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A study of wanted, unwanted fertility levels and Trends in southern states of India

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Abstract

One of the most important subjects that concerns with the policy-making and budget decisions of any particular government is population growth. Population growth is inherently tied with fertility rates. This study attempts to cover the fertility translation and variation among four states of India, namely: Andhra Pradesh, Tamil Nadu, Karnataka and Kerala. As over population is no longer an area of concern, this paper attempts to look at the advantages and disadvantages of the comparatively declining fertility rate across the aforementioned states throughout the last 15 years. The challenges that certain countries with low fertility rates are facing across the world, especially in the domains of economic growth, healthcare systems, increase of population in the elderly have not been an area of concern, as even though the fertility rates in India are on the decline, relatively speaking, there is no cause for concern when it comes to overall decline in population. Therefore, an analysis concerning two major variables, namely wanted and unwanted fertility rates is needed to improve the current understanding of the process of fertility translation across the last decade and half. Other domains like the behavioural aspects of the couples concerned and the societal aspects of gender preference and other such practices are taken into consideration.

Keywords: Fertility transitions, total fertility rates, unwanted, wanted fertility rates, logistic regression.

1. Introduction

During the past 50 years, the fertility translation spread not only in India and also south Asia. It is very important to study the country's fertility transition and it is the most important subject for making policies and budget decisions. This paper covers the fertility rates variation among the four different states Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Before studying the fertility translation, we need to know what is fertility transition and why it is important to study. Fertility transition is used to measure the historical changes of fertility from high to the low. Overpopulation is no longer a concern for India as fertility rate is falling from the decades across the states and irrespective of religion.

Nowadays India's total fertility trends are optimistic compared to the second half of the 20th century. This is the time when "Overpopulation" in India was discovered. The Total Fertility Rate (TFR) is the number of children a woman is likely to bear during her child-bearing age. Current India is facing a 2.2 fertility rate according to the current pattern as per 2018 data available from the official Sample Registration System (SRS). Presently the country is now passing through a rapid fertility transition towards decline. This is close to the replacement level of 2.1, the rate at which the size of the population potentially remains stable for a few decades and thereafter does not grow. The pace of fertility decline in India has been nearly 2% per year in the past few decades, which is a faster decline than before. Overall, therefore the earlier concern about overpopulation in India has given way to discussions on the demographic dividend and the need to concentrate on the quality of population.

In India, the population growth rates among the different religions also showed a stable decline over the past decades. The population growth rate for Hindu and Muslims was 19% and 31% respectively during the decade 1951 to 1961 and which shows the growth rate. And the same was between 2001 to 2011 is declined to 16% to 24% respectively. By 1951, the Hindu population was 30 crores more than the Muslim population and by 2011, the Hindu population was 80 crores more than the Muslim population. The Muslim population growth rate dropped by 7 percentage points between 1951–61 to 2001–11, a more rapid decline than that of Hindus which had dropped by 3 percentage points over the same half century. After Hindu and Muslim, up to 1991, the growth rate of the Sikh and Buddhist/Neo-Buddhist population was higher than that of the Hindus.

Benefits of fertility are not only the decreasing population growth but also its positive effects on a country's development, conversion of natural resources, enhanced educational opportunities and high standard living. The result of fertility declines, mortality also declines, maternal mortality ratio (MRR) declined by 67 percent in the past 13 years. Sharp decline in fertility gives rise to demographic dividend. India is passing through it. According to some past researcher works, a low birth rate means that families don't have to stretch their income to raise their children. This enables the families in wealthier countries to maintain their standard of living, even with an aging population. The researchers explain that even if countries have to raise their taxes to pay for an increasingly older population, it is far less of an expense on the nation's wealth than if people had to fund larger families, which ultimately costs the nation more.

Globally, women are having fewer babies, but fertility rates remain high in some parts of the world. The global fertility rate declined from 3.2 live births per woman in 1990 to 2.5 in 2019. In sub-Saharan Africa, the region with the highest fertility levels, total fertility

fell from 6.3 births per woman in 1990 to 4.6 in 2019. Over the same period, fertility levels also declined in Northern Africa and Western Asia (from 4.4 to 2.9), in Central and Southern Asia (4.3 to 2.4), in Eastern and South-Eastern Asia (2.5 to 1.8), in Latin America and the Caribbean (3.3 to 2.0), and in Oceania excluding Australia and New Zealand1 (4.5 to 3.4). In Australia and New Zealand and in Europe and Northern America, fertility in 1990 was already below 2.0 live births per woman, and it remained so in 2019, with an average of 1.8 births per woman in Australia and New Zealand and 1.7 in Europe and Northern America. 2.

There are many studies based on the Indian fertility like Spatial Patterns of Fertility transition in Indian Districts by Guilmoto, The onset of fertility transition by Tim Dyson and the global fertility transition by Caldwell. All those are attempts to identify the underlying substantive conditions and to elaborate the nature of the diffusion of contraceptive practice. Many of them studied regional disparities within the country, across the states and the districts within states, some of them looking at all districts in India, very large in number and culturally diverse. Most of the identified factors in these studies correspond in some fashion to those in the Bulatao review referred to earlier, but, understandably for the Indian case, they include other variables such as caste, religion and female empowerment defined in different ways, all of them important for explaining regional disparities in India.

In this study, fertility transition is analysed under two different types, wanted and unwanted fertility rates. The combined decline of these two sources of fertility rates is a highly debatable subject from the decades. The concept of unwanted fertility is a more important factor in studying the population. The term unwanted means that no additional births are expected as wanted. In theory if preferences had prevailed, the birth would never have occurred, a "non-event" of considerable importance for rates of fertility and population growth as well as for the individuals involved. Another approach to the calculating of unwanted fertility is based on comparing the number of children desired with the number actually born. In order to measure the current status of unwanted fertility, first estimated the total wanted fertility rate analogues to the standard total fertility rate by subtracting from each age-specific component those births occurring in the recent past that exceed the total number wanted by the woman. The resulting TWFR is interpreted as the number of births women would have by the end of their childbearing years if at each age, they experienced only the number of births wanted in the recent time period. The difference between the TWFR and the TFR is the component representing unwanted births.

2. Review of Literature

Krishnan (1976) analysis was based on premised that the fertility rates of Kerala were lowering due to lesser infant and child mortality rate. One major aspect of this study that has made substantial inroad into the result is the widespread, sometimes entirely encapsulating prevalence of the matrilineal system. As this resulted in an almost negligible concern of the gender of the child, leading to far fewer additional births.

Rele (1987) studied about the census data from 1951-81 and estimated the current fertility trends and levels in India. For quinquennial periods of the last three decades, he applied a new method at the national fertility and level estimates were presented. Also estimated fertility levels and trends for urban-rural residence of the 14 most popular state of India for the last two decades. The age-sex distributions were unsmoothed reported from the year 1981 and past census of India, that means fertility is declining for both urban and rural areas in India. India shows remarkable geographical consistency of fertility estimates for the major states of India, he concluded that northern states having higher fertility than southern states in 1961-66 and slight modifications in 1976-81.

Sumathi Kulkarni (1998) proposed entirely modern measures of wanted, unwanted fertility rates. These were design with the aspects of wanted gender parity progression. These procedures were applied to the NFHS data from the research body that includes information from 8 different states selected in different parts of Indian. It is found that there is a tendency towards birthing 3 or more children in states that usually have a high fertility rate. While the state with average levels of fertility the proportion of unwanted Fertility were measured to be significantly higher. However, in Kerala wanted Fertility has reached the replacement level due to the lack of wanted fertility. This can be attributed to the presence of high literacy are in the state.

