RESEARCH ARTICLE

A STUDY ON DEMOGRAPHIC AND SOCIOECONOMIC PROFILE OF DIABETIC PATIENTS

Harmanjot Kaur[1] and Roopjot Kochar[2].
1.   Associate Professor (Food Science and Nutrition), University School of Hotel Management, Desh Bhagat University, Mandi Gobindgarh, Punjab.
2.   Ayurvedic Physician and Nutritionist, 78/13 Anant Nagar, Khanna-141401.

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Manuscript Info	Abstract
	……………………………………………………………… Diabetes mellitus (DM) is a metabolic disease characterized by chronic hyperglycemia that results from an alteration of the secretion or action of insulin. The relationship between socioeconomic status (SES) and disease was obvious, with SES inversely related to the prevalence of DM. One important factor of SES is education. A marked difference in the risk of DM was associated with education, although in some studies, association between DM and education was not identified. The present study has been conducted on 100 clinically diagnosed diabetic patients residing in different localities of Jammu and was visiting Government Medical College /Hospital, Jammu for the treatment of the disease to observe the demographic profile of the diabetics which included age, occupational status, educational status, total monthly family income and family type of the patient and to evaluate the effect of socioeconomic status of the selected diabetic patients. To observe the effect of socioeconomic status on occurrence of diabetes among the selected patients, the socioeconomic status of each selected patient has been evaluated using B.G Prasad's scale of SES. For the calculation of SES, PCI of each patient was calculated on the basis of their total monthly family income. The present study results revealed that the incidence of T2DM is higher among the married living in joint family setup having lower educational qualifications i.e. up to matric, and were skilled workers such as Electrician, carpenter, plumber, tailor, beautician, farmers, asha workers and daily wagers. The mean PCI of females has been found to be greater (Rs 4678.08) than that of diabetic males (Rs 4238.52). The present study findings also revealed that majority of the diabetics were belonging to the middle class strata of the society.

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Introduction:-
Diabetes is a complex, chronic illness requiring continuous medical care with multifactorial risk-reduction strategies beyond glycemic control. Ongoing patient self-management education and support are critical to preventing acute complications and reducing the risk of long-term complications (Diabetes Care 2017). Diabetes is pandemic in both developed and developing countries. Risk factors for developing diabetes, peculiar to the Indian population were age, family history, and life style and health status changes due to urbanization (Sowjanya M, 2016). According to

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Corresponding Author:-Harmanjot Kaur.
Address:-Associate Professor (Food Science and Nutrition), University School of Hotel Management, Desh Bhagat University, Mandi Gobindgarh, Punjab

the International Diabetes Federation, the developing countries contribute for more than 75% of the world's diabetic population. India, with the largest number of diabetic patients is often referred to as the diabetes capital of the world. This statement cannot be denied because diabetic population in India is expected to rise from 40.6 million in 2006 to 79.4 million by 2030 (Shiju TM, 2013). Its point prevalence was estimated to 5 – 10 per cent and its incidence among individuals have increased from 153 million in 1980 (Danaei *et al.,* 2011) to 366 million in 2011 which may be further risen to 552 million in the year 2030 (Whiting, 2011). According to ICMR-INDIAB Study, the overall prevalence of diabetes is 13.6 per cent in Chandigarh, 10.4 per cent in Tamil Nadu, 8.4 per cent in Maharashtra, and 5.3 per cent in Jharkhand (Anjana *et al*., 2011). The study conducted by the Jalandhar Diabetes Society, the prevalence of diabetes is increasing among urban Punjab and its level rises year by year (Zafar *et al.,* 2011). The growing body of evidence and evidence – based determination and treatments are widely recognized for various types of diabetes or metabolic disorders (Zitkus, 2012). A study conducted in Jammu region shows that that people in their 40's are prone to developing T2DM (Sethi *et al*., 2011). A recent study estimated that acutely obese people whose Body mass index (BMI) is greater than 40 are prone to T2DM as compared to those obese people whose BMI is in between 30 to 39.5 (Vinci Guerra *et al.,* 2013). According to International Diabetes Federation Report 2013, it is suggested that 382 million people had diabetes with higher number of them belonging to age group 40-59 years and at about 5.1 million deaths are caused due to diabetes, of which half were of below 60's individuals (International diabetes federation 2013). It is a social bond and is pillar mechanism for many adults but its detachment either by widowhood, divorce is also common. Married individuals are sharing healthy and supportive environment that increases capacity to regulate and induce good physical and mental health than that of their unmarried companions (Stephens MA, 2013). It is evident that never entering marriage or marital stoppage by death is responsible for increasing risk of premature mortality and cardiovascular, disease with more marked effect among men (Moon JR, 2011).

