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A Study to Understand the Relationship between Age and Choice of Healthcare Facility among Diabetic Population in Mumbai

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Abstract—*The prevalence of diagnosed diabetes is increasing in India. This is due to increased prevalence in obesity and sedentary lifestyle among the population. As per the National Diabetes and Diabetic Retinopathy Survey released by the family and welfare ministry (Government of India) report the prevalence of diabetes in India has remained to 11.8% in last four years from 2015 to 2019.Highest prevalence of the disease was found among the aging population between the age brackets of 70-79 years. Around 40% of the diabetic cases were diagnosed within 4 years of the disease onset. In the year 2014, the World Health Organization (WHO) on the other hand has estimated the global prevalence of disease to be 8.4% among the population above the age of 18 years. Diabetes has emerged as one of the significant non- communicable disease leading to morbidity. As compared to the western countries, in India the type of diabetes differs and also it was found that the onset of the disease is pretty earlier amongst the population as compared to the western world.*

In 2016, Bikrant Kumar Kindo et al carried out a study on the socio economic and demographic trends in the prevalence of type 2 diabetes. It was found in the study that the socio-economic conditions and the age of the patient diagnosed with diabetes had an impact of the choice of healthcare facility by the family and also by the patient. The study also throws a light on the other aspects like urbanization, cultural habits, migration, etc. which changes the usage of healthcare facility and poses burden on the other healthcare facility. In 2016, Shashank R. Joshi et al did a research on the diabetes care in India which focused on the diabetes being burden not only medically but also socially and economically and it puts a pressure on the healthcare system of India as a whole as the prevalence of disease is increasing among the population.

The aim of the paper is to understand the choices of healthcare facility by the diabetic population and how age impact the decision of choice of facility. The researcher tried to understand the facility usage in Mumbai by diabetic population and the burden of the disease among the private and public healthcare facilities.

The sample size chosen for the study was 500 diabetic patients across private and public hospitals in Mumbai. The data used for the study was primary in nature and was collected using questionnaire and face to face interview.

It was found that age of diabetic person has no impact on the choice of facility chosen by them. It was also found that most of the diabetic population preferred private healthcare facility over public healthcare facility due to convenience of the accessibility and availability of the private healthcare facility.

INTRODUCTION

Diabetes is a growing non communicable disease which is developed due to hectic lifestyle. In the year 2014, the World Health Organization (WHO) has estimated the global prevalence of disease to be 8.4% among the population above the age of 18 years and which is said to increase year on year. India as a country is reaching a stage where diabetes will affect maximum population and the country will become the diabetic capital of the world by 2020. It has been witnessed and studied by various researchers that diabetes is not an epidemic but a lifestyle disease and the prevalence of the disease is more in the elderly population. In 2011 around 8% of the total population in Maharashtra was diagnosed with diabetes and it was found that the burden of the disease would increase due to lifestyle issues and increased stress level among the population of Maharashtra. The disease has various types and stages which lead to further complications in the life of patients diagnosed with the disease. As per the National Diabetes and Diabetic Retinopathy Survey released by the family and welfare ministry (Government of India) report the prevalence of diabetes in India has remained to 11.8% in last four years from 2015 to 2019.Highest prevalence of the disease was found among the aging population between the age brackets of 70-79 years. Around 40% of the diabetic cases were diagnosed within 4 years of the disease onset. Diabetes has emerged as one of the significant non-communicable diseases leading to morbidity. As compared to the western countries, in India the type of diabetes differs.

Increase in cost of healthcare, the sector is seeing a drastic shift in the pattern of consumption of healthcare facilities among the diabetes population. This change or shift in the consumption pattern is due to various reasons like healthcare

costs, age at which a person is diagnosed with the disease, income of the family, other indirect costs involved in disease management, etc. The Indian healthcare system is divided into two parts majorly private healthcare facility and public healthcare facility. The entire public healthcare is divided into five tiers namely sub centers, primary healthcare centers, community healthcare system, district hospitals and medical colleges and research institutions.