Ravindra G. A (2007) investigated the factors effecting the fertility rates India with “The Demographic Transition Theory”. It is found that the improved standards of public welfare, urban economy and the literacy of the population. Along with the subsequent technological and medical advances that have been gradually growing in leaps and bounds has impacted a drastic degree in fertility levels across the country in order to facilitate this research with the necessary data to form a tangible conclusion, the resource of NFHS, India 1998-99 is employed.

Priyanka Dixit et al. (2012) studied about the associated factors of unwanted pregnancies, without matching the village and after matching the village, by using the matched-case control design. The level of unwanted pregnancies is studied with variable factor being that of house hold conditions while the un available data from the village level variations is taken to be a constant in the primary study. As a result, with the inclusion of the unobserved variation at the village level, it is found that contrary to the popular understanding of the factors behind unwanted pregnancies, factors such as the religion, geographical location, literacy, especially women education and the individual wealth index emerged as decisive predictors of unwanted pregnancies.

Shalini Nagaratnam et al. (2015) performed systematic literature Research using the compendium of information accessible from the web of science in the Institute of Scientific Information (ISI). In this study, article from 1980 to 2011 in the domain of fertility, fertility rates and biometrics were studied in relation to each other, as the focus was to find the patterns that would through light on the body of research that pertains to this matter. This study proves to be influential as the time period in focus has seen a dramatic increase in Population of the country, which amounts to be almost one hundred percent.

Anjali Radkar (2020) conducted a study on the positive side of things focusing more on the consequential benefits of a constantly declining fertility rate. A decline in the fertility rate will eventually result in a decline in the growth rate of population across all

stratus of the society. Some of the insights found through this elaborate research or remarkable. It is found that the hysterectomy is a resultant of the fertility decline as it makes pregnancies, typically a precious end ever for any family and also found that the drastic drop in fertility rates across the country has resulted in a substantial impact on the shape of the population pyramid.

Objectives

i. To study the fertility pattern of female age group from 15-49.

ii. To study the unwanted, wanted and total fertility rates of Andhra Pradesh, Kerala, Karnataka and Tamil Nadu.

iii. To study the trends of fertility rate among NFHS-2, NFHS-3, NFHS-4.

iv. To study the relative change among the different state women under different social background characteristics.

v. To study the logistic regression under different background characteristics.

3. Data and Methodology

The total number of females who participated in NFHS-2 were 4,032, 4,374, 2,884 and 4,676 for Andhra Pradesh, Karnataka, Kerala and Tamil Nadu respectively. Similarly, for NFHS-3, the numbers were 7,128, 6,008, 3,566 and 5,919 in that order and for NFHS-4, 10,428, 26,29111,033 and 28,820 females participated from Andhra Pradesh, Karnataka, Kerala and Tamil Nadu respectively. Females, aged between 15-49 years, of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu who have given births three years prior to the three National Family Health Surveys have been considered for the study. These surveys were carried out jointly by International Institute of Population Studies, Mumbai and ORC Macro, USA in 1998-99 (NFHS-2), 2005-06 (NFHS-3) and 2015-16 (NFHS-4). The analysis has been carried out by calculating various fertility rates to study the levels and trends in wanted fertility, unwanted fertility and total fertility changes in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. The total fertility rate and total wanted fertility rates have been calculated from all the three NFHS data and thereafter total unwanted fertility rate is computed by subtracting total wanted fertility rate from total fertility rate.

The Logistic Regression Model

The Logistic Regression Analysis has been done to observe that the effect of different socio-economic variables on unwanted fertility. In regression analysis, dependent variable and independent variables taken into the study should be highly correlated. This study provides with the influence of background characteristics on unwanted fertility and variables affecting the dependent variable.

$$Ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n$$

where,

1. $0 < p < 1$, coming from dependent variable Y.
2. X_i's (I = 1, 2, … ,3) are indicator variables, coming from independent variables and β_i's are the regression coefficients.
3. The Regression coefficient is $\beta = [\beta_0, \beta_1, \beta_2, \beta_3, \dots]^T$

In our discussion, last unwanted birth is taken as dependant variables separately and independent variables are residence, religion, caste, women's education, working status and partner's education.

4. Results and Discussion

Table 4.1: Distribution of females of Andhra Pradesh, who gave births in last three years, for different background characteristics in NFHS-2, NFHS-3 and NFHS-4

Background Characteristics	NFHS-4	NFHS-3	NFHS-2
Age-group			
15-19	39.40	37.75	22.85
20-29	76.24	11.82	11.94
30-39	75.05	12.95	12.01
40-49	74.96	13.41	11.62
Place of residence			
Urban	30.21	51.45	18.35
Rural	50.62	18.13	31.25
Women's Education			
Illiterate	26.67	31.45	41.88

Table 4.2: Distribution of females of Karnataka, who gave births in last three years, for different background characteristics in NFHS-2, NFHS-3 and NFHS-4

Background Characteristics	NFHS-4	NFHS-3	NFHS-2
Age-group			
15-19	33.82	25.05	41.13
20-29	66.89	16.86	16.26
30-39	69.69	17.32	12.99
40-49	67.39	17.39	15.22
Place of residence			
Urban	64.28	18.89	16.83
Rural	64.59	17.02	18.39
Women's Education			
Illiterate	43.05	22.23	34.72
Primary	60.88	20.58	18.54
Secondary	74.24	16.08	09.68
Higher	67.56	12.00	20.44

Primary	39.03	28.81	32.16
Secondary	53.46	30.97	15.57
Higher	50.99	29.95	19.06
Religion			
Hindus	44.46	27.78	27.78
Muslims	32.38	51.71	15.90
others	46.96	21.30	31.74
Caste			
SC	46.24	23.82	29.94
ST	44.31	32.94	22.75
OBC	49.07	26.70	24.23
Working status			
No	14.02	53.23	32.76
Yes	5.74	35.84	58.42

Religion			
Hindus	63.81	18.42	17.77
Muslims	69.09	12.89	18.01
others	56.62	22.31	21.54
Caste			
SC	69.25	14.61	16.14
ST	72.34	15.85	11.80
OBC	65.17	21.09	13.74
Working status			
No	28.48	38.66	32.87
Yes	11.17	36.68	52.15

Table 4.3: Distribution of females of Kerala, who gave births in last three years, for different background characteristics in NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2
Age-group			
15-19	38.98	25.42	35.59
20-29	50.67	22.39	26.93
30-39	59.67	21.79	18.52
40-49	60.00	13.33	26.67
Place of residence			
Urban	59.39	22.27	18.33
Rural	49.79	22.18	28.02
Women's Education			
Illiterate	15.39	34.62	50.00
Primary	14.82	25.00	60.19
Secondary	50.97	25.42	23.61
Higher	62.09	15.94	21.96
Religion			
Hindus	56.52	20.32	23.16
Muslims	48.38	25.22	26.40
others	52.34	21.09	26.56
Caste			
SC	57.59	21.43	20.98
ST	71.21	18.18	10.61
OBC	62.10	15.18	22.72
Working status			
No	21.75	36.59	41.66
Yes	18.54	40.45	41.01

Table 4.4: Distribution of females of Tamil Nadu, who gave births in last three years, for different background characteristics in NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2
Age-group			
15-19	46.62	16.01	37.37
20-29	67.28	14.34	18.38
30-39	69.36	14.56	16.08
40-49	66.67	14.85	18.52
Place of residence			
Urban	63.34	17.51	19.16
Rural	69.29	12.10	18.61
Women's Education			
Illiterate	33.33	20.92	45.75
Primary	35.93	21.72	42.36
Secondary	74.49	13.69	11.82
Higher	77.70	09.50	12.79
Religion			
Hindus	67.62	14.53	18.18
Muslims	60.96	11.41	27.63
other	58.03	21.41	20.56
Caste			
SC	69.74	14.53	15.74
ST	69.91	06.19	23.89
OBC	52.74	11.65	35.62
Working status			
No	34.87	29.63	35.51
Yes	21.47	29.78	48.74

Table 4.1,4.2, 4.3 and 4.4 shows the female participation for the NFHS-4 (10,428) survey was more than doubled compared to the NFHS-2 (4,032) In Andhra Pradesh, the female participation in Karnataka for the NFHS-4 (26,291) survey was more than 6 times compared to the NFHS-2 (4,374), the female participation in Kerala for the NFHS-4 (11,033) survey was nearly 4 times compared to the NFHS-2 (2,884) and the female participation in Tamil Nadu for the NFHS-4 (28,820) survey was more than 6 times compared to the NFHS-2 (4,676). This study is conducted under different characteristics such as age group which is 15-19, 20-29, 30-39 and 40-49, Place of residence that is rural and urban, Women education of illiterate, primary, secondary and higher education, caste divide into SC, ST and OBC, religion of Hindu, Muslim and other religion, working women and non-working women.