A study conducted on association between diabetes and SES (with combination of household income and educational attainment) implies that individuals who are graduate and take higher income are 30 per cent less prone to diabetes as compared to those who have lower SES (Min *et al*., 2010). Individuals having low educational achievement show higher prevalence for T2DM. It has been considered as a reader influencing poor health outcomes and management of severe disease (Choi *et al.,* 2011). It is suggested by a recent study on SES and incidence of diabetes that attained higher education is closely related with lower risk of diabetes (Lee *et al.,* 2011). Educational level helps to provide ability to turn information into practical behaviors which helps to delay chronic diseases by development of health through health knowledge and by adopting healthy behaviors (Lee *et al.,* 2011 and Braveman *et al*., 2011).Thus the present study was planned with the objective to evaluate the effect of socio-economic status on the diabetic patients and to observe the different factors of demographic profile of diabetic patients.

Materials and Methods:-
The present study has been conducted on 100 clinically diagnosed diabetic patients residing in different localities of Jammu and was visiting Government Medical College /Hospital, Jammu for the treatment of the disease. The questionnaire was developed to collect the information on demographic profile of diabetic patients which included age, occupational status, educational status, total monthly family income and family type of the patient. In the present study B.G Prasad's scale of SES has been used to find out the SES of each selected diabetic patient because of its usage in both urban and rural area. To calculate SES, per capita income of each patient was calculated by using their total monthly family income and then distributed them according to their respective classes of SES as specified in B.G Prasad scale of SES (Guru Raj *et al.,* 2015). The data thus collected has been put to statistical analysis including Mean, Standard deviation (SD), Chi-square test and Pearson's correlation coefficient to observe the different factors of demographic profile of diabetic patients and to evaluate the effect of socioeconomic status on the occurrence of diabetes among the selected patients.

Results and Discussion:-
Figure 1 reveals that majority of the clinically diagnosed diabetic patients selected for the present study were females i.e. 59.00 per cent while 41.00 per cent of them were males. The distribution has been found to be statistically significant. It is observed from the present study results that occurrence of diabetes is more common among females (59.00 per cent) than males (41.00 per cent) and these findings are in tuned with the findings of Ahmed *et al*., (2011) who also reported greater prevalence of diabetes among females (8.3 per cent) than males (3.6 per cent). However, Hwang and Shon (2014) found that there is greater prevalence of diabetes (55.5 per cent) among males than the females (45.5 per cent).

Majority of the diabetic patients i.e. 42.00 per cent were belonging to 50-60 years of age and 37.00 per cent of them were belonging to 40-50 years of age. 16.00 per cent were belonging to 30-40 years of age, while 3.00 per cent of them were belonging to 60-70 years of age. Only 2.00 per cent were belonging to 20-30 years of age. Among males, the majority of diabetic patients i.e. 46.34 per cent were belonging to 50-60 years age group and 31.71 per cent were belonging to 40-50 years of age. 17.07 per cent were belonging to 30-40 years age group. 4.88 per cent were belonging to 60-70 years of age. None of the males were belonging to 20-30 years of age. Among females, the majority of diabetic patients i.e. 40.69 per cent were belonging to 40-50 years of age and 38.98 per cent of them were belonging to 50-60 years of age. 15.25 per cent of female patients were belonging to 30-40 years of age while 3.39 per cent were belonging to 20-30 years of age. Only 1.69 per cent of females were belonging to 60-70 years of age (Figure 2).

Table 1:- Mean Value of Age among Diabetic Male and Female Patients.

Variable	Males		Females		Difference	p-value
	Mean	SD	Mean	SD		
Age	49.56	9.33	46.74	8.10	2.82	Non-significant

The mean value for the age of male diabetic patients has been found to be 49.56±9.33 years while that among female diabetics has been found to be 46.74±8.10 years. This difference between the age of males and females selected for the present study has been found to be statistically non –significant (Table 1). Thus, it is revealed from the present study results that the occurrence of diabetes is increasing with advancing age, majority being affected between 50-60 years of age. Sethi *et al*, (2011) reported that people in their 40's are more prone to develop T2DM.

It is observed from figure 3 that majority of diabetic patients i.e. 89.00 per cent were married and 7.00 per cent of them were widowed. 2.00 per cent of patients were unmarried while the rest 2.00 per cent were divorced. Among males, the majority of patients i.e. 97.56 per cent were married and 2.44 per cent were unmarried. None of the male patients were widowed or divorced. Among females, the majority of patients i.e. 83.06 were married. 11.86 per cent of them were widowed. 3.39 per cent of females were divorced while the remaining 1.69 per cent was unmarried. Similar type of findings has been reported by Hilary *et al*., (2014) who also found that the prevalence of diabetes was greater among married individuals. However, the findings of Martin *et al*., (2008) reported that there is less prevalence of diabetes among married patients as compared to unmarried, widowed, or divorced patients.

