure of society and social stratification they affect demographic variables, they affect fertility, they affect mortality; Karl Marx mentioned about this effect of social conditions on mortality among workers.

(Refer Slide Time: 03:45)



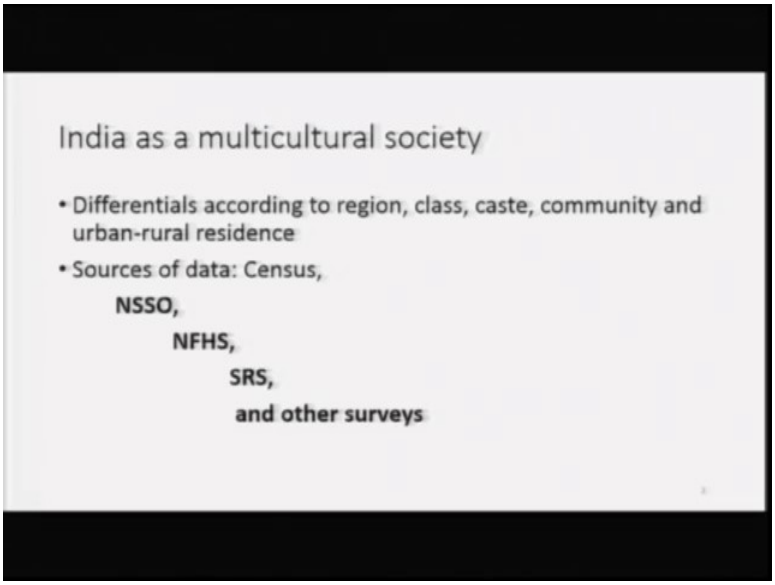
And the less developed countries as being the most rigidly stratified. The importance of studying relationship between stratification variables, by the way stratification means that society is divided into a number of social groups, which can be arranged hierarchically in terms of prestige, wealth and power. Stratification affects demographic processes; India is often seen as a case of rigid stratification system, a system of cast based stratification.

There are other systems of stratification like slavery, like state or like class, but India has cast as a basis of social stratification. It does not mean that other factors like slavery or class are absent, class is very much there; so some people talk of cast and class and in some very isolated cases, there is also the prevalence of slavery. Social stratification or rigidity of social stratification restricts mobility, cast is seen to be a closed system, closed system with restricted mobility aspirations of people to rise are low.

Then when we connect stratification with demographic processes, we also learn that stratification is multidimensional. Stratification is multidimensional means poverty, deprivation, exclusion, they have several aspects; they have malnutrition, they have lack

of housing, decent housing, they have low income and other related factors, class, status and power as Max Weber says.

(Refer Slide Time: 05:45)



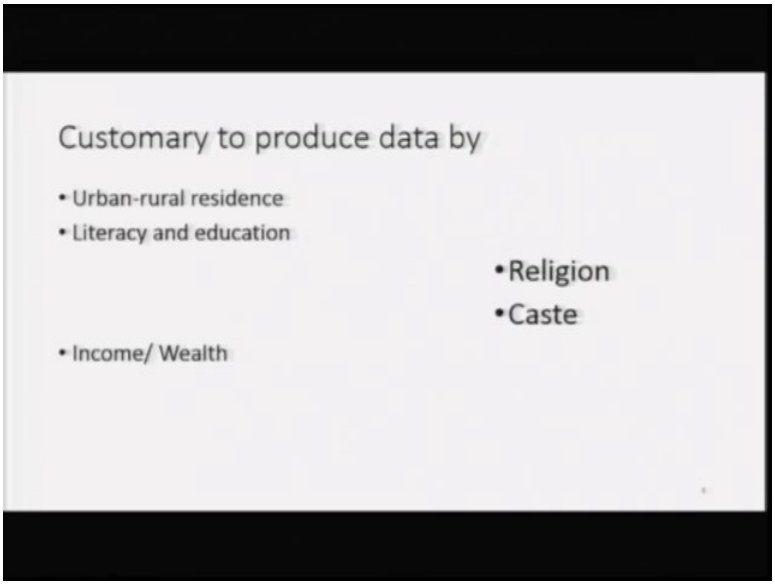
India is a multicultural society no doubt, so cultural variables are also important. And therefore, demographers in India study their variables demographic variables fertility, mortality and often migration and domestic violence and knowledge of HIV and AIDS, prevalence and diseases. Epidemiological studies, study diseases, NFHS 4 also talks about certain types of diseases and we study differences in disease patterns according to these regional, class, caste, community and urban, rural variables.

The sources of data to study relationship between social stratification and demographic variables are National Sample Survey Organization – NSSO Surveys. NSSO keeps on conducting surveys of consumption on the basis of which we draw poverty line and are able to estimate whether percentage of people below the poverty line is rising or falling. NFHS, four rounds of NFHS - National Family Health Survey; SRS - Sample Registration Scheme and other surveys, one of the very important surveys is Human Development Survey this is conducted by University of Maryland and National Council of Applied Economic Research.