Table 4.5: Wanted Total Fertility Rate of females of Andhra Pradesh, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.04	1.79	1.68	-38.09
Rural	1.03	1.89	1.76	-41.48
Women's Education				
Illiterate	2.22	2.04	2.00	11.00
Primary	2.08	1.72	1.62	28.39
Secondary	1.76	1.07	1.48	18.92
Higher	0.69	0.49	1.27	-45.67
Religion				
Hindus	1.05	1.02	1.70	-38.23
Muslims	1.08	1.60	2.13	-49.29
others	1.09	1.57	1.78	-38.76
Caste				
SC	1.10	1.69	2.51	-56.17
ST	1.01	2.19	2.75	-63.27
OBC	1.09	1.68	1.64	-33.53
Working status				
No	1.04	1.65	1.62	-35.80
Yes	2.07	1.86	1.88	10.11
TOTAL	1.31	1.59	1.84	-28.93

Table 4.5 shows the Wanted Total Fertility Rate (WTFR) of females under different economic and demographic backgrounds. Wanted fertility indicates whether the child birth was planned and the level of fertility that theoretically would result if all unwanted births were prevented. This also indicates the successful control on child births and effective usage of contraception. This table reveals that the wanted total fertility rate of female living in urban areas was decreased over the time and come down from 1.68 to 1.04 from 1998 to 2016, whereas in rural areas it is decreased from 1.76 to 1.03. Overall, for urban and rural we can see the decrease percentage as 38% and 41% respectively. This table displays one more strong point that is women education, where the women with higher education is having low fertility compared to the illiterate women. In numbers it is the illiterate women total wanted fertility rate is slightly increased from 2.00 to 2.22 from 1998 to 2016, for the women with primary education we can see increase from 1.62 to 2.08, for the women with secondary education increase from 1.48 to 1.76 and other than this we can see decrease from the higher educated women from 1.27 to 0.69. We conducted the study according to the religion for wanted fertility rate as well and there is not much difference among the religions we can see. In NHFS-4 the wanted fertility rate for Hindu women is 1.05 whereas Muslim women is 1.08 and the others with 1.09. The wanted fertility rate among all the regions is decreased from 1998-2016. Wanted fertility rate in Hindu women decreased from 1.70 to 1.05, Muslim women decreased from 2.13 to 1.08 and the other religion wanted fertility rate was decreased from 1.78 to 1.09. The ST women are having slightly low wanted total fertility rate compare to the remaining caste women. The wanted total fertility rate for SC caste women was decreased from 2.51 to 1.10, wanted total fertility rate for ST caste women was decreased from 2.75 to 1.01 and wanted total fertility rate for OBC caste women was decreased from1.64 to 1.09. Working women are having high wanted fertility rate then the non-working women. The wanted total fertility rate on non-working women is decreased from 1.62 to 1.04 whereas in the working women it is decreased from 1.88 to 2.07.

Table 4.6: Wanted Total Fertility Rate of females of Karnataka, aged 15-49 years, three years preceding to NFHS-2,NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.02	1.02	1.57	-35.03
Rural	1.06	1.79	1.83	-42.08
Women's Education				
Illiterate	2.38	2.44	2.03	17.24
Primary	2.09	1.68	1.75	19.43
Secondary	1.02	1.09	1.51	-32.45
Higher	0.36	0.48	1.25	-71.20
Religion				
Hindus	1.10	1.70	2.27	-51.54
Muslims	1.03	2.14	2.87	-64.11
others	1.08	1.27	1.96	-44.90
Caste				
SC	1.01	1.80	1.88	-46.28
ST	1.08	2.19	2.13	-49.30
OBC	1.05	1.81	1.70	-38.24
Working status				
No	1.06	1.54	1.59	-33.33
Yes	1.08	2.16	1.98	-45.45
TOTAL	1.17	1.65	1.88	-37.61

Table 4.6 displays the Wanted Total Fertility Rate (WTFR) of females under different economic and demographic backgrounds. The wanted total fertility rate for urban areas was decreased 25% during the period of 1998 to 2016 and in rural areas was decreased 32%. The wanted total fertility on the rural areas is 1.40 during NFHS-2 and decreased to 1.05 by NFHS-4. The wanted total fertility of illiterate women is decreased from 3 to 2.14, wanted total fertility rate of primary women is decreased from 2.29 to 1.96 and wanted total fertility rate of higher educated women is decreased from 1.29 to 0.56 but wanted total fertility rate of secondary educated women is increased from 1.49 to 1.72. Religion wise wanted total fertility rate also decreased as 21%, 42% and 24% for Hindus, Muslims and other respectively during the period of 1998 to 2016. The wanted total fertility rate of Hindu women was decreased from 1.32 to 1.04, wanted total fertility of Muslim women decreased from 2.87 to 1.03 and the wanted total fertility rate in other religion women is decreased from 1.96 to 1.08. Caste wise also we can see the decrement as 46%, 49% and 38% for SC, ST and OBC respectively during 1998-2016. The wanted total fertility rate of SC women is decreased from 1.88 to 1.01, wanted total fertility rate of ST women decreased from 2.13 to 1.08 and wanted total fertility rate of OBC women is decreased from 1.70 to 1.05. The study shows that working women in Karnataka are having high wanted total fertility rate then the non-working women Karnataka. During the period of 1998 to 2016 the wanted total fertility rate was decreased by 33% and 45% of working and non-working women respectively. The non-working women wanted total fertility rate was decreased from 1.59 to 1.06 and the working women wanted total fertility rate we decreased from 1.98 to 1.08.

Table 4.7: Wanted Total Fertility Rate of females of Kerala, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.05	1.04	1.40	-25.00
Rural	1.07	1.55	1.59	-32.70
Women's Education				
Illiterate	2.14	2.38	3.00	-28.67
Primary	1.96	2.46	2.29	-14.41
Secondary	1.72	1.09	1.49	15.44
Higher	0.56	0.55	1.29	-56.59
Religion				
Hindus	1.04	1.38	1.32	-21.21
Muslims	1.09	1.65	1.88	-42.02
others	1.02	1.05	1.35	-24.44
Caste				
SC	1.09	1.09	1.47	-25.85
ST	1.09	1.53	1.00	09.00
OBC	1.05	1.38	1.57	-33.12
Working status				
No	1.08	1.49	1.55	-30.32
Yes	1.44	1.57	1.43	0.70
TOTAL	1.24	1.44	1.62	-23.11