The sub centers are designed to cater to the extremely rural areas where the expenses are completely covered by the national government. The primary healthcare centers exist in the area with a population of 30,000 or more and serve as the larger health clinics with trained staff. Community health centers are also funded by the state government and cater to patients referred from the primary health centers. It serves in areas with population more than 1,20,000 in urban areas or 80,000 people in remote areas. District hospitals are the final referral centers for primary and secondary levels of public healthcare system. At least one district hospital to be present in every district. Government Medical colleges are owned and controlled by the respective state government and also act as the ultimate healthcare institution for referral in public healthcare sector. The private healthcare systems consist of private clinics, nursing homes and tertiary care multi-specialty hospitals and super specialty hospitals. There is a vast difference between the service provided in both the healthcare facility both in public and private hospitals. The discrepancy ranges from the cost to quality and to quality of care and coverage of care. The difference in both the facilities is due to the affordability, accessibility and availability of the services. The paying capacity of the individuals also impact the demand of the facility. Sometimes the age at which the disease is diagnosed is also plays important role in selection of the healthcare facility but it is always clubbed with various other factors like is the patient an earning member of the family ; is there is greater risk of life to the person diagnosed with the disease ; is the healthcare facility public or private is near the house; medical practitioner treating the patient, etc.

LITERATURE REVIEW

The literature review for the paper is collected from various studies done in past on the topic of diabetes as a disease and it's prevalence in across globe, in India and Maharashtra.

In 2010, Qiang Lu et al., carried out a cross-sectional study in 3937 Han adolescents aged 13-18 years, to evaluate the incidence of impaired fasting glucose (IFG) and how it impacts the lifestyle and cardiovascular risk factors. The frequency of IFG was 3.5% similar in both genders (Lu, 2010).

In 2012, Yan Feng et al., conducted a cross-sectional survey among different areas like Han, Manchu and Korean Chinese among the population aged 20 years or more in Mudanjiang area of China. The prevalence of diabetes in Manchu (8.39%) and Korean Chinese (9.42%) was significantly lower than that in Han (12.10%) (Feng, 2012).

In 2011, Anjana RM et al.,took a national centered study to define the occurrence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in India. A total of 363 primary sampling units from both urban and rural setup was taken and three states were taken for the study namely Tamilnadu, Maharashtra and Jharkhand and one union territory (Chandigarh) of India were sampled using a stratified multistage sampling design to survey individuals aged 20 or more years. Among the people interviewed it was found that the prevalence of disease was 10.4% in Tamilnadu, 59 8.4% in Maharashtra, 5.3% in Jharkhand, and 13.6% in Chandigarh. The prevalence of prediabetes (impaired fasting glucose and/or impaired glucose tolerance) is 8.3%, 12.8%, 8.1% and 14.6% respectively. Projections for the whole of India would be 62.4 million people with diabetes and 77.2 million people with prediabetes (Anjana, 2011).

In 2014, Yesudian A, et al., has done a comprehensive literature review of the direct and indirect costs of diabetes in India were conducted in October 2014 following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This study was included the study which showed only direct costs in their evaluation ,four studies included direct and indirect costs and only one study included direct, indirect and intangible costs. This study has reported that overall cost (direct and indirect cost) is increasing in treatment of diabetes and its complications (Yesudian, 2014).

According to a study done in Nigeria, looking at factors influencing the choice of healthcare facility, talks about various factors like access to health facility, time of opening, availability and cost of drugs available in the facility, contribute in choice of facility used by patients. (O C Uchendu, O S Ilesanmi & A E Olumide, 2013)

A study done by Okyere et al in Ghana shows that the providers choice is influenced by factors such as traveling time to the facility, cost of the facility, the waiting time for getting treatment, sex, age, education and the quality of services provided by the facility. (WK Asenso-Okyere, Janet Dzator & Isaac Osel akoto, 1996)

As per Michael et al, one factor influencing demand of health services in health economics is the choice or preference of the consumer. The decision of the consumer to choose one service over another is influenced by satisfaction with service and facility in general, quality of services provided at the facility, demographic and social factors and economic factors including access to the facility like physical distance. (Godpower Chinedu Michael, Ibrahim Aliyu, Bukar Alhaji Grema, Abdullahi Kabiru Suleiman, 2019) . According to this study 83.5% reported the choice of a particular health facility was determined by better equipment and facilities. 52.1% gave importance to distance of the health facility from place of

residence as a factor to be considered for decision making. For making the decision making regarding use of a certain health facility the technical, structural as well as interpersonal aspects were taken into consideration.