Many PhD, students in our department are writing their PhD, thesis using secondary data collected under human development survey and applying assuming applying building

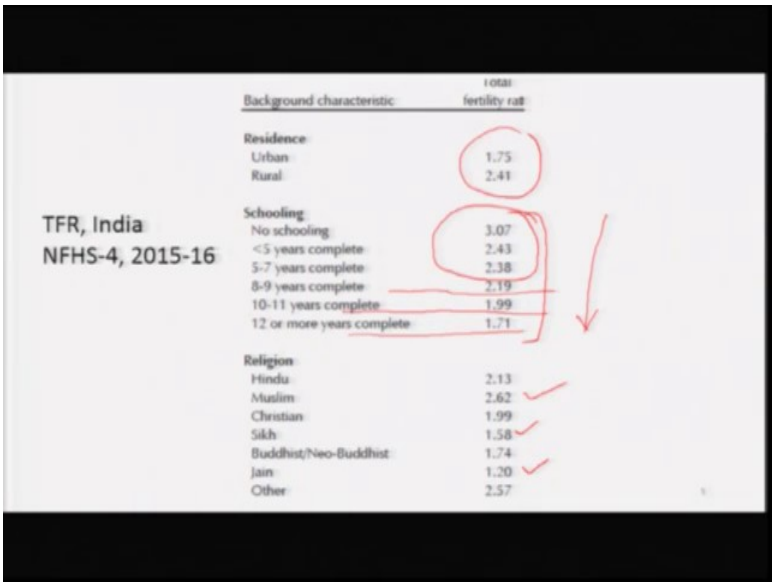
mathematical models to explain those data. So, these are some major surveys NSSO, NFHS, SRS, human development survey and we can make use of them.

(Refer Slide Time: 07:55)



It is customary to produce data by urban rural residence. Urban areas are defined in certain way. In one of the lectures, I mentioned that there are two definitions of urban areas, statutory definition and demographic or census definition. Literacy and education also appear as independent variables in the surveys and analysis of data collected in the surveys. Then religion very important, caste and income and wealth, these are the main determinants of demographic processes. Now, let us look at this table and this table will show how stratification or socio economic differences among people produce differences in fertility.

(Refer Slide Time: 08:47)



This shows the first figure 1.75 and 2.41 that total fertility rate in India according to the latest round of National Family Health Survey. In urban areas, it is 1.75, which means in the urban areas by 2015-16 total fertility rate has gone below the replacement level, but in rural areas fertility rate is still high 2.41 which is 0.3 above the replacement level. So, there are urban rural differences. I mentioned that urban, rural, cast community these are some variables according to which differences in demographic variables are seen.

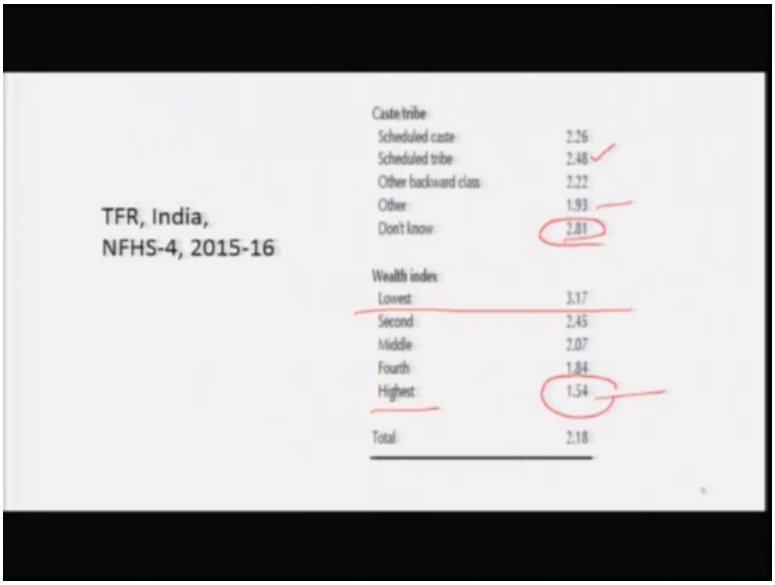
Schooling is another interesting thing, schooling. Among women who are 12th or more years complete those women who reported that they have done 10 plus 2 or more fertility has gone below the replacement level. And even among those who are 10th standard pass it is 1.99 below the replacement level. So, one can draw the inference that if you raise level of education to 10th standard among women in India, among girls today's girls.

Then you do not have to run family planning program, you do not have to spend money on family planning program, fertility will automatically come down to replacement level. Interestingly even 8 to 9 years complete have 2.19 which is very close to replacement level of 2.1. The problem of fertility is the problem for those who are illiterate or less educated. Women who have no schooling at all have 3 children and this partly explains why fertility among states of India why fertility is specially high in Bihar and in Uttar Pradesh because the proportion of women without schooling, without any schooling is one of the highest there.