Table 4.7 shows the Wanted Total Fertility Rate (WTFR) of females under different economic and demographic backgrounds. This table reveals that the wanted total fertility rate of female living in urban areas was decreased over the time and come down from 1.40 to 1.05 from 1998 to 2016, whereas in rural areas it is decreased from 1.59 to 1.07. Overall, for urban and rural we can see the decrease percentage as 25% and 32% respectively. This table displays one more strong point that is women education, where the women with higher education is having low fertility compared to the illiterate women. In numbers it is the illiterate women total wanted fertility rate is decreased from 3.00 to 2.14 during 1998 to 2016, for the women with primary education we can see decreased from 2.29 to 1.96, for the women with secondary education increased from 1.49 to 1.72 and other than this we can see decrease from the higher educated women from 1.29 to 0.56. We conducted the study according to the religion for wanted fertility rate as well and the three is not much difference among the religions we can see. In NHFS-4 the wanted fertility rate for Hindu women is 1.04 whereas Muslim women is 1.09 and the others with 1.02. The wanted fertility rate among all the regions is decreased from 1998-2016. Wanted fertility rate in Hindu women decreased from 1.32 to 1.04, Muslim women decreased from 1.88 to 1.09 and the other religion wanted fertility rate was decreased from 1.35 to 1.02. The OBC women are having slightly low wanted total fertility rate compare to the remaining caste women. The wanted total fertility rate for SC caste women was decreased from 1.47 to 1.09, wanted total fertility rate for ST caste women was increased from 1.00 to 1.09 and wanted total fertility rate for OBC caste women was decreased from1.57 to 1.05. Working women are having high wanted total fertility rate then the non-working women. The wanted total fertility of working women is decreased from 1.43 to 1.44 whereas in the non-working women it is decreased from 1.55 to 1.08.

Table 4.8: Wanted Total Fertility Rate of females of Tamil Nadu, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.04	1.49	1.35	-22.96
Rural	1.03	1.77	1.50	-31.33
Women's Education				
Illiterate	2.05	1.97	1.74	17.82
Primary	2.01	1.89	1.50	34.00
Secondary	0.92	0.80	1.28	-28.12
Higher	0.41	0.33	1.22	-66.39
Religion				
Hindus	1.09	1.63	1.46	-25.34
Muslims	1.02	1.44	1.24	-17.74
others	1.04	1.52	1.81	-42.54
Caste				
SC	1.05	1.75	1.44	-27.08
ST	1.09	1.66	2.00	-45.50
OBC	0.87	1.57	1.42	-38.73
Working status				
No	0.51	1.01	1.33	-61.65
Yes	0.85	1.68	1.68	-49.41
TOTAL	1.07	1.47	1.50	-28.56

Table 4.8 displays the Wanted Total Fertility Rate (WTFR) of females under different economic and demographic backgrounds. The wanted total fertility rate for urban areas was decreased 22% during the period of 1998 to 2016 and in rural areas was decreased 31%. The wanted total fertility on the rural areas is 1.35 during NFHS-2 and decreased to 1.04 by NFHS-4. The wanted total fertility rate of illiterate women is increased from 1.74 to 2.05, wanted total fertility rate of primary women is increased from 1.50 to 2.01 and wanted total fertility rate of higher educated women is decreased from 1.22 to 0.41 and wanted total fertility rate of secondary educated women is decreased from 1.28 to 0.92. Religion wise wanted total fertility rate also decreased as 25%, 17% and 42% for Hindus, Muslims and other respectively during the period of 1998 to 2016. The wanted total fertility rate of Hindu women was decreased from 1.46 to 1.09, wanted total fertility of Muslim women decreased from 1.24 to 1.02 and the wanted total fertility rate in other religion women is decreased from 1.81 to 1.04. Caste wise also we can see the decrement as 27%, 45% and 38% for SC, ST and OBC respectively during 1998-2016. The wanted total fertility rate of SC women is decreased from 1.44 to 1.05, wanted total fertility rate of ST women decreased from 2.00 to 1.09 and wanted total fertility rate of OBC women is decreased from 1.42 to 0.87. The study shows that working women in Karnataka are having high wanted total fertility rate then the non-working women Karnataka. During the period of 1998 to 2016 the wanted total fertility rate was decreased by 49% and 61% of working and non-working women respectively. The non-working women wanted total fertility rate was decreased from 1.33 to 0.51 and the working women wanted total fertility rate we decreased from 1.68 to 0.85.

Table 4.9: Unwanted Total Fertility Rate of females of Andhra Pradesh, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	0.57	0.03	0.94	-39.36
Rural	0.80	0.20	0.99	-19.19
Women's Education				
Illiterate	0.21	0.74	1.07	-80.37
Primary	0.23	0.44	0.45	-48.89
Secondary	0.39	0.32	0.64	-39.06
Higher	0.09	0.43	0.33	-72.73
Religion				
Hindus	0.69	0.87	0.96	-28.12
Muslims	0.73	0.49	1.26	-42.06
others	0.76	0.10	0.88	-13.63
Caste				
SC	0.71	0.22	0.35	102.86
ST	0.84	0.22	0.31	
OBC	0.68	0.29	1.07	-36.45
Working status				
No	0.52	0.11	0.91	-42.85
Yes	0.05	0.30	0.97	-94.84
TOTAL	0.52	0.34	0.78	-34.68

Table 4.9 shows a significance decrease on the unwanted total fertility rate on the urban and rural areas by 39% and 19% respectively. The unwanted total fertility rate of urban area for NFHS-2 is 0.94 and it is decreased to 0.57 by NFHS-4, whereas unwanted total fertility rate of rural area for NFHS-2 is 0.99 and it is decreased to 0.88 by NFHS-4. The women in Andhra Pradesh with higher education are having less unwanted total fertility rate compared to the illiterate women. But the unwanted total fertility rate was decreased among all the educational levels illiterate, primary, secondary and higher education and it is 80%,48%, 39% and 72% respectively from 1998-2016. The unwanted total fertility rate for illiterate women is decreased from 1.07 to 0.21, unwanted total fertility rate for primary educated women is decreased from 0.45 to 0.23, unwanted total fertility rate for secondary educated women is decreased from 0.64 to 0.39 and unwanted total fertility rate for higher educated women is decreased from 0.33 to 0.09. We also conducted study among all the religion wise and found that there is decrease of 28% in Hindu women, 42% in Muslim women and 13% in other religion women during the period of 1998-2016. The unwanted total fertility rate for Hindu women is decreased from 0.96 to 0.69, unwanted total fertility rate for Muslim women is decreased from 1.26 to 0.73 and unwanted total fertility rate for other religion women is decreased from 0.88 to 0.76. This study clearly shows the increase of unwanted total fertility rate for the women in SC and ST caste during the period of 1998-2016. The unwanted total fertility rate of SC women was increased from 0.35 to 0.71 and unwanted total fertility rate of ST women was increased from 0.31 to 0.84 but the unwanted total fertility rate of OBC women was decreased from 1.07 to 0.68. The unwanted total fertility rate in the working women is less compare to the working women for NFHS-4. Also, the unwanted total fertility rate of non-working women was decreased from 0.91 to 0.52 and unwanted total fertility rate of working women was decreased from 0.97 to 0.05. Overall unwanted total fertility rate of Andhra Pradesh women was decreased from 0.78 to 0.52 during 1998-2016.

