ABSTRACT

Fertility and mortality are the components of the population variation. A population is greatly influenced by the operation of these processes. For the stability of human population both fertility and mortality should go side by side. The demographers define fertility as the childbearing activity of a population where as in biology and medicine this term is generally used for capacity to bear children. Fertility being biological phenomena is influenced by a number of factors in the social environment. Fertility is determined by various biological factors e.g. age at menarche, age at menopause, age at marriage, breastfeeding and amenorrhea. Socioeconomic factors that influence fertility are education, status of women, sex preference, old age security, income and occupation and behavioral attitudes (contraceptive prevalence) of different populations.

Mortality affects and influences both fertility as well as birth rate. It is also one of the factors which is responsible for influencing the health of mothers. Mortality is responsible for reduction in numbers. Mortality is usually measured in the form of neonatal, prenatal, infant and child mortality. The socioeconomic factors that influence mortality are education, occupation, household variables (income) and community level variables such as health practices and awareness of family planning methods.

Human migration denotes any movement by human/s from one place to another, over short distances or sometimes over long distances individually or in large groups. People who migrate are called migrants. It is widely accepted that migrants act as source of social change and largely migrants are socioeconomically and educationally are better placed as compared to their natives populations. Migrant destinations are towns, cities and industrial zones where they have better chances to get work in factories, agro-processing plants or working as porters, domestic servants, bus-conductors, street, hawkers, and construction workers. Migration brings better economic conditions for the migrants and
exposes them to broader modernization affects. The attitudes of the migrants towards children and family are changed not only because of their better socio-economic conditions but are also influenced by local population trends. All these multifaceted influences bring about noticeable changes especially in the health standards heading to improvement in fertility and mortality behavior.

Keeping this in mind the present study has been planned. Ludhiana with the population of about three million is an important industrial centre of Punjab. It has always been a major attraction for the migrants in search of their livelihood and has about twelve to fifteen lakh migrant workers from Uttar Pradesh and Bihar who have been residing here. Uttar Pradesh, especially the eastern part has highest rates of migration.

- 1000 U.P migrant families who were initially belonging to Uttar-Pradesh but now who are living in various localities of Ludhiana for more than two decades due to migration have been selected for the study. These include Durgapuri, Ambedkar Nagar, Partap Singh Wala, Gopal Nagar, Netaji Nagar, Chandan Nagar and Focal Point of Ludhiana.
- These localities, mainly constituted by migrant families, are situated nearly 10 to 15 kilometers away from the city and are situated nearly 10-20 kilometers from each other. There are frequent visits of the inhabitants from one locality to another.
- An attempt has been made to study their fertility and mortality rates and to observe the role of the process of migration on their fertility and mortality.
- In order to achieve the objective of the research, A questionnaire was designed to collect detailed information on socioeconomic profile, fertility and mortality behavior depicted by husband and wife with reproductive age ranging from 15-49 years.
- The information was collected on the Performa in the presence of head of the family, female concerned and other elder members of the family.
The information on the reproductive performance of the mother of the family, mortality occurrence among children, household conditions, awareness about family planning methods and gender preference i.e. their sex preference attitude towards male child in the family was recorded.

The socioeconomic profile of husband and wife includes their age, age at marriage, educational status, occupational status and income.

The reproductive profile of a woman includes age at marriage, age at menarche, age at menopause, total number of conceptions, miscarriages, abortions, still births, duration between two the last two pregnancies and total number of surviving children. The mortality occurrence among children, knowledge of family planning methods and sex preference attitude of the families also included.

The present study data collected was put to analyze with the help of Statistical Package for Social Sciences (SPSS 11.0 version) for tabulation and statistical treatment.

To measure the rates of fertility and mortality mathematical tools have been taken into consideration. The following statistical tests were applied on all rates, ratios and percentages calculated for various measures of fertility and mortality.

In order to compare two proportions of respondents, Z-test i.e. test of proportions, to compare the two mean values of a variable/parameter, students’-test was applied, to compare more than two means at a time, analysis of variance (ANOVA) was applied, to find out the relationship between two parameters/variables, Karl Pearson’s Coefficient of Correlation (r-value) was worked out and In order to see the combined effect of socio-economic and other variables on different fertility/mortality rates, multiple regression analysis was done.