Those with less than 5 years complete have 2.43, and 5 to 7 years have 2.38. As the level of education rises, fertility declines. So, there is a clear cut relationship between level of education among women and level of fertility. Similarly, religion is another variable. Religion is not a variable of stratification as such, but of course, if you talk of exclusion as a process, then certain communities some minorities not all some minorities may be excluded from participating in mainstream society and that can lead to high fertility.

If you look at total fertility rate for different religions, the lowest fertility rate is for Jain's just 1.20, you have 1.58 among Sikhs. So, Jain's and Sikh's they have the lowest level of fertility in India. And the reason is that Sikh's and Jain's are the wealthiest communities of India. And the highest level of fertility is found among Muslims 2.62 higher than among Hindus 0.5, there is a difference of 0.5 and that can be explained to some extent by the exclusionary processes and by socio economic and deprivation prevailing among a large number of Muslim population.

(Refer Slide Time: 13:04)



Now, similarly if you go by cast, I mentioned that in India caste is the major cause of stratification. Caste explains social stratification and it is a closed system at least this is what is believed to be that caste is a closed system; it is endogamous, local and associated with a certain occupation. Here again you find that the highest fertility rate is found for forget about do not know, some people report that they do not know what their cast is, but among others the highest fertility is found among the scheduled tribes.

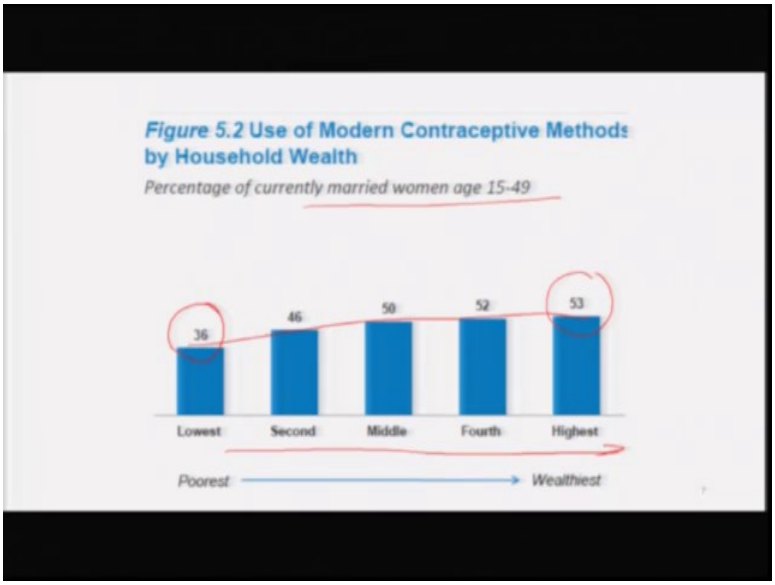
Scheduled tribes are people who have been isolated from the mainstream society for a long time and they have the highest fertility.

Among the caste groups, you find that scheduled caste have higher fertility followed by OBCs and then by others. Others have the lowest fertility actually among others fertility has gone below the replacement level of 2.1, it they have only 1.93. So, high fertility is largely a problem of scheduled tribes and to some extent scheduled caste, again the reasons are socio economic.

NFHS has divided population of households according to wealth index. And again the differences are very clear. If you go by wealth index, take lowest to be the poorest people and highest wealth index by those who have the highest income. Although the wealth is not defined as income alone, wealth is based on a number of characteristics pertaining to household.

But if we interpret wealth largely as income, you find that those who are in the highest wealth quintile with the highest income, highest number of assets and better quality of life, they have a fertility rate much below the replacement level. And there is a negative correlation between income or wealth and fertility level. Those who are in the lowest wealth quintile in the lowest 20 percent of wealth category, they have the highest fertility of 3.17 and this is correlated with regions, with cast, with communities and with other factors.

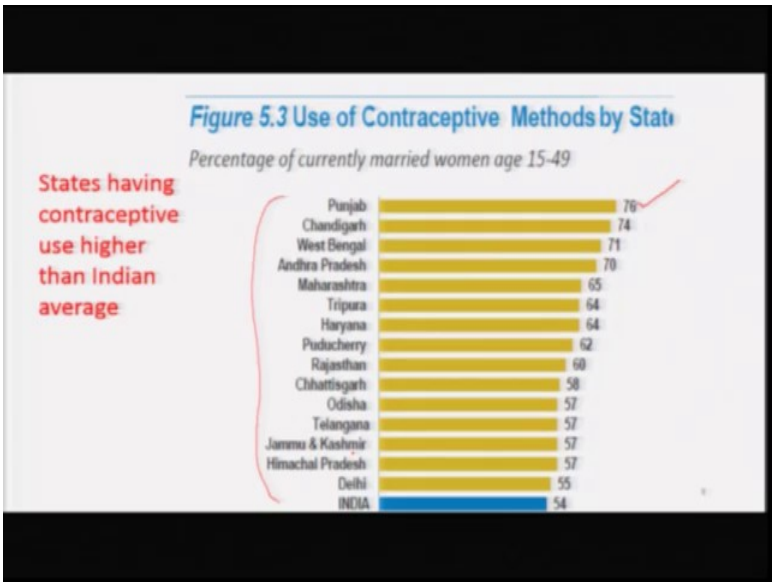
(Refer Slide Time: 15:58)