Table 4.10: Unwanted Total Fertility Rate of females of Karnataka, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	0.53	0.64	0.97	-45.36
Rural	0.62	0.28	1.10	-43.63
Women's Education				
Illiterate	0.08	0.46	1.29	-93.79
Primary	0.10	0.49	1.23	-91.87
Secondary	0.27	0.19	0.65	-58.46
Higher	0.34	0.32	0.33	03.03
Religion				
Hindus	0.51	0.20	0.45	13.33
Muslims	0.80	0.02	0.65	23.07
others	0.37	0.17	0.13	184.61
Caste				
SC	0.69	0.42	1.25	-44.80
ST	0.64	0.06	1.04	-38.46
OBC	0.57	0.06	0.92	-38.04
Working status				
No	0.43	0.14	0.87	-50.57
Yes	0.81	0.10	1.12	-27.67
TOTAL	0.48	0.25	0.86	-43.67

Table 4.10 shows that there is a decrease of unwanted total fertility rate in urban areas is 45% and rural areas is 43% during the period of 1998-2016. The unwanted total fertility rate of urban women is decreased from 0.97 to 0.53 and unwanted total fertility rate of urban women is decreased from 1.10 to 0.62. The unwanted total fertility rate of illiterate women is decreased from 1.29 to 0.08, unwanted total fertility rate of primary educated women is decreased from 1.23 to 0.10, unwanted total fertility rate of secondary educated women is decreased from 0.62 to 0.27 and unwanted total fertility rate of higher educated women is slightly increased from 0.33 to 0.34. The unwanted total fertility rate of Hindu women is increased from 0.45 to 0.51, unwanted total fertility rate of Muslim women is increased from 0.65 to 0.80 and unwanted total fertility rate of other religion women is increased from 0.13 to 0.37. The study shows the clear decrease of unwanted total fertility rate among all the religions SC, ST and OBC is 44%, 38% and 38% respectively during 1998-2016. The unwanted total fertility rate of SC women is decreased from 1.25 to 0.69, unwanted total fertility rate of ST women is decreased from 1.04 to 0.64 and unwanted total fertility rate of OBC women is decreased from 0.92 to 0.57. The unwanted total fertility rate of non-working women is decreased from 0.87 to 0.43 and unwanted total fertility rate of working women is decreased from 1.12 to 0.81. Overall unwanted total fertility rate of Karnataka women was decreased from 0.86 to 0.48 during 1998-2016.

Table 4.11: Unwanted Total Fertility Rate of females of Kerala, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	0.33	0.35	0.62	-46.77
Rural	0.30	0.09	0.74	-59.45
Women's Education				
Illiterate	0.34	0.66	0.39	-12.82
Primary	0.26	0.05	0.73	-64.38
Secondary	1.81	0.37	0.58	212.06
Higher	0.34	0.45	0.20	70.00
Religion				
Hindus	0.23	0.03	0.71	-67.60
Muslims	0.61	0.24	0.79	-22.78
others	0.24	0.38	0.73	-67.12
Caste				
SC	0.22	0.42	0.80	-72.50
ST	0.39	0.45	1.10	-64.54
OBC	0.39	0.10	0.72	-45.83
Working status				
No	0.32	0.04	0.69	-53.62
Yes	0.14	0.05	0.82	-82.92
TOTAL	0.42	0.26	0.69	-38.46

Table 4.11 shows a drastic decrease of unwanted fertility rate among the rural and urban females which is 59% and 46% during 1998-2016. The unwanted total fertility rate of urban area for NFHS-2 is 0.62 and it is decreased to 0.33 by NFHS-4, whereas unwanted total fertility rate of rural area for NFHS-2 is 0.74 and it is decreased to 0.30 by NFHS-4. The women in Kerala with education are having less unwanted total fertility rate compared to the illiterate women. The unwanted total fertility rate for illiterate women is decreased from 0.39 to 0.34, unwanted total fertility rate for primary educated women is decreased from 0.73 to 0.26, unwanted total fertility rate for secondary educated women is increased from 0.58 to 1.81 and unwanted total fertility rate for higher educated women is increased from 0.20 to 0.34. We also conducted study among all the religion wise and found that there is decrease of 67% in Hindu women, 22% in Muslim women and 67% in other religion women during the period of 1998-2016. The unwanted total fertility rate for Hindu women is decreased from 0.71 to 0.23, unwanted total fertility rate for Muslim women is decreased from 0.79 to 0.61 and unwanted total fertility rate for other religion women is decreased from 0.73 to 0.24. This study clearly shows the decrease of unwanted total fertility rate for the women in SC, ST and OBC caste during the period of 1998-2016 and it is 72%, 64% and 45% respectively. The unwanted total fertility rate of SC women was decreased from 0.80 to 0.22 and unwanted total fertility rate of ST women was decreased from 1.10 to 0.39 and unwanted total fertility rate of OBC women was decreased from 0.72 to 0.39. The unwanted total fertility rate in the working women is less compare to the non-working women for NFHS-4. Also, the unwanted total fertility rate of non-working women was decreased from 0.69 to 0.32 and unwanted total fertility rate of working women was decreased from 0.82 to 0.14. Overall unwanted total fertility rate of Kerala women was decreased from 0.69 to 0.42 during 1998-2016.

Table 4.12: Unwanted Total Fertility Rate of females of Tamil Nadu, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	0.39	0.07	0.84	-53.57
Rural	0.54	0.09	1.03	-47.57
Women's Education				
Illiterate	0.22	0.63	1.16	-81.03
Primary	0.19	0.35	1.01	-81.19
Secondary	0.47	0.52	0.75	-37.33
Higher	0.31	0.41	0.25	24.00
Religion				
Hindus	0.42	0.06	0.90	-53.33
Muslims	0.55	0.41	1.40	-60.71
others	0.41	0.12	0.52	-21.15
Caste				
SC	0.54	0.08	1.1	-50.90
ST	0.44	0.23	0.65	-32.30
OBC	0.60	0.10	0.89	-32.58
Working status				
No	0.89	0.56	0.85	04.70
Yes	0.96	0.17	0.92	04.35
TOTAL	0.49	0.27	0.87	-43.52

Table 4.12 shows a significance decrease on the unwanted total fertility rate on the urban and rural areas by 53% and 47% respectively. The unwanted total fertility rate of urban area for NFHS-2 is 0.84 and it is decreased to 0.39 by NFHS-4, whereas unwanted total fertility rate of rural area for NFHS-2 is 1.03 and it is decreased to 0.54 by NFHS-4. The unwanted total fertility rate was decreased among all the educational levels illiterate, primary, secondary and higher education and it is 81%,81%, 37% and 24% respectively from 1998-2016. The unwanted total fertility rate for illiterate women is decreased from 1.16 to 0.22, unwanted total fertility rate for primary educated women is decreased from 1.01 to 0.19, unwanted total fertility rate for secondary educated women is decreased from 0.75 to 0.47 and unwanted total fertility rate for higher educated women is decreased from 0.25 to 0.31. We also conducted study among all the religion wise and found that there is decrease of 53% in Hindu women, 60% in Muslim women and 21% in other religion women during the period of 1998-2016. The unwanted total fertility rate for Hindu women is decreased from 0.90 to 0.42, unwanted total fertility rate for Muslim women is decreased from 1.40 to 0.55 and unwanted total fertility rate for other religion women is decreased from 0.52 to 0.41. This study clearly shows the increase of unwanted total fertility rate for the women in SC, ST and OBC caste during the period of 1998-2016 is 50%, 32% and 32% respectively. The unwanted total fertility rate of SC women was decreased from 1.1 to 0.54 and unwanted total fertility rate of ST women was decreased from 0.65 to 0.44 and the unwanted total fertility rate of OBC women was decreased from 0.89 to 0.60. The unwanted total fertility rate in the non-working women is less compare to the working women for NFHS-4. Also, the unwanted total fertility rate of non-working women was increased from 0.85 to 0.89 and unwanted total fertility rate of working women was increased from 0.92 to 0.96. Overall unwanted total fertility rate of Tamil Nadu women was decreased from 0.87 to 0.49 during 1998-2016.