The rates and measures of fertility and mortality of U.P migrant population have been studied in comparative framework with Punjab and Uttar-Pradesh. The main findings of present study are:

**Findings of Reproductive Profile**
Fertility Behavior

- For the present population on the whole under study the females are depicting a lower mean age at marriage i.e. 16.51 years as comparison to their male counterparts i.e. 19.00 years.
- As a result, the mean age at menarche for female population is 13.28 years and mean menopausal age is 46.6 years. The mean value for reproductive span is found to be 32.33 years for the present population.
- Breastfeeding is found to be positively correlated with amenorrhea indicating that the duration of breast feeding significantly influences the duration of amenorrhea of the presently studied population. The value of correlation (r-value is 0.584*** ) which depicts a positive relationship between duration of breast feeding and length of amenorrhea.
- It is noted in the present study that the count of living male children is significantly higher than the female children in the families. The sex ratio for the present population is low (884.62) than Punjab (893) and Uttar Pradesh (898).
- All Fertility measures (crude birth rate, general fertility rate and total fertility rate) show that fertility is high for the present population when compared with Punjab and Uttar Pradesh. For instance the crude birth rate for migrated population, Punjab and Uttar-Pradesh is 35.16, 17.30 and 29.10. General fertility rate for present population is 134.68 which is higher than Punjab (64.70) and Uttar-Pradesh (122.80) respectively. Total fertility rate for present population is also higher (4.19) as compared to both Punjab (1.90) Uttar-Pradesh (3.80). All these rates have been compared with the rates of Punjab and UP population and the comparison of rates have been taken from Family Welfare Statistics in 2009, Ministry of Health and Family Welfare Govt. of India.
- Age specific fertility rates for the population under study indicate a peak at younger age groups between 20 to 24 and 25 to 29 years. A similar trend is seen for Punjab and Uttar Pradesh. Whereas age specific fertility rate of migrated population is higher than both Punjab and Uttar Pradesh.
For the present population fertility levels show a rise as compared to Punjab and Uttar Pradesh population. This may be attributed to the fact that they do not mind adding earning members to their family knowing fully well the better chances of employment as compared to their native state. Moreover their affordability of larger family size is also improved due to their better socio economic status. The higher fertility rate is also contributed by the lower mortality among the migrants. It can be concluded that these people are better placed than their native population and are getting better health facilities than their native population. The higher fertility rate of migrated population than punjabi population may be due to the fact that the local population has a lower family size as they are more aware of family planning practices as compare to migrated population who are showing larger family size as they are least aware of family planning methods as frequently as the local population.

The whole fertility for the population is seen to co-vary with certain factors. It is seen that as present age of husband and wife increases the average number of children born per ever married woman increases i.e. along with increase in age, fertility increases. Age at marriage also has a negative impact on fertility. The lower the age at marriage, the higher is the fertility. Educational level of both husband and wife has a negative impact on fertility. Couples who are more educated tend to have fewer children. The relationship of income and fertility is quite clear from the results that as income increases fertility decreases. The occupation of husband doesn’t appear to have an impact on fertility whereas the wives’ occupation has significant negative impact on fertility. Dependency ratio, reproductive span and child mortality has been found positively associated with the fertility. The usage of family planning methods has been found negatively associated with the fertility rate. The higher of family planning methods lowers the fertility.

Mortality Behavior
Mortality measures reveals a difference in the crude death rate of the population under study (10.8), the state of Uttar Pradesh (8.40) and the state of Punjab (7.20). In other words crude death rates for present population are higher from both Punjab’ as well as Uttar Pradesh’s population.

Neonatal mortality rate for present population is 17.48 as compare to Punjab (20.00) and Uttar Pradesh (33.00).

Prenatal mortality rate for present population is 25.57 and it is slightly less than for the population of Punjab (30.00) and Uttar Pradesh (42.00).

Infant mortality rate for the population under study is 28.30 whereas it is 33.00 for Punjab and 49.00 for Uttar Pradesh.

However Child mortality rate for present population is 33.19 and it is higher from Punjab (10.20) and Uttar Pradesh (21.60).

Prenatal, neonatal, and infant mortality rates for the present population are lower than the Uttar Pradesh population which shows that their mortality has been improved due to their better socio economic status. Factors like better education, health facilities and better earnings could be the reason to minimize their mortality rates up to infancy. Whereas child mortality rate of present population is higher than the population of Punjab and Uttar Pradesh. This might be due to the fact that these migrated couples are always interested in increasing their income because of better employment opportunities and hence their working hours increases. So, they are unable to give sufficient time to care their children.