It is depicted from Figure 4 that majority of the diabetic patients (59.00 per cent) were belonging to joint families while 41.00 per cent of them were belonging to nuclear families. Among males, the majority i.e. 68.29 per cent were belonging to joint families and the rest 31.71 per cent were belonging to nuclear families. Among females also, the majority of diabetics (52.54 per cent) were belonging to joint families while 47.46 per cent of them were belonging to nuclear families. Thus, it is revealed from the present study results that majority of diabetic patients were living in joint families. However, Parajuli *et al*., (2014) reported that majority of the diabetic respondents were belonging to nuclear families.

Figure 5 depicts that majority of diabetic patients i.e. 32.00 per cent were qualified up to matric level and 24.00 per cent of them were qualified upto 10+2. 20.00 per cent patients were illiterate while 16.00 per cent were graduates. There were 6.00 per cent of the diabetic patients who had done post-graduation and 2.00 per cent patients were diploma holders. Among males, majority of patients i.e. 34.14 per cent were qualified up to matric level. 26.83 per cent of diabetics were qualified up to 10+2. 17.07 per cent patients were illiterate while 9.76 per cent patients were graduates. There were 9.76 per cent of the diabetic patients who had done post-graduation and 2.44 per cent of them were diploma holders. Among females, majority of patients i.e. 30.57 per cent were qualified up to matric level. 22.03 per cent were qualified up to 10+2. 22.03 per cent female patients were illiterate and 20.34 per cent of them were graduates. There were 3.39 per cent of the diabetic patients who had done post-graduation. The rest 1.69 per cent patients were found to be diploma holders. The present study findings are in tuned with the observations of Suhrcke and Nieves, (2011) who also reported greater prevalence of T2DM among individuals having lower educational qualifications.

It has been observed from Figure 6 that majority (50.00 per cent) of the diabetic patients were skilled workers (Electrician, carpenter, painter, plumber, tailor, beautician, asha workers, daily wagers, farmers) and 25.00 per cent of them were professionals (Engineer, doctor, lawyer, physician, Tehsildar, Belt force Officers, Chairman, Veterinarians). 12.00 per cent patients were un-skilled workers (Dish washers, sanitary workers, Peon). 8.00 per cent

of them were semi-professionals (Nurses, social worker, teacher, librarian) and 3.00 per cent of them were doing clerical job (clerk, secretaries) while the rest 2.00 per cent were shop-owners. Among males, majority of the patients i.e. 36.59 per cent were skilled workers and 31.71 per cent were professionals. 12.19 per cent patients were semi-professionals while another 12.19 per cent were un-skilled workers. 4.88 per cent of the diabetic patients were doing clerical job while the rest 2.44 per cent were shop-owners. Among females also majority (59.33 per cent) of the diabetic females were skilled workers and 20.35 per cent of them were professionals. 11.86 per cent of the diabetic females were un- skilled workers and 5.08 per cent were semi-professionals. While 1.69 per cent of the female diabetics were doing clerical job and the rest 1.69 per cent were shop-owners.

Therefore, it has been found from the present study observations that majority of diabetic patients were skilled workers and among them majority were females. However, the male diabetics in majority were doing professional jobs. It is observed that people who were doing manual work for long hours and have done low socioeconomic status jobs are highly susceptible to develop risk of CVD diseases (O'Reilly and Rosato, 2013).

 It has been shown from Figure 7 that majority of the diabetic patients i.e. 29.00 per cent had their total monthly family income between Rs 10,000-20,000 while 25.00 per cent of them had income between Rs 1,000-10,000. 18.00 per cent patients had total monthly family income greater than Rs 40,000 while the rest 13.00 per cent of them had family income in between Rs 20,000-30,000. Only 3.00 per cent patients had their family income in between Rs 30,000-40,000. Among males, majority (36.58 per cent) had their total monthly family income between Rs 1,000-10,000 and 24.39 per cent of them had income between Rs 10,000-20,000. 21.96 per cent patients had family income greater than Rs 40,000 while 14.63 per cent patients had income in between Rs 20,000-30,000. The remaining 2.44 per cent were having family income in between Rs 30,000-40,000. Among females, maximum number of patients i.e. 52.54 per cent had their total monthly family income between Rs 10,000-20,000 and 16.95 per cent of them had income between Rs 1,000-10,000. 15.25 per cent patients had more than Rs 40,000   income while 11.87 per cent of them had in between Rs 20,000-30,000. Only 3.39 per cent of the diabetic females had family income between Rs 30,000-40,000. Thus, it is analyzed from the present study results that majority of diabetic patients were belonging to those families who had monthly family income in between Rs 10,000-20,000 and among them majority were females. However, majority of male patients were belonging to families having family income in between Rs 1,000-10,000.