Table 4.13: Total Fertility Rate of females of Andhra Pradesh, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.61	1.82	2.62	-38.55
Rural	1.83	2.09	2.75	-33.46
Women's Education				
Illiterate	2.44	2.78	3.07	-20.52
Primary	2.31	2.16	2.07	11.59
Secondary	2.15	1.39	2.12	01.41
Higher	0.78	0.92	1.60	-51.25
Religion				
Hindus	1.74	1.89	2.66	-34.54
Muslims	1.81	2.09	3.39	-46.50
Others	1.85	1.67	2.66	-30.34
Caste				
SC	1.81	1.91	2.86	-36.62
ST	1.85	2.41	3.07	-39.59
OBC	1.77	1.97	2.71	-34.78
Working status				
No	1.56	1.76	2.53	-38.46
Yes	2.12	2.16	2.85	-25.57
TOTAL	1.83	1.93	2.64	-30.65

Table 4.13 shows that the total fertility rate of Andhra Pradesh female during NFHS-2 survey was 2.64 and now it is decreased to 1.83 by NFHS-4 which is a constant change over the period of 1998-2016. We can observe the same change in the rural and urban area that is 33% and 38% respectively. The total fertility rate in urban area is decreased from 2.62 to 1.61 and total fertility rate in rural area is decreased from 2.75 to 1.83. The higher educated women are having low total fertility rate and it is decreased to 51% from 1998 to 2016. The total fertility rate of illiterate women also decreased to 20% from 1998-2016. The total fertility rate illiterate women were decreased from 3.07 to 2.44, total fertility rate of primary educated women increased from 2.07 to 2.31, total fertility rate of secondary educated women slightly increased from 2.12 to 2.15 and total fertility rate of higher educated women decreased from 1.60 to 0.78 during the survey of NFHS-2 to NFHS-4. This study notice that drastic relative change for religion wise which is 34% for Hindus, 46% for Muslims and 30% for other religions during the period of 1998-2016. The total fertility rate Hindu women were decreased from 2.66 to 1.74, total fertility rate Muslim women were decreased from 3.39 to 1.81 and total fertility rate other religion women were decreased from 2.66 to 1.85. We observed the significant relative change on the caste wise statistics which are 36% decrease in SC female, 39% decrease in ST female and 34% decrease in OBC female during the period of 1998-2016. The total fertility rate of SC women was decreased from 2.86 to 1.81, total fertility rate of ST women was decreased from 3.07 to 1.85 and total fertility rate of OBC women were decreased from 2.71 to 1.77. There is a notable decrease among the working and non-working women in Andhra Pradesh. The relative change is 38% decrease in non-working women and 25% decrease in working women. The total fertility rate of non-working women was decreased from 2.53 to 1.56 and the total fertility rate of Andhra Pradesh female was 30% during the period of 1998-2016.

Table 4.14: Total Fertility Rate of females of Karnataka, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.55	1.66	2.54	-38.98
Rural	1.68	2.07	2.93	-42.66
Women's Education				
Illiterate	2.46	2.90	3.32	-25.90
Primary	2.19	2.17	2.98	-26.51
Secondary	1.29	1.28	2.16	-40.28
Higher	0.70	0.80	1.58	-55.70
Religion				
Hindus	1.61	1.90	2.72	-40.81
Muslims	1.83	2.16	3.52	-48.01
others	1.45	1.44	2.09	-30.62
Caste				
SC	1.70	2.22	3.13	-45.69
ST	1.72	2.25	3.17	-45.74
OBC	1.62	1.87	2.62	-38.17
Working status				
No	1.49	1.68	2.46	-39.43
Yes	1.89	2.26	3.10	-39.03
TOTAL	1.66	1.90	2.74	-39.51

Table 4.14 shows that the total fertility rate of Karnataka female during NFHS-2 survey was 2.74 and it is decreased to 1.66 by NFHS-4 which is a good change during the period of 1998-2016. We can see the decrease in the rural and urban area that is 42% and 38% respectively. The total fertility rate in urban area is decreased from 2.54 to 1.55 and total fertility rate in rural area is decreased from 2.93 to 1.68. The higher educated women are having low total fertility rate and it is decreased to 55% from 1998 to 2016. The total fertility rate of illiterate, primary and secondary educated women also decreased to 25%, 26% and 40% respectively from 1998-2016. The total fertility rate illiterate women were decreased from 3.32 to 2.46, total fertility rate of primary educated women increased from 2.98 to 2.19, total fertility rate of secondary educated women slightly increased from 2.16 to 1.29 and total fertility rate of higher educated women decreased from 1.58 to 0.70 during the survey of NFHS-2 to NFHS-4. This study notice that drastic relative change for religion wise which is 40% for Hindus, 48% for Muslims and 30% for other religions during the period of 1998-2016. The total fertility rate Hindu women were decreased from 2.72 to 1.61, total fertility rate Muslim women were decreased from 3.52 to 1.83 and total fertility rate other religion women were decreased from 2.09 to 1.45. We observed the significant relative change on the caste wise statistics which are 45% decrease in SC female, 45% decrease in ST female and 38% decrease in OBC female during the period of 1998-2016. The total fertility rate of SC women was decreased from 3.13 to 1.70, total fertility rate of ST women was decreased from 3.17 to 1.72 and total fertility rate of OBC women were decreased from 2.62 to 1.62. The total fertility rate of non-working women was decreased from 2.46 to 1.49 and the total fertility rate of working women decreased from 3.10 to 1.89. There is a relative change of overall decrease in Karnataka female was 39% during the period of 1998-2016.

Table4.15: Total Fertility Rate of females of Kerala, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4.

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.40	1.39	2.02	-30.69
Rural	1.37	1.64	2.33	-41.20
Women's Education				
Illiterate	2.48	3.04	3.39	-26.92
Primary	2.22	2.51	3.02	-26.64
Secondary	3.53	1.46	2.07	70.76
Higher	0.90	1.00	1.49	-39.53
Religion				
Hindus	1.27	1.41	2.03	-37.63
Muslims	1.70	1.89	2.67	-36.39
others	1.26	1.43	2.08	-39.42
Caste				
SC	1.31	1.52	2.28	-42.41
ST	1.48	2.00	2.10	-29.38
OBC	1.44	1.48	2.29	-37.23
Working status				
No	1.40	1.53	2.24	-37.59
Yes	1.58	1.62	2.25	-29.77
TOTAL	1.67	1.71	2.30	-27.65

Table 4.15 shows that the total fertility rate of Kerala female during NFHS-2 survey was 2.30 and now it is decreased to 1.67 by NFHS-4 which is a constant change over the period of 1998-2016. We can observe the change in the rural and urban area that is 41% and 30% respectively. The total fertility rate in urban area is decreased from 2.02 to 1.40 and total fertility rate in rural area is decreased from 2.33 to 1.37. The higher educated women are having low total fertility rate and it is decreased to 39% from 1998 to 2016. The total fertility rate of illiterate women also decreased to 26% from 1998-2016. The total fertility rate illiterate women were decreased from 3.39 to 2.48, total fertility rate of primary educated women decreased from 3.02 to 2.22, total fertility rate of secondary educated women increased from 2.07 to 3.53 and total fertility rate of higher educated women decreased from 1.49 to 0.90 during the survey of NFHS-2 to NFHS-4. This study notice that drastic relative change for religion wise which is 37% for Hindus, 36% for Muslims and 39% for other religions during the period of 1998-2016. The total fertility rate Hindu women were decreased from 2.03 to 1.27, total fertility rate Muslim women were decreased from 2.67 to 1.70 and total fertility rate other religion women were decreased from 2.08 to 1.26. We observed the significant relative change on the caste wise statistics which are 42% decrease in SC female, 29% decrease in ST female and 37% decrease in OBC female during the period of 1998-2016. The total fertility rate of SC women was decreased from 2.28 to 1.31, total fertility rate of ST women was decreased from 2.10 to 1.48 and total fertility rate of OBC women were decreased from 2.29 to 1.44. There is a notable decrease among the working and non-working women in Kerala. The relative change is 37% decrease in non-working women and 29% decrease in working women. The total fertility rate of non-working women was decreased from 2.24 to 1.40 and the total fertility rate of working women decreased from 2.25 to 1.58. The total fertility rate of Kerala female was 27% during the period of 1998-2016.