So, that was the picture of total fertility rate. If you take another variable, a variable pertaining to effectiveness of family planning program, modern contraceptive methods by household wealth. You find that as wealth increases, wealth increases in this direction, then use of modern contraceptives also increases. Among those who are in the lowest wealth quintile only 36 percent couples are using contraceptive methods. While in the highest wealth quintile, 53 percent couples are using contraceptive methods, currently married woman age 15 to 49.

So, I can say couples in India we have monogamy and corresponding to these women 15 to 49, we can talk of couples who have the highest income their contraceptive rate is 53, and those who have lowest income their contraceptive rate is 36. So, this is again indicative of the relationship between social stratification and contraceptive rate.

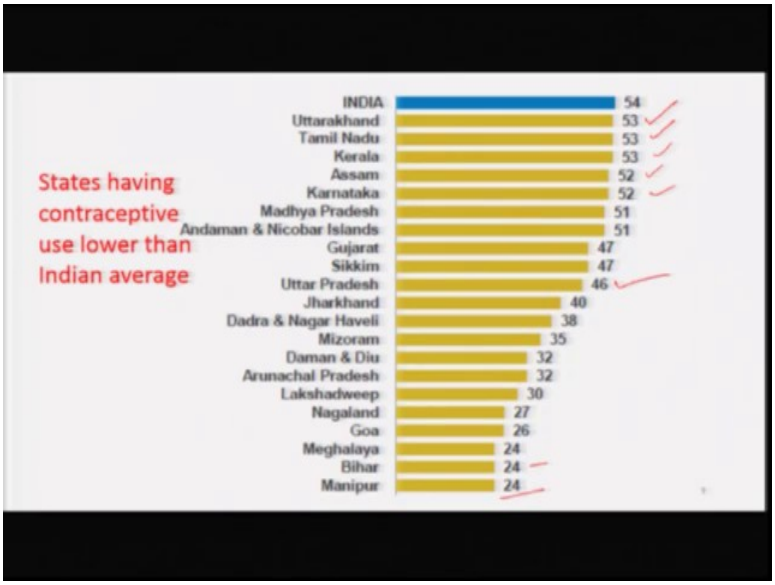
(Refer Slide Time: 17:18)



If you go by state this is the list of states which have contraceptive rates above the national level. And the highest contraceptive rate or highest use of contraceptive methods is found in Punjab, where percentage of currently married women 15 to 49 or couples in reproductive ages. 76 percent couples in reproductive ages are using contraceptive methods. Delhi, Himachal Pradesh, Jammu and Kashmir, Telangana, Odisha, Chhattisgarh, these are the states which have higher contraceptive practice than the national average.

Now, Punjab and Chandigarh, they are developed. West Bengal is not so developed. It is interesting to interpret why West Bengal has such a good contraceptive rate. Andhra Pradesh has high contraceptive rate. Maharashtra, Tripura, Haryana, Puducherry, Rajasthan, Chhattisgarh, these are other states which have high contraceptive rate higher than the national level.

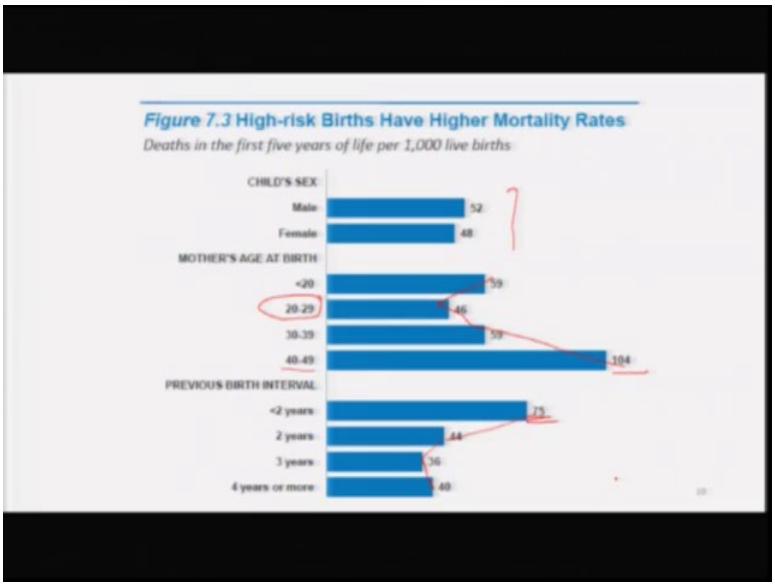
(Refer Slide Time: 18:31)



And here is the list of states which have contraceptive use lower than the national average. And the state which has lowest use of contraceptive methods is Manipur 24, Bihar-24. Manipur is a small state, but it is worrying that a large state like Bihar has such a low contraceptive prevalence 24, something has to be done. You know we have to focus our attention on Bihar, Manipur, Bihar, Meghalaya, Goa, Nagaland, Nagaland, Goa, these are again a small states.