Socioeconomic Status:-
Socioeconomic status is an important determinant of health and nutritional status as well as of mortality and morbidity. It is depicted from Figure 8 that maximum number of diabetic patients i.e. 29.00 per cent were belonging to upper class of socioeconomic status while 24.00 per cent of them were belonging to lower middle class 20.00 per cent patients were belonging to upper middle class and the rest 20.00 per cent were found to be belonging to middle class. Only 7.00 per cent patients were belonging to lower class of socioeconomic status. Among males, the higher number of patients was belonging to upper class and 26.83 per cent of them were belonging to lower middle class 17.07 per cent of diabetic males were belonging to upper middle class while 14.63 per cent were belonging to middle class. The remaining 9.76 per cent were belonging to lower class of socioeconomic status. Among the diabetic females, the majority i.e. 27.13 per cent was belonging to upper class of socioeconomic status and 23.73 per cent were found to be belonging to middle class. 22.03 per cent of diabetic females were belonging to upper middle class while another 22.03 per cent were belonging to upper middle class. Another 22.03 per cent were belonging to lower middle class. Only 5.08 per cent of the females were belonging to lower class of socioeconomic status.

Table 2:-Mean value of Per Capita Income among diabetic males and female Patients.

| Variable	Males		Females		Difference	p-value
	Mean	SD	Mean	SD		
Per capita income	4238.52	3565.78	4678.08	4359.49	439.56	<0.001

The mean value for the PCI of male diabetics has been found to be 4238.52±3565.78 while that among female diabetics it was found to be 4678.08±4359.49. This difference between the PCI of both male and female diabetic patients selected for the present study have been found to be statistically significant (Table 2).

The similar findings have been reported by Mahajan *et al.,* (2013) who also found higher prevalence of diabetes among middle income group. However, Ramachandran *et al*., (2003) found that the prevalence of diabetes was
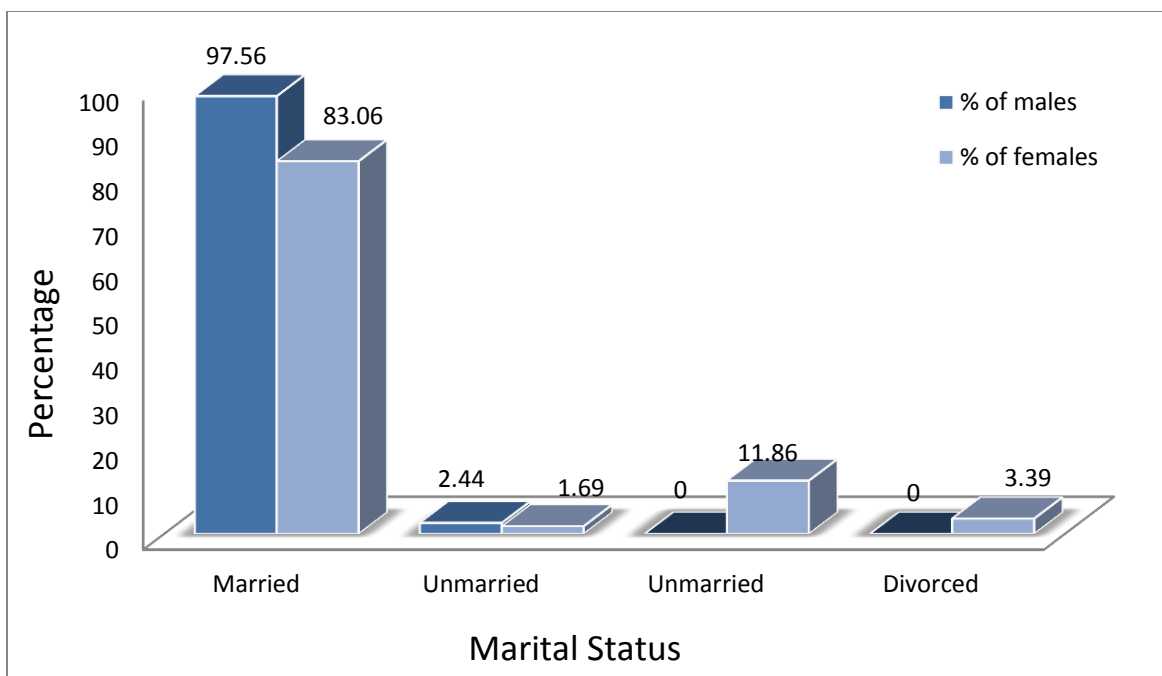
24.60 per cent among higher income group which have been observed to be 29.00 per cent among upper class as per the results of present study.
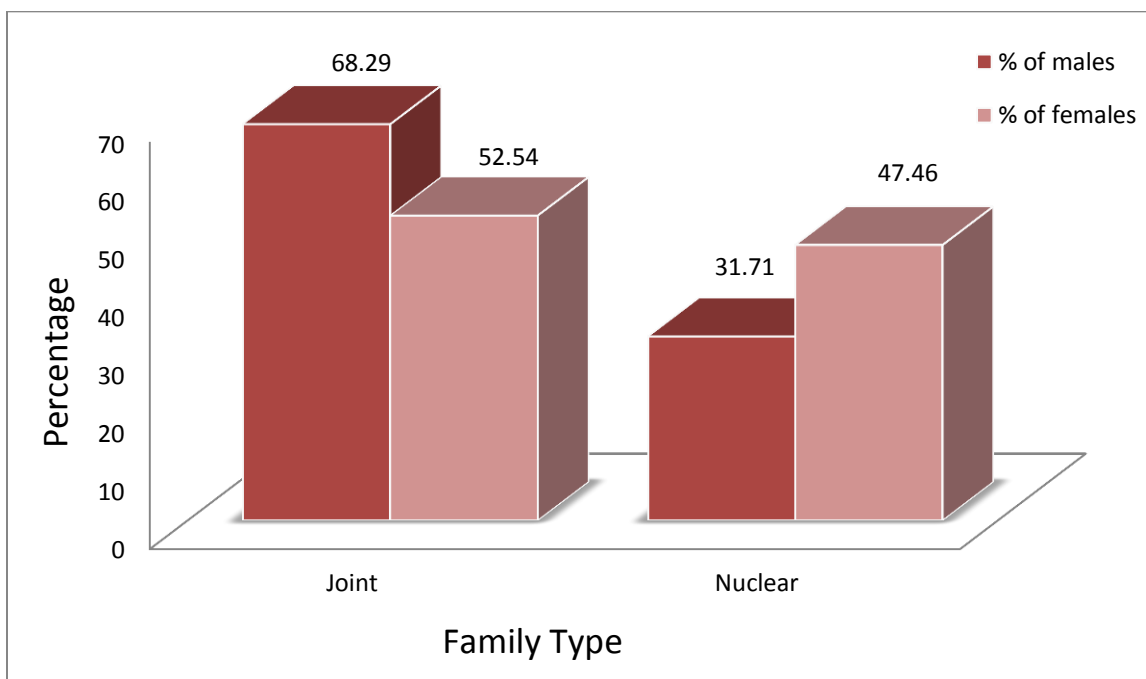
Gender