Table 4.16: Total Fertility Rate of females of Tamil Nadu, aged 15-49 years, three years preceding to NFHS-2, NFHS-3 and NFHS-4

Background Characteristics	NFHS-4	NFHS-3	NFHS-2	Relative percentage change during 1998-9 to 2015-16
Place of residence				
Urban	1.43	1.56	2.19	-34.70
Rural	1.57	1.86	2.53	-37.94
Women's Education				
Illiterate	2.27	2.60	2.90	-21.66
Primary	2.20	2.24	2.51	-12.58
Secondary	1.39	1.32	2.03	-31.28
Higher	0.72	0.74	1.47	-50.83
Religion				
Hindus	1.51	1.69	2.36	-36.03
Muslims	1.57	1.85	2.64	-40.50
others	1.45	1.64	2.33	-38.04
Caste				
SC	1.59	1.83	2.64	-39.96
ST	1.53	1.89	2.65	-42.28
OBC	1.47	1.67	2.31	-36.32
Working status				
No	1.40	1.57	2.18	-35.62
Yes	1.80	1.85	2.60	-30.85
TOTAL	1.56	1.74	2.38	-34.31

Table 4.16 shows that the total fertility rate of Tamil Nadu female during NFHS-2 survey was 2.38 and it is decreased to 1.56 by NFHS-4 which is a good change during the period of 1998-2016. We can see the decrease in the rural and urban area that is 37% and 34% respectively. The total fertility rate in urban area is decreased from 2.19 to 1.43 and total fertility rate in rural area is decreased from 2.53 to 1.57. The higher educated women are having low total fertility rate and it is decreased to 50% from 1998 to 2016. The total fertility rate of illiterate, primary and secondary educated women also decreased to 21%, 12% and 31% respectively from 1998-2016. The total fertility rate illiterate women were decreased from 2.90 to 2.27, total fertility rate of primary educated women increased from 2.51 to 2.20, total fertility rate of secondary educated women decreased from 2.03 to 1.39 and total fertility rate of higher educated women decreased from 1.47 to 0.72 during the survey of NFHS-2 to NFHS-4. This study notice that drastic relative change for religion wise which is 36% for Hindus, 40% for Muslims and 38% for other religions during the period of 1998-2016. The total fertility rate Hindu women were decreased from 2.36 to 1.51, total fertility rate Muslim women were decreased from 2.64 to 1.57 and total fertility rate other religion women were decreased from 2.33 to 1.45. We observed the significant relative change on the caste wise statistics which are 39% decrease in SC female, 42% decrease in ST female and 36% decrease in OBC female during the period of 1998-2016. The total fertility rate of SC women was decreased from 2.64 to 1.59, total fertility rate of ST women was decreased from 2.65 to 1.53 and total fertility rate of OBC women were decreased from 2.31 to 1.47. The total fertility rate of non-working women was decreased from 2.18 to 1.40 and the total fertility rate of non-working women decreased from 2.60 to 1.80. There is a relative change of overall decrease in Tamil Nadu female was 34% during the period of 1998-2016.

Table 4.17*:* Logistic Regression (Odds Ratio) for unwanted last birth by selected background characteristics of women in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; NFHS-4 (2015-16).

Background Characteristics	Andhra Pradesh	Karnataka	Kerala	Tamil Nadu
Place of residence				
Urban[r]				
Rural	1.15***	1.07**	0.97	1.05
Women's Education				
Illiterate[r]				
Primary	1.58***	1.57***	2.06	2.91***
Secondary	0.99	1.08	1.55	2.08***
Higher	0.86**	0.78**	1.22	1.25
Religion				
Hindus[r]				
Muslims	1.10	1.57	0.75	1.13*
others	0.98	1.20	0.70	0.98
Caste				
SC[r]				
ST	0.95	1.33	1.46	0.38
OBC	1.07	1.41*	0.98	0.41
Working status				
No[r]				
Yes	1.18***	0.56***	0.69**	0.62***

Level of significance: *** is significance at 1%, ** is significance at 5%, * is significance at 10%,

[r] Reference Category

Table 4.17 explain that rural women of Andhra Pradesh, Karnataka and Tamil Nadu were 15%, 7% and 5% more likely to have unwanted child, whereas those of Kerala were 3% less likely to have unwanted births as compared to urban females. The chance of having a unwanted child in AP increased by 58% and decreased 1%, 14% respectively for primary and secondary, higher education, the results are statistically highly significant ($p < 0.01$) for first the first category. Similarly, the probability of unwanted births among primary, secondary and higher education females were 57%, 8% more and 22% less likely in Karnataka as compared to illiterate females. In Kerala, the same odds were 78%, 55%, 22% more likely and the results not significant for all categories. When it comes to religion, the Muslims females in AP, Karnataka, Tamil Nadu have respectively 10%, 57%, 13% higher chance to deliver a unwanted child and in Kerala 25% less likely to have unwanted childbirth. Among other religions, the females are 2%, 30%, 2% less likely to have unwanted children in Ap, Kerala and Tamil Nadu, in Karnataka 20% more likely to have unwanted child. As Compared to SC females, the odds of unwanted child-births among ST females were respectively 33%, 46% and 5%, 62% higher in Karnataka, Kerala and less in Ap, Tamil Nadu respectively. In OBC, the odds of having unwanted children in AP, Karnataka and Kerala, Tamil Nadu respectively 7%, 41% higher and 2%, 59% less as compared to SC women. As compared working / non-working females, the chance of unwanted child to working females were respectively 44%, 31%, 38% (highly significant) less in Karnataka, Kerala, Tamil Nadu and 18% high in AP.

Figures 4.1, 4.2, 4.3 & 4.4 shows the trends of total fertility rate (TFR), total wanted fertility rate (TWFR), total unwanted fertility rate (TUFR) for Andhra Pradesh, Karnataka, Kerala, Tamil Nadu. It is visible from the graphs that the TWFRs and TUFR show a decreasing trend. These trends explain that the couples in all the four states have completed their desired family size, which is showing a down-trend, but due to residential background, family reasons, educational attainment, cultural and regional, working conditions, females have unwanted child births.