Lakshadweep, Arunachal Pradesh, Daman and Diu, Mizoram, Dadra and Nagar Haveli, Jharkhand, Uttar Pradesh contraceptive, Uttar Pradesh contraceptive rate is also lower than the state average only 46. Then Sikkim, Gujarat, these states also have lower contraceptive rate. In this category of state Uttarakhand, Tamil Nadu, Kerala and Assam and Karnataka have relatively better situation than other states.

(Refer Slide Time: 19:58)



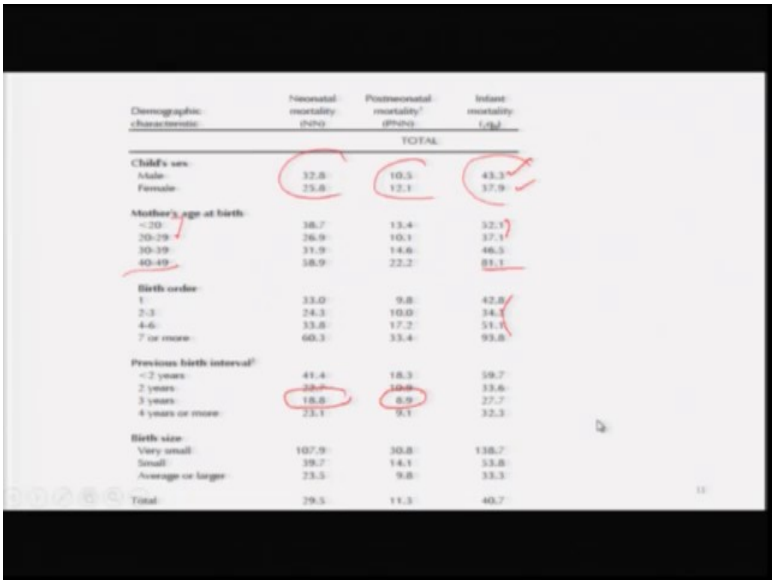
This diagram shows that certain categories of births have higher mortality rates. The diagram shows death in the first five years of life per 1000 live births or what I in of the previous lectures mentioned under 5 mortality. This is probability of dying before reaching the 5th birthday. There are differences between males and females probability of dying before enjoying the 5th birthday is higher for males than for females. For males, it is 52; for females, it is 48. Then mother's age is also important you see as age of mother increases initially as age of mother increases then under 5 mortality decreases, but after a certain age it increases.

The lowest under 5 mortality is for the age group 20 to 29. Actually this is the safest time when a lady can produce a baby who will survive. Before this before 20, the chance of dying before and joining 5th birthday is higher and after that also it is higher. For those children who are born to mothers in the age group 40 to 49 under 5 mortality is particularly high 104 per 1000 means 1 child out of 10 is going to die due to some or other cause before enjoying before celebrating his or her 5th birthday.

Then previous birth interval is also important. And all these factors is at birth and previous birth interval, they depend on socio economic characteristics of the couples. Here we find that if the birth interval is less than 2 years, then the under 5 mortality is highest 75. And when it increases to 2 years, it declines; 3 years, it declines more. But for some reason for 4 years or more, it increases. There is a need to explain why this

happens 4 years and more. Why does under 5 increases, maybe it is due to sampling fluctuation, one has to look at the size of the samples of sample in these categories or maybe it is confounded with some other socioeconomic factors.

(Refer Slide Time: 22:49)