41%

Female
Male

59%
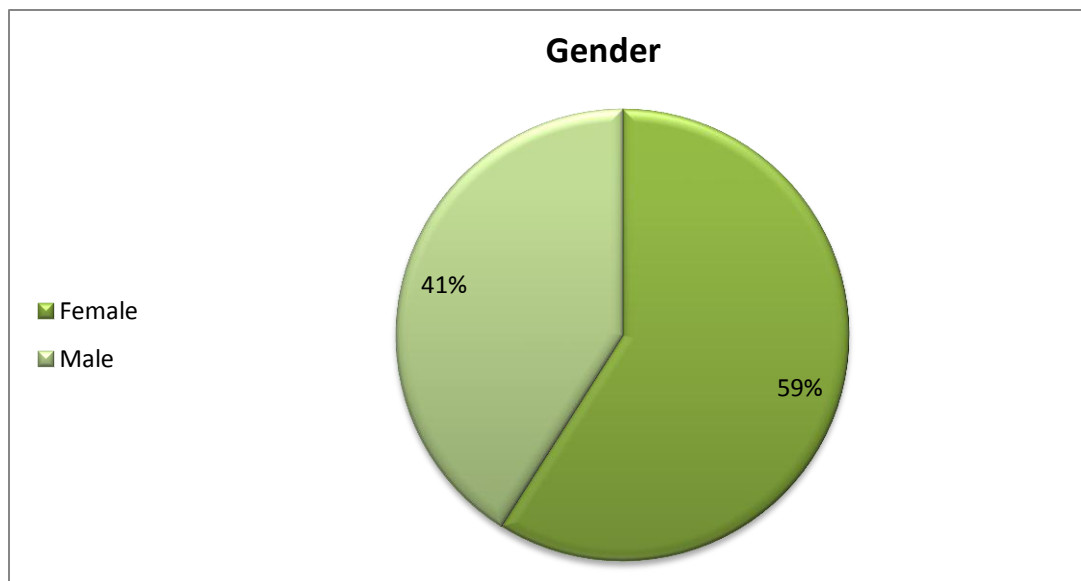
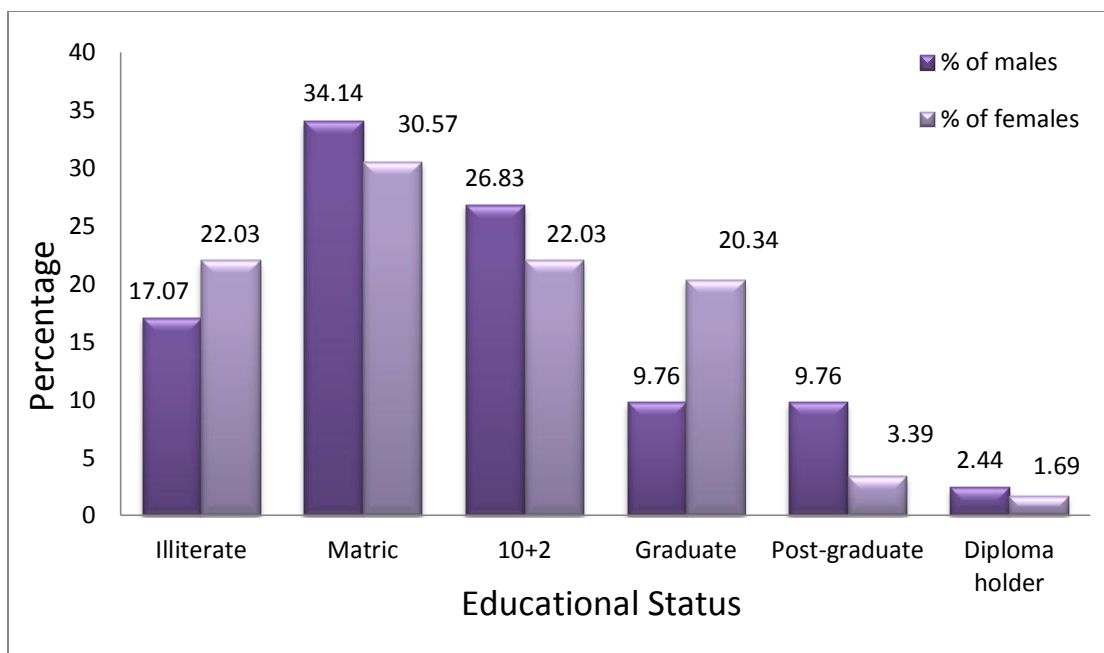**Figure 1:-** Distribution of selected patients on the basis of their Gender.
