Study of Fertility in Ever Married Women of India: Statistical Approach

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ABSTRACT

Background: India is a developing country, facing problems of populations the reasons for this population blast are poverty, unemployment and also pollution. General need for family planning for females as well as male. We are focusing controlling birth rate in Ever Married Women (EMW) and factors affecting fertility.
Aim: Study of factors affecting on fertility with help of Chi square Distribution *Objectives*: - Study of significant differences between observed value and expatiated value of demographic variables
Material and Methods: A community based cross sectional retro prospective study was conducted on urban and rural area. Only ever married women are enrolled. *Results:* Total 89498 women participated in this study. In women corresponding chi square values are education level (7252.077), place of residence (51.701), cast (236.783), total children ever born (28412.091), marriage age (6313.433) and education (7252.077) respectively.
Conclusion: - We observed that, there was a significant difference between observed value and expected value of age, Total children ever born, place of residence, religion and education respectively. To reduce population need to be family planning and awareness program in community.

Keywords: - Ever Married Women, Children Ever Born, Fertility

INTRODUCTION

Fertility means way for biological replacement of human being in arrange to continue its life on earth. It is through fertility only, as one cannot control death. Fertility is continues process with some aspects of demography, fertility, mortality, and migration. [1] The resent population of India is about 133.92 crores. India has to face several economic challenges such as, poverty, unemployment, education, health facility etc. Many factors associated with fertility one of them lifestyle factors major roll in women. [2] Some of the woman's consuming aerated drinks and junk food such as pizza, burger and french fries leads to reproductive system. [3] According to the ASRM, up to 13% of infertility may be attributable to cigarette smoking woman. Due to the Smoking depletes the ovarian reserve and causes chromosomal injure to a woman's eggs, and it's estimated that women who smoke reach menopause one to four years earlier than non-smoker's woman. Fertility was depending on the three principal components of population dynamics that determine the size and structure of the population of a country. [4]

In sub Saharan country has seen considerable improvements in its reproductive health outcomes, such as in the reduction in maternal and infant mortality, the increase the awareness and use contraceptive methods, communication System, and health service utilization among married women. [5,6] In Muslim community women were more likely to have more children than were to Hindu community women. [7] There for the religion has a vast social, economic, and political consequence in most societies. [8] One of the most important think about women who had a child-death experience were likely to have a higher number of children than those who

had no such experience as camper to the number of children who died increased, women were exposed to a higher risk of uncontrolled fertility. [9]

Most of the important factors in to reduces fertility such as changes in marriage pattern, i.e. inter cast marriage pattern are to be improved as compare to the within cast marriage, availability of contraceptives and extension of services accessible through family planning program conducted by state governments as well as central governments. [10]

Role of Chi-square distributions was to observe differences between observed value of frequency and expected value of frequency. Pearson's Chi-square distribution or the Chi-square test also known as test for goodness-of-fit. It was a nonparametric test used for categorical data and association between two or more groups in a sample. If sample size increases chi square distribution goes for the normal distribution. [11]

General formula use of Chi Square Distributions was

$$\chi 2= \frac{\sum_{i=1}^{n}(O_i-E_i)^2}{E_i^2}$$

hear, O_i=Observed Frequency , E_i=expiated Frequency

The goal of this study use of chi distribution with some demographic variables. [12] More specifically, it aims to investigate whether selected demographic factors have an impact on fertility in the Indian context. [13,15,16] This paper also aims to guide use of chi sure distribution in medical filed and reproductive health program planners or researchers to understand various factors associated on fertility. [15,17] To guide the people's use of contraceptive methods to control population growth. [18]

MATERIALS AND METHODS

A community based cross sectional study was conducted on urban and rural area. We included ever married woman and Trance gender women are excluded. The participants were approached and shown their willingness to enrol in the study. In this study we analyzed factors affected to fertility rate in ever married women. *Sample Size:* - Collected data in the form secondary sources. We have taken data from International Institute of Population Sciences (IIPS) Mumbai. After obtaining due permission for statistical analysis.