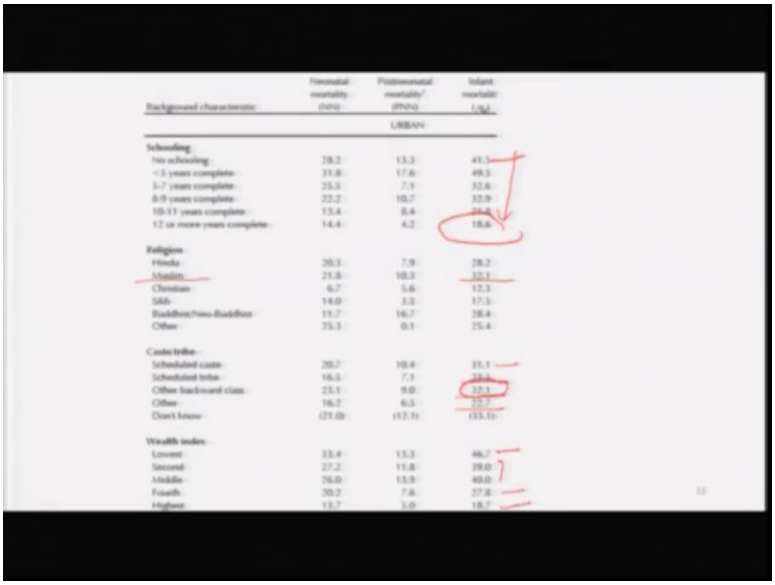


Here we look at some other indicators on mortality, neo natal mortality, post neo natal mortality and infant mortality. Again we find that there are differences, but it is interesting that in case of neo natal mortality, males have higher mortality than females. In post neo natal mortality, males have an advantage, perhaps this is due to neglect of female babies. In infant mortality, also we find that mortality among males is higher 43.3, while it is only 37.9 for females. Mother's age at birth there is a dip 52 to 37 as we move away from less than 20 to 20 to 29 and then there is a rise in age group 40 to 49 infant mortality is highest.

So, in the earlier slide we saw that under 5 mortality is highest for children born to mothers in the age group 40 to 49 and here we find that infant mortality is also high. Birth order is another important characteristic of birth and we find that as birth order increases from 1 to 2, 2 to 3, 4 to 6, and 7 and more, there is initially a decline in infant mortality and then rise and then rise. Similarly, birth intervals are also important determinant of infant mortality, neo natal mortality. Like this neo natal mortality is lowest when the birth interval is of 3 years. Post neo natal is also lowest when birth interval is 3 years. Then birth size very small, average or larger. And these are the figures

so that birth size also determines neo natal mortality, post neo natal mortality and infant mortality.

(Refer Slide Time: 25:19)

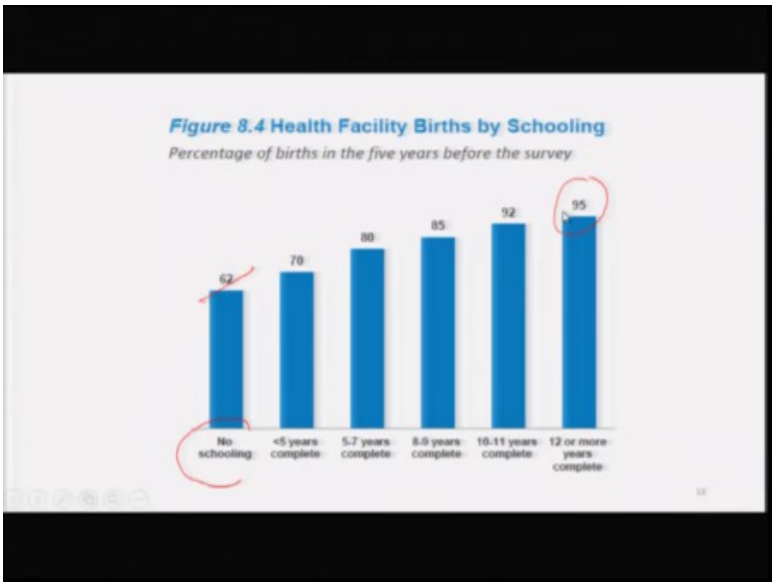


Here we have direct variables on stratification. And schooling you can see that as schooling increases, earlier we had seen that as schooling increases, fertility declines. And those who have 10 to 11 years of education those women have below replacement fertility. Here we find that among those women who have no schooling infant mortality is as high as 41.5 and it declines to 18.6 as good as in some of the developed countries. Of course, further improvement is required in countries like Japan and Germany infant mortality is as low as 2 to 3.

So, we can still make program interventions to reduce infant mortality further, but it is clear that as education increases then infant mortality declines. Same with religion in religions you find that 32.1 among Muslims is the highest infant mortality. Cast scheduled cast have 31.1, scheduled tribes have 23.5, lower OBCs have 32.1 and others have 22.7. There is highest infant mortality among OBCs and this needs to be explained why.

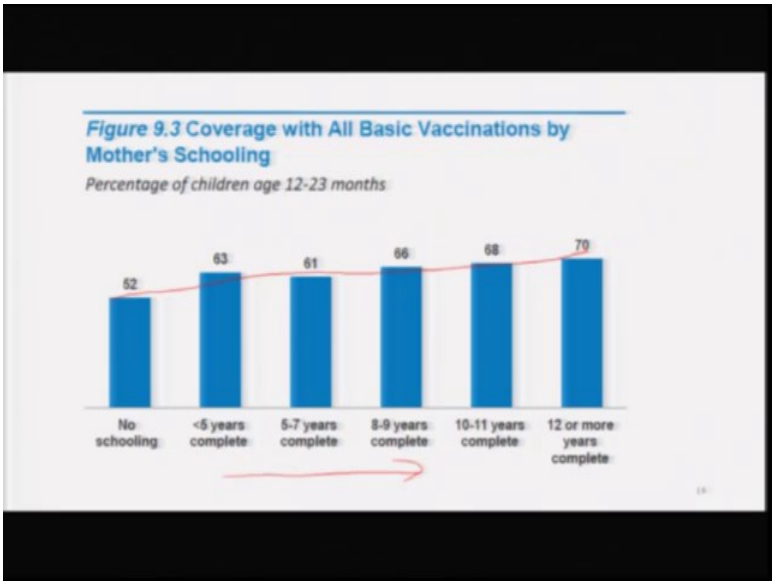
Similarly, wealth index; as wealth increases, we find that infant mortality declines. When wealth is lowest 20 percent; it is 46.7 in second and third quintiles it is around 40, then in fourth quintile it declines to 27.8. And in the highest wealth category highest quintile it is 18.7.