However female mortality rates remains higher in the present population as is found in other population that is Punjab and Uttar Pradesh as well.

Prenatal, infant and child mortality also co-varies with a number of factors, variation in these factors among the different population groups is responsible for the varying prenatal, infant and child mortality rates existing among the population groups. These mortality rates are influence by a number of factors like education, occupation and income. Survival ratios indicating the number of children
surviving for various education, income categories which show that in general as educational level of the mother as well as of father increases the proportion of child survivors are more. Children of an illiterate or less educated mother have less chances of survival whereas children of mother’s who are more educated have higher chances of survival. A similar trend is seen when the education level of husband is considered. The proportion of surviving increases as the level of income increases. Or in other words we can say that the household/families which economically are not well of the proportion of children who survive is much less as compared to the more economically well of families. Income could determine the nutritional levels and excess to medical care of children which in turn are determents of child survival.

Knowledge of family planning methods is universal for India, and also for the population under study. The most commonly used methods in the present study are sterilization, particularly female sterilization. The usage of modern spacing methods like condoms and pills is also prevalent among the migrants. Users of IUD like copper –T is slightly more. Stress on having a male child is strongly present in the present population. The literacy rate has also played a vital role in using these methods of family planning.

**Findings of Socioeconomic Profile**

- The crude literacy rate for male population is 73.10 percent and for female is 60.30 percent in the present study and is higher from the Uttar Pradesh population and lower from Punjab population.

- Per capita income of migrants is 983.63 which are lower than Punjab (2166.16) but higher than Uttar Pradesh (886.41) according to the figures of census 2001.
The socio-economic status of the families under study has been calculated according to Kuppuswamy scale and it has been found that large numbers of families i.e. 88.40 percent are having upper lower class status. Whereas only 1.60 percent families are having upper middle class status. The standard of living index has been found low among 71.70 percent families and medium in only 28.30 percent families.

For the presently studied population the dependency ratio is 46.90 percent. It gives a broad idea of economic dependency in any population. Thus, economic dependency of migrants is low when compared with overall dependency ratio of India which is 63.50% according to the World Bank report in 2008. Low dependency ratio of these migrants might be due to their attitude towards more earnings in order to achieve their better socioeconomic status.

Multiple regression has been done on fertility rates i.e. crude birth rate, general fertility rate, rate and total fertility rate by keeping all of them as dependent variables. It is observed that age at marriage, occupation, educational status of women, dependency ratio, reproductive span, use of family planning methods and child mortality are found to be statistically significant variables when multiple regression with crude birth rate has been done. Age at marriage of female, educational level of both male and female, dependency ratio, age at menarche, reproductive span and usage of family planning methods have been found statistically significant independent variables associated with the general fertility rate as demonstrated by multiple regression. Total fertility rate is also found related to age at marriage of female, age at menarche, educational level of both male and female, reproductive span, dependency ratio and child mortality in multiple regression analysis. The age at marriage, educational status, occupation of female and usage of family planning methods have been found statistically significant negative variable in affecting fertility rates. Child mortality, dependency ratio and income seem to be very important variables in determining the level of fertility.
Mortality rates i.e. crude death rate, prenatal mortality rate infant mortality rate and child mortality rate have been taken as dependent variables and affect of independent variables have been seen on them by applying multiple regression analysis. Age of female, live births, income and occupation of female are found associated with crude death rate. Infant mortality rate has been found related to age of female, live births, occupation of female, education of both male and female and usage of family planning methods by applying multiple regression. Prenatal mortality has been found influenced by age of female, live births, education of both husband and wife and usage of family planning methods. As well as child mortality is influenced by live birth, education of male and female and usage of family planning methods as shown by multiple regression analysis. Age, occupation of female and live births showed statistically significant positive results. High child mortality is always associated with high fertility. Working women appear to have child mortality. Thus child mortality also increases as present age of wife increases. Whereas income, educational status of both male and female has been found statistically significant and negatively associated with the mortality rates.

A variety of social, environmental, biological and economical factors are affecting the fertility and mortality rates of the population. Migration has played an important role in the life of these Uttar Pradesh migrants by improving their fertility and mortality levels.