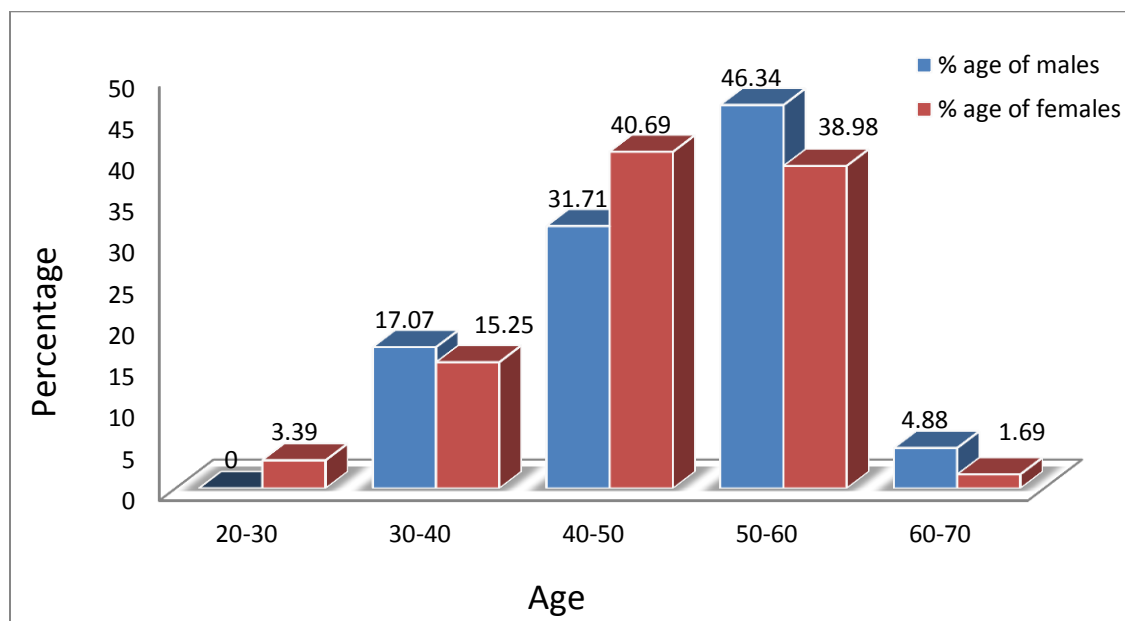
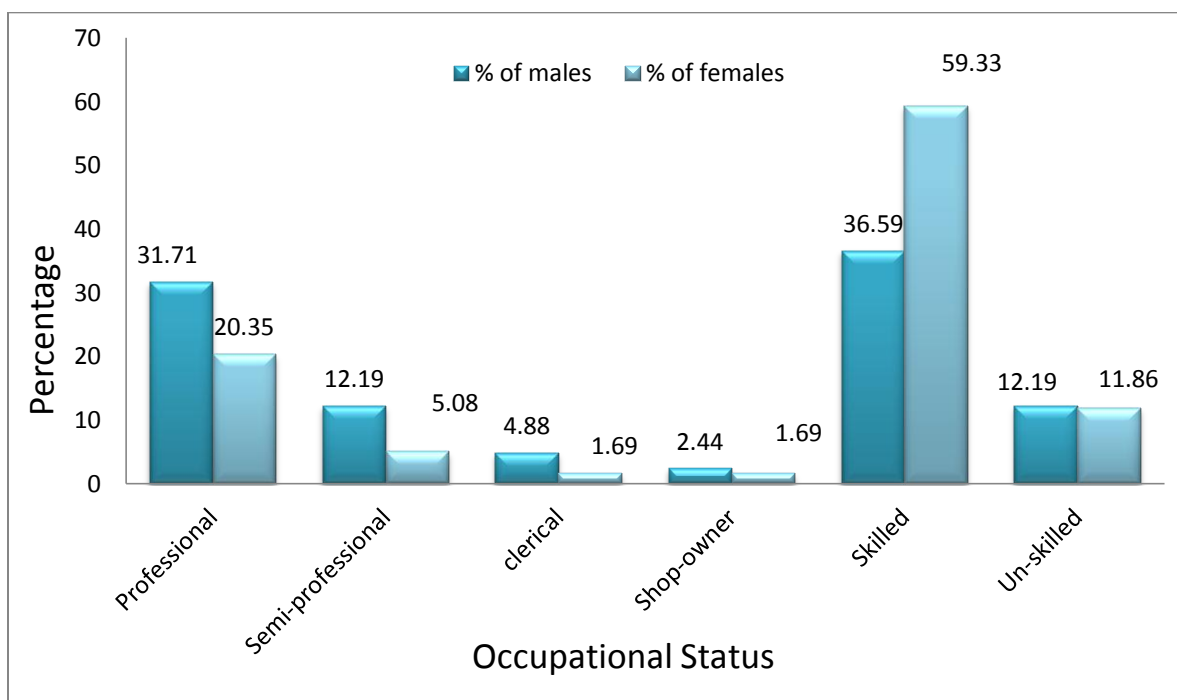**Figure 2:-**Distribution of Selected Patients According To Their Age