(Refer Slide Time: 27:31)



Here is a figure for health facility births by schooling. While those without schooling, among them only 60 percent delivered babies in health facility; among those 12 or more years complete 95 percent almost all women delivered babies in school sorry in health facility.

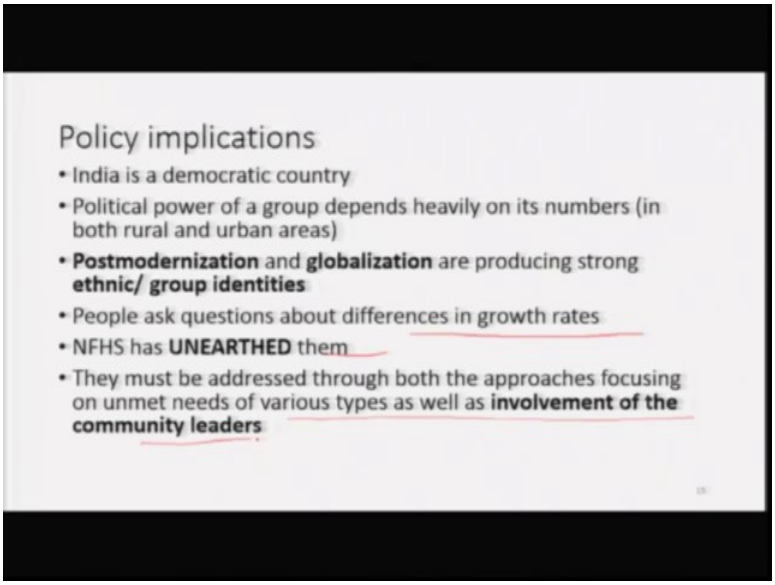
(Refer Slide Time: 28:00)



Coverage with all basic vaccinations by mother's schooling. This shows that as education increases. Coverage of all basic vaccination Government of India has declared

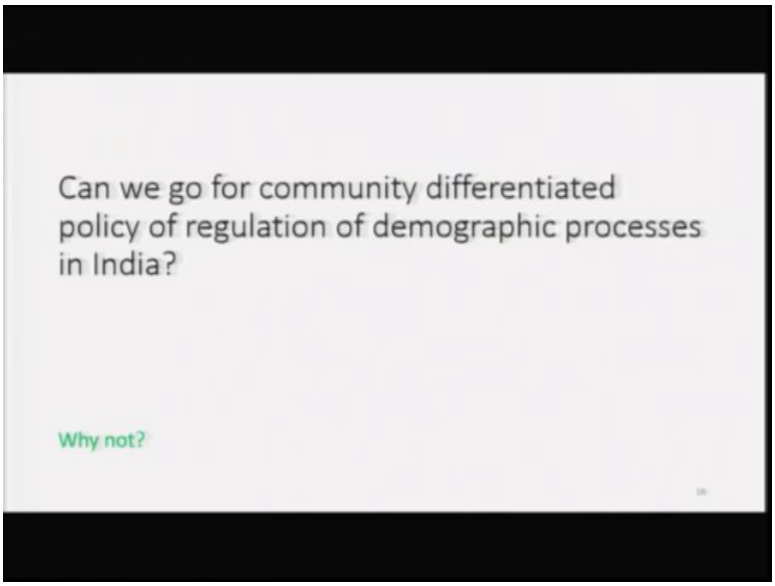
that there are some basic vaccinations and all those children who have been vaccinated for all basic vaccines, their percentage rises with education of mother.

(Refer Slide Time: 28:31)