According to a study conducted in Korea, age is seen to have a positive effect in selecting public hospitals; it implies that the individuals in the higher age group are more like to select public hospitals for treatment. This study also suggests that men are likely to use public hospitals and the higher the education the less likelihood of going to a public hospital for treatment. (Mi-Ryeong Gil & Cheon Geun Choi, 2019)

OBJECTIVES OF THE RESEARCH

The objective of the research was:

1. To understand the healthcare facility chosen by the diabetic patients – private or public healthcare facility
2. To understand that whether the age of the patient has any impact on the choice of healthcare facility

RESEARCH METHODOLOGY

This research aims at understanding choice of healthcare facility by diabetic population and the relationship between the age of the diabetic person and the facility chosen by them. Data was collected from both primary and secondary sources. The research methodology included primary data collection from multispecialty hospital and public healthcare facilities in Mumbai. The sampling technique used for the research was non probability convenience sampling and snowball sampling. The questions asked were measured in the five-point Likert scale. A total of 500 respondents were interviewed in both public and private healthcare facilities.

ANALYSIS OF DATA

The data collected by the researcher was based on a questionnaire and the researcher tried to use statistical tools to analyze the data collected.

The data collected was among 500 respondents from both public and private healthcare facility and the data analysis was carried out for both the facilities differently to bring the clear picture.

The age of the respondents from private healthcare facility ranged from 18- 55 years. 28% respondents were in the age bracket of 46-55 years followed by 22% respondents in the bracket of 18-25 years and 55 years above. 14% respondents were in the age bracket of 36-45 years and 12% in 26-35 years age bracket. Only 2% respondents were below 18 years of age.

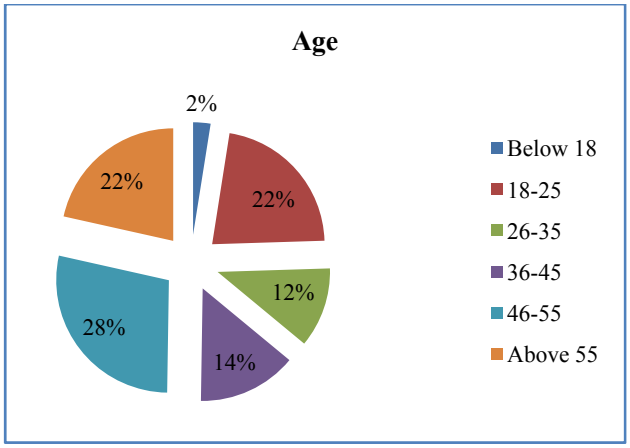

Figure 1: Age of respondents using private healthcare facility

In figure2 below, the age of respondents using public healthcare facility is shown. From 100 respondents 24% were in the age bracket of 18-25 years and above 55 years. 20% respondents fell in the bracket of 46-55 years followed by 13% between 26-35 years and 10% in 36-45 years range. Only 9% respondents were below 18 years.

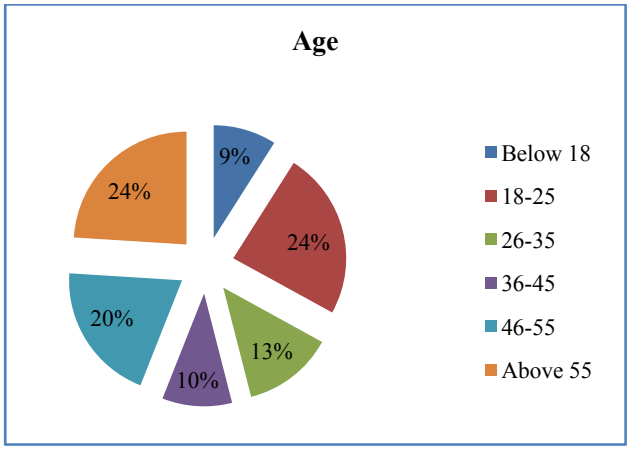

Figure 2: Age of respondents using public healthcare facility

The gender of the respondents from whom the data was collected is shown in figure 3 below for private healthcare facility users'. Out of 400 respondents from whom the data was collected 58% were male and 42% were female.