Figure 3:-Distribution of selected patients on the basis of their Marital Status.
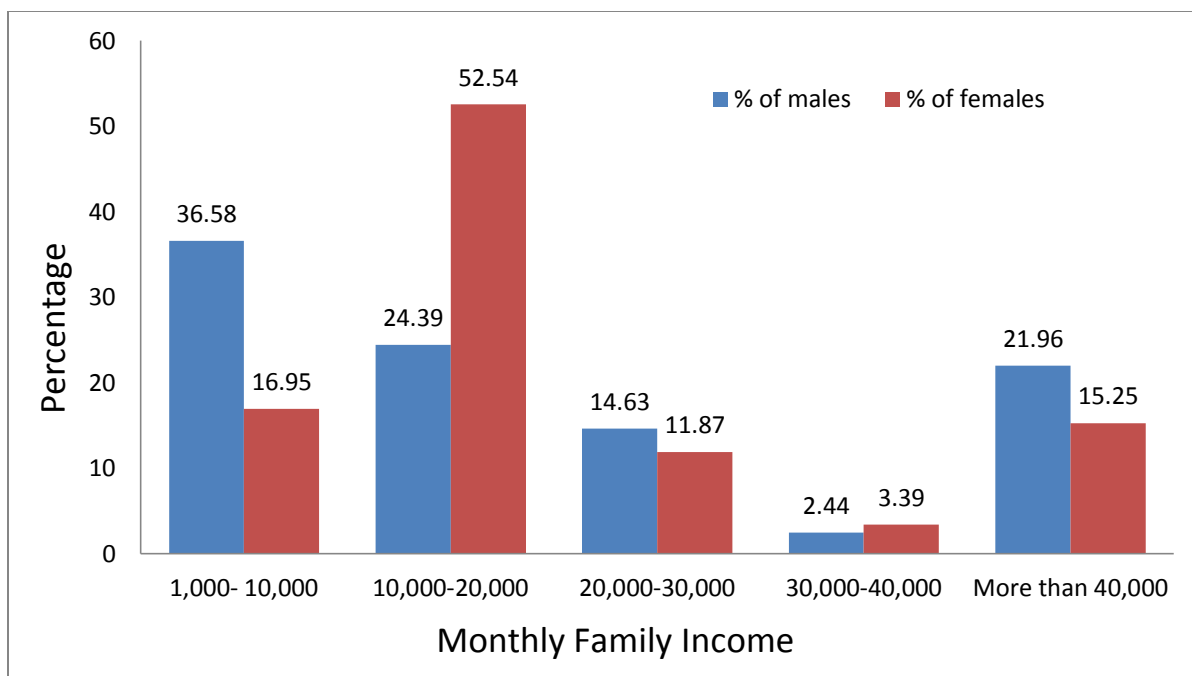