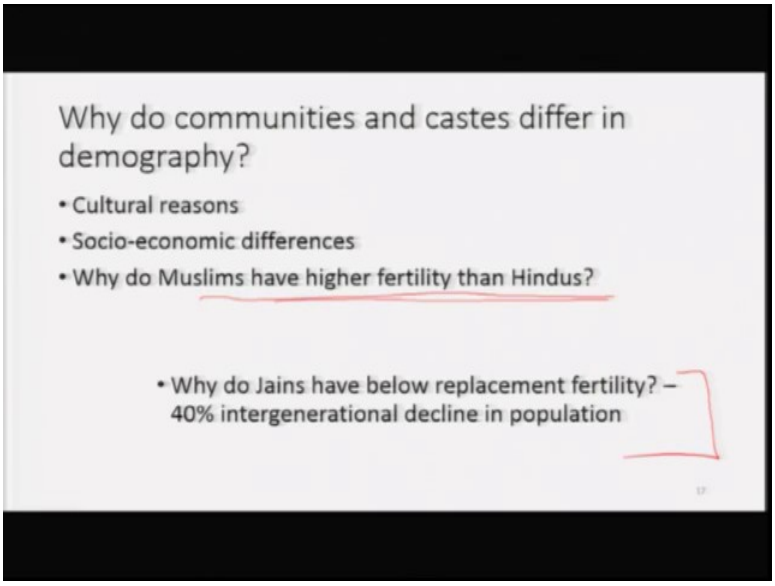
The policy implications of these data are that India is a democratic country. You cannot force anybody to change behaviour political power of a group depends heavily on its numbers in both rural and urban areas. So, M N Srinivas's concept of dominant cast. Post modernization and globalization are producing strong ethnic group identities. People ask questions about differences in growth rates between different caste and community particularly communities these days. And NFHS has helped us in unearthing some of them. They must be addressed through both the approaches focusing on unmet needs of various types as well as involvement of community leaders.

(Refer Slide Time: 29:20)



Can we go for community differentiated policy of regulation of demographic processes in India? As Russia did when in USSR fertility was fertility was very different markedly different in Slavic and Baltic populations. They developed different policies for the two region without bothering that there are religious differences and people in Asian region of Russia may react negatively to these policies. Can India have different policies for different religions and caste? The answer is no. And you can think of why not?

(Refer Slide Time: 30:05)

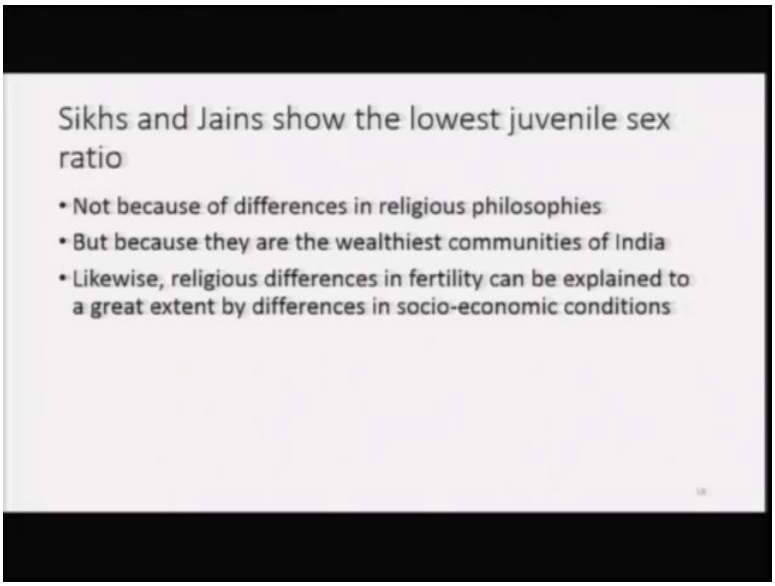


Why do communities and caste differ in demography? The reasons are cultural. Cultural means differences in norms and values. Some differences are because of socioeconomic differences. And like this question why do Muslims have higher fertility. Often times people attribute these differences to nature of religion. But can we give the same answer here why do Jain's have below replacement fertility, leading to 40 percent intergenerational decline in population. If the present trends continue, then there will be decline in population of Jain's in the next generation. And in every generation there will be 40 percent decline.

Can we say that, it is because of Jain religion or religion propagated by Mahaveer Swamy that they have lower fertility? No. There the answer is the there being the wealthiest community of India. Now, in place of attributing these differences in case of Hindus and Muslims two religion can we also not say that it is because of exclusionary system that we have social structure of India which excludes certain caste and community that creates differences in fertility rates or mortality rates or migration rates or social mobility or marriages. Marriages differences in age of marriage are closely associated with differences in fertility rates, mortality rates, neo natal, post neo natal mortality rates, and infant mortality under 5.

So, these are cultural differences both differences between different religions and different caste are due to both the reasons, cultural reasons as well as socioeconomic differences.

(Refer Slide Time: 32:07)



Sikhs and Jains show the lowest juvenile sex ratio. So, everything is not good for Sikhs and Jains. They have lowest fertility and that is good, but they also have lowest juvenile sex ratio, this is a cause of worry. Not because of differences in religious philosophies, but because they are the wealthiest communities of India and it has been found that gender bias is more among high caste, high class people, educated people living close to urban areas or more in urban area than in rural areas and with development of the region.

So, as a community or a region develops juvenile sex ratio goes down and this is something to worry about. Normally people think that it is due to backwardness no its not due to backwardness it is due to modernization. And due to rise in aspirations and a feeling that a girl child will be a burden dowry can be one factor, but there are many other factors also.

Thank you. So, in these two lectures, we have tried to create a link between social factors on the one hand and population factors on the other. I think it will be good if you through the original writings of Kingsley Davis and Judith Blake to understand the framework of intermediate variables then you can apply it in any context any circumstance.

Thank you.