Figures 4.1, 4.2, 4.3 & 4.4 shows that TWFR, TUFR, TFR

Figure 4.1: TWFR, TUFR and TFR of Andhra Pradesh

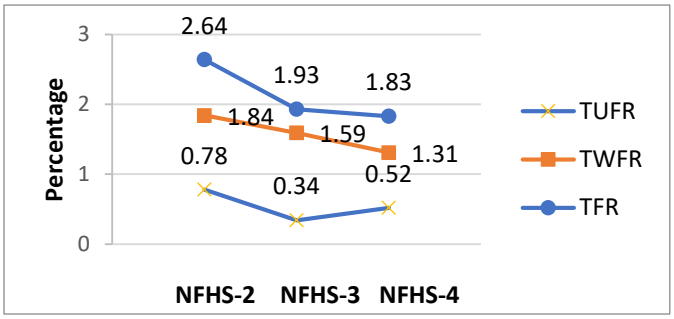


Figure 4.2: TWFR, TUFR and TFR of Karnataka

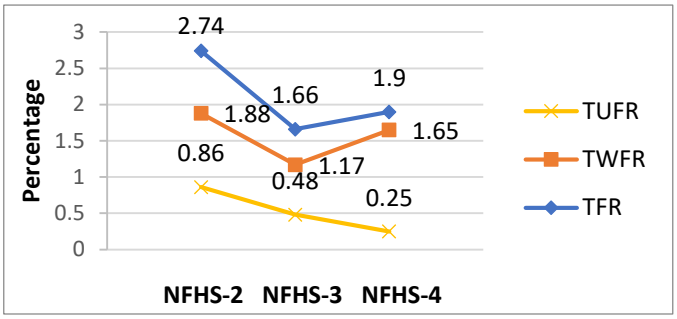


Figure 4.3: TWFR, TUFR and TFR of Kerala

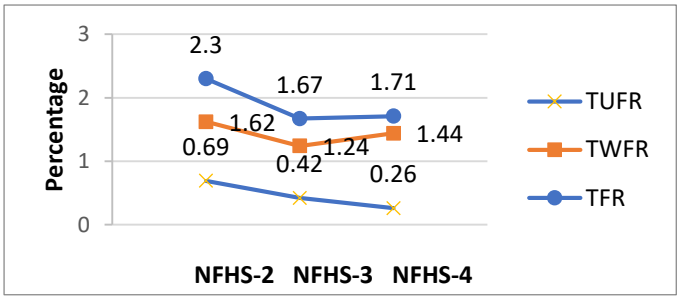
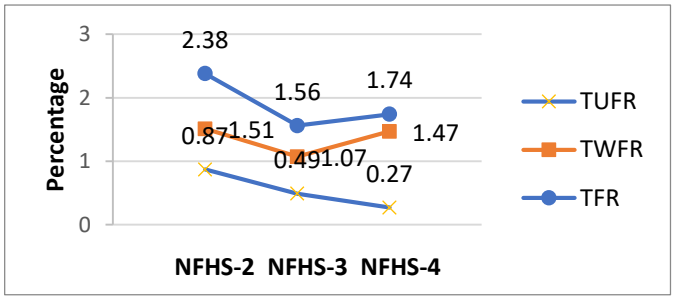


Figure 4.4: TWFR, TUFR and TFR of Tamil Nadu



Figures 4.5, 4.6, 4.7 & 4.8 shows that TUFR as a percentage of TFR.

Figure 4.5: TUFR as a percentage of TFR in Andhra Pradesh

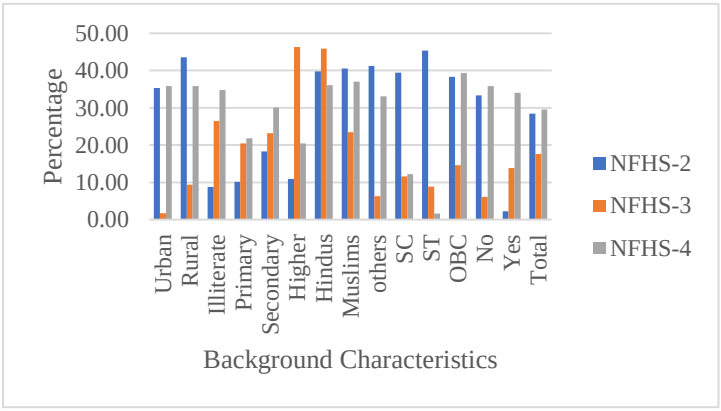


Figure 4.6: TUFR as a percentage of TFR in Karnataka

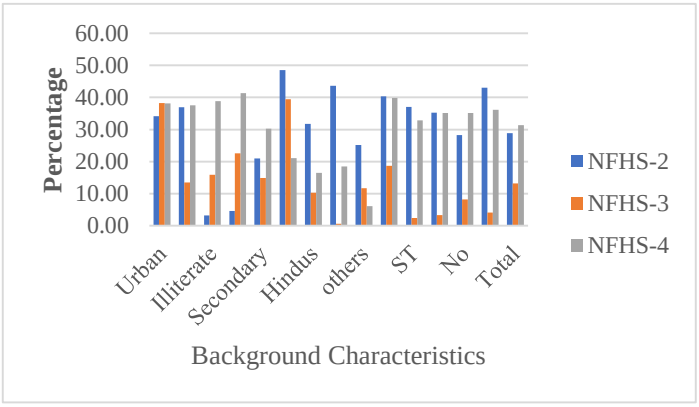


Figure 4.7: TUFR as a percentage of TFR in Kerala

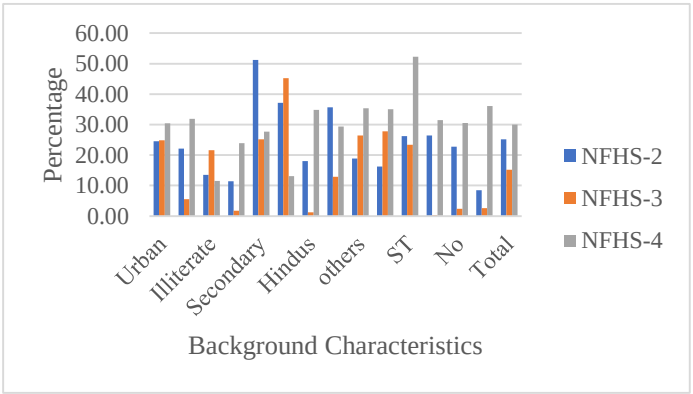
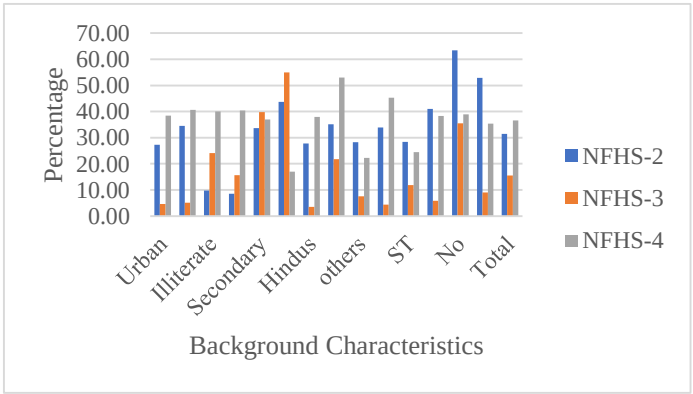


Figure 4.8: TUFR as a percentage of TFR in Tamil Nadu



Conclusion

This study scrutinized the tends and levels of Wanted Total Fertility Rate (WTFR), Unwanted Total Fertility Rate (UTFR) and Total Fertility Rate (TFR) for different background characteristics in Andhra Pradesh, Tamil Nadu, Kerala and Karnataka. These trends displaying the decline of wanted total fertility rate, unwanted total fertility rate and total fertility rate among all the four states. The wanted fertility rate in Tamil Nadu is lesser compared to the remaining three states and on the other hand the unwanted fertility low in Kerala compared to the remaining three states. The total fertility rate was decreased by 30%, 39%, 27% and 34% in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu respectively. In all the states the wanted, unwanted and total fertility rate of higher educated women is less compared to the illiterate women. One of the Surprising notes here that non-working women are having less total fertility compare to the working women on all the states. The total fertility rate was 1.83, 1.66, 1.67 and 1.56 in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu respectively by 2016. this paper reveals the underlying differentials in wanted and unwanted fertility, according to various socio demographic classifications. The findings suggest that the family welfare programs should be prioritized by policy planners and instead of adopting uniform family welfare programs for every socio demographic stratum, those women who belong to rural, less educated, socially and economically deprived part of the society should be paid special attention to help them. In Andhra Pradesh the rural, ST and non-working women are facing high unwanted total fertility rate. In Karnataka, Rural, Muslim and SC women are facing high unwanted total fertility rate. In Kerala almost all the demographic characteristics showing the less unwanted total fertility rate. In Tamil Nadu both working and non-working female are having high unwanted total fertility rate compare to the remaining states. This study concludes that by overall, the fertility rate constantly decreasing from 1998 to 2016 in all the four different states in India.

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