Figure 4:- Distribution of selected patients on the basis of their Family Type.
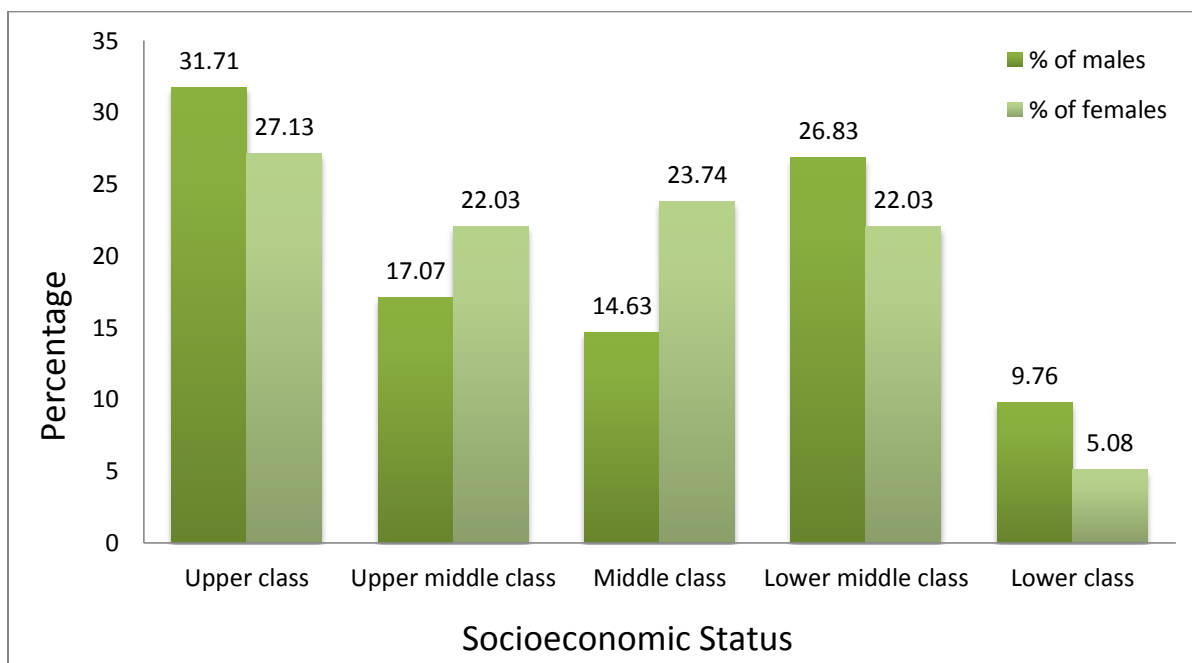
Figure 5:- Distribution of selected patients on the basis of their Educational Status.

Figure 6:-Distribution of selected patients on the basis of their Occupational Status.

Figure7:- Distribution of selected patients on the basis of Total Monthly Family Income.

Figure 8:- Distribution of selected patients on the basis of their Socioeconomic Status

Conclusions:-

Thus, it has been observed from the present study results that the mean age of male diabetic patients is 49.56±9.33 years while that of female diabetics is 46.74±8.10 years. The occurrence of diabetes is increasing with advancing age, majority being affected between 50-60 years of age. Majority of diabetic patients are living in joint families and are married. The prevalence of diabetes decreases with increase in the level of education which may be because of increased awareness of the patients regarding disease management. The mean PCI of females is found to be Rs 4678.08 while males are having PCI of Rs 4238.52 and majority of these diabetic patients are belonging to middle socioeconomic strata of the society.

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