Statistical Methods:-

Data were tabulated and analysed using statistical package for social sciences (SPSS) version 20. The results were expressed in terms of cross tabulation. Minimum two and more variables calculated significances of differences with Chi-Square test. p<0.005 was considered for statistical significances.

RESULTS

Total 89498 women enrolled in this study. Total study population was classified according to age and total children ever born respectively. Age group (45-49) years old women's in total children ever born to be large as compare to the age group 15-19,20-24,25-29 current married women's . That is fertility rate in current married or young women's less than old married women's. We can be considering there are some reasons of early age marriage. With increasing age of woman's number of EMW found increasing with increasing number of children.

Table 1: Total Children Ever Born vs. Women Age

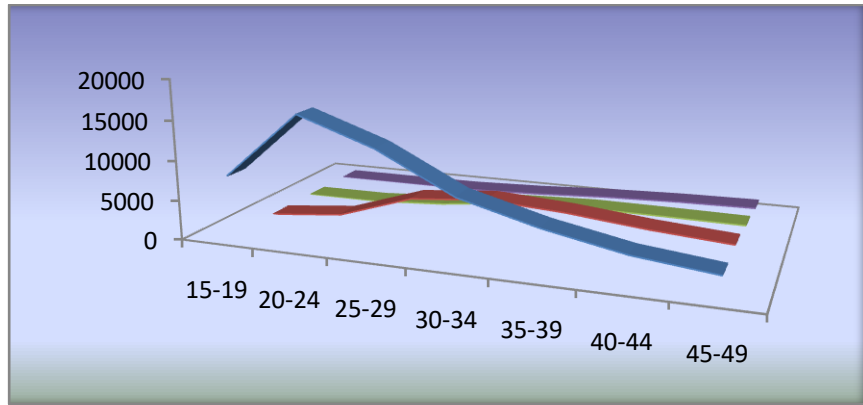|		Women Age							Total	Chi-Square	p-value
		15-19	20-24	25-29	30-34	35-39	40-44	45-49			
Total Children Ever Born	0-3	7814	16213	12894	8046	5477	3552	2487	56483	28412.091	(<0.05)
	4-5	14	978	4136	4992	4390	3394	2679	20583		
	6-7	0	51	649	1769	2125	2071	1963	8628		
	Above 7	0	1	46	366	874	1185	1332	3804		
Total		7828	17243	17725	15173	12866	1022	8461	89498		

Fig No.01 layout of Age factors depending on the total children ever born

Since the value of Pearson Chi-Square statistic is 28412.091 and corresponding p-value is 0.000 that is (<0.0001), hence we can say that, current age of respondent has a significant effect on the fertility of Women.

Table 2: Total Children Ever Born vs. Recoded Marriage Age

		Recoded Marriage age							Total	Chi-Square Value	p-value
		12-14	15-19	20-24	25-29	30-34	35-39	40-44			
Total Children Ever Born	0-3	8283	32382	12575	2462	374	61	11	56148	**6313.433**	**0.000 (<0.05)**
	4-5	4794	12611	2476	234	30	7	0	20152		
	6-7	2494	5067	723	56	17	7	2	8366		
	Above 7	1347	2030	234	19	2	2	0	3634		
Total		16918	52090	16008	2771	423	77	13	88300		

The marriage in early age revealed higher number of children, as age of marriage was extended children born found lesser and lesser. Since the value of Pearson Chi-Square statistic is 6313.433 and corresponding p-value is 0.000 (<0.05), hence we conclude that age at first marriage has a significant effect on the fertility of Women.

Table 3: Type of place of residence vs. Total Children Ever Born

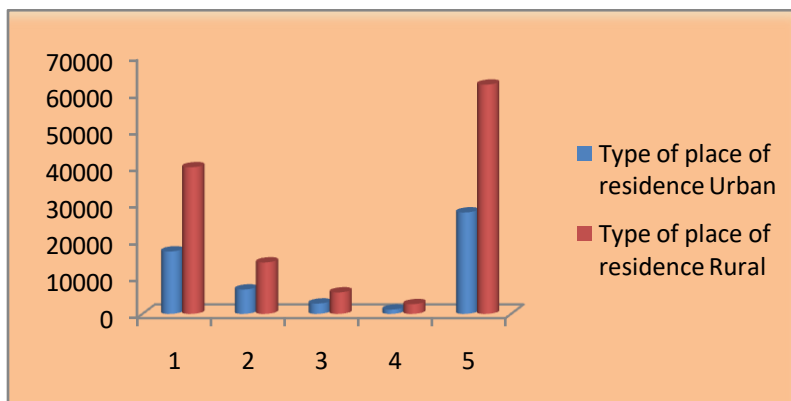|		Total Children Ever Born				Total	Chi-Square Value	p-value
		1 0-3	2 4-5	3 6-7	4 Above 7			
Type of place of residence	Urban	16952	6615	2805	1162	27534	**51.701**	**0.000021**
	Rural	39806	13970	5824	2642	62242		
Total		56758	20585	8629	3804	89776		

Fig No.02 Starches of Place of Residences

Women's with all categories of number of children's born significantly high in rural areas as compare to those in urban area. Since the value of Pearson chi-square statistic was

51.701 and corresponding p-value was 0.000 (<0.05), hence we conclude that Type of place of residence has a significant effect on the fertility of Women.

Table 4: Religion vs. Total Children Ever Born

Religion	Total Children Ever Born				Total	Chi-Square	p-value
	1 0-3	2 4-5	3 6-7	4 Above 7			
Hindu	44336	16089	6679	2974	70078	**236.783**	**0.0001**
Sikh	1405	726	351	141	2623		
Buddhist/Neo Buddhist	271	124	84	27	506		
Christian	3741	1348	585	256	5930		
Muslim	6350	2009	786	339	9484		
Other	589	265	134	57	1045		
Total	56692	20561	8619	3794	89666		

Women belonging to Hindu religion were significantly high in all categories of numbers of children born to study population. Since the value Chi-Square statistic was 236.783 with corresponding p-value was 0.000 (<0.05), hence we conclude that**,** religion has a significant effect on the fertility of Women.

Table 5: Education Recode 4 Categories Women vs. Total Children Ever Born

Education wise four Categories of Women	Total Children Ever Born				Total	Chi-Square	p-value
	1 0-3	2 4-5	3 6-7	4 Above 7			
Illiterate	28156	13844	6843	3299	52142	**7252.077**	**<0.05**
Literate - primary	11448	4355	1392	447	17642		
Middle Complete	5929	1249	248	36	7462		
High School +	11225	1137	146	22	12530		
Total	56758	20585	8629	3804	89776		

Non educated women's were significantly high in all categories of numbers of Children born to study population since the value of Pearson Chi-Square statistic was 7252.077 and corresponding p-value was 0.000 (<0.05), hence we conclude that women's education has a significant effect on the fertility of women.

DISCUSSION

Study indicated that, what are the factors affecting on control the population with help of Chi Square Distributions. According to the fig no.1 if sample size as much as large than the chi square distribution goes to normal distribution. With help of the chi square distribution here we had try real life problem .How to control of growth of population has been a reason of lose sleep for the Government of India since a very long time. Just we look after independence; The Family Planning committee of India was formed in 1949. India launched family planning programme in 1952.The goal of family planning program me to control birth rate. [14] In 1966, the ministry of health formed department of family planning. Then the ruling Government in 1977 developed a new birth control plan, which was to be accepted not by force but voluntarily [18] In this analysis some of the factors affecting to the control birth rate each and every state. [19] We were studied few factors such as age, place of children ever born, residence, religion, education of mothers etc. The general needs for couple's perceptions were important for the realization of beloved family planning. Implementation has to be needful in community about awareness of fertility and family planning. [20]

CONCLUSION

Our study indicated that, significant differences between observed value and expiated value of age, place of children ever born, place of residence, religion, education factors affecting on fertility in ever married women's. We can realize that, implementations to be need full about the fertility to reduce population in EMW.

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