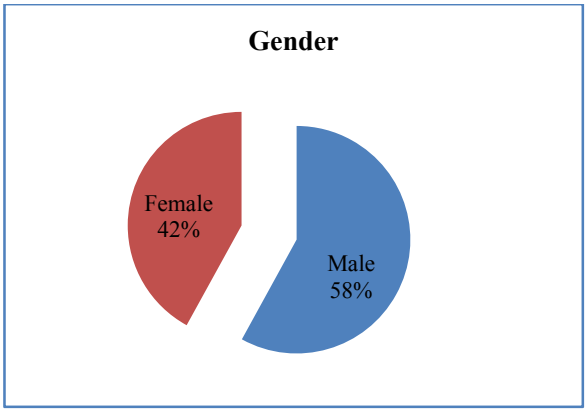

Figure 3: Gender of respondents using private healthcare facility

The gender of the respondents from which the data was collected is shown in figure 4 below for public healthcare facility users. Out of 100 respondents from whom the data was collected, 65% were male and 35% were female.

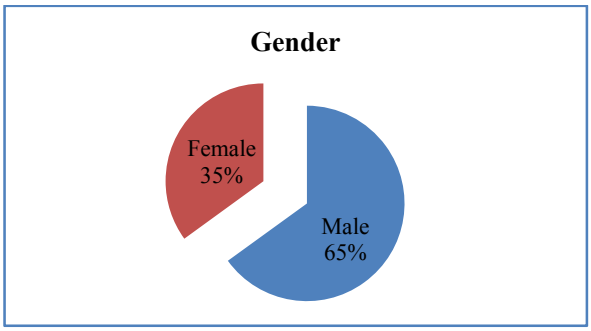

Figure 4: Gender of respondents using public healthcare facility

In figure 5below, the educational qualification of the respondents was captured. 41% respondents out of 400 respondents using private healthcare facility were graduates followed by 32% respondents' interviewed were post graduates.12% respondents had completed higher secondary as per their education and 10% were holding professional degrees and only 5% had secondary education.

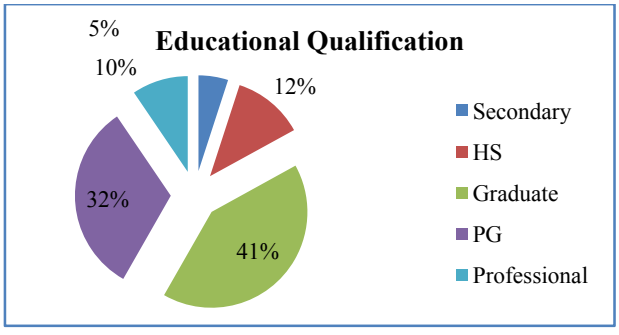

Figure 5: Educational qualification of respondents using private healthcare facility

In figure 6 below, the educational qualification of the respondents was captured. 58% respondents out of 100 respondents using public healthcare facility were graduates followed by 15% respondents' interviewed had completed higher secondary education.14% respondents were post graduates as per their education and 13% had secondary education.

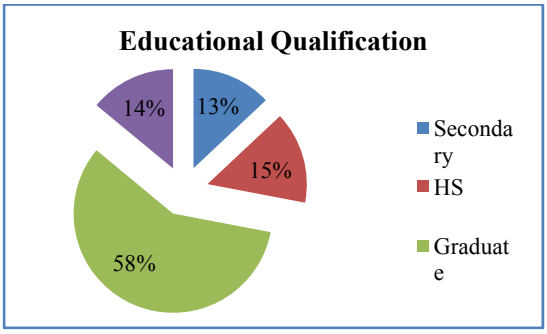

Figure 6: Educational qualification of respondents using public healthcare facility

In the figure 7 below the profession of respondents is shown. Out of 400 respondents 37% respondents were not earning member of the family as 15% were homemakers and 22% were students. From the remaining working respondents 30% were in Government job, 24% had private job and 9% had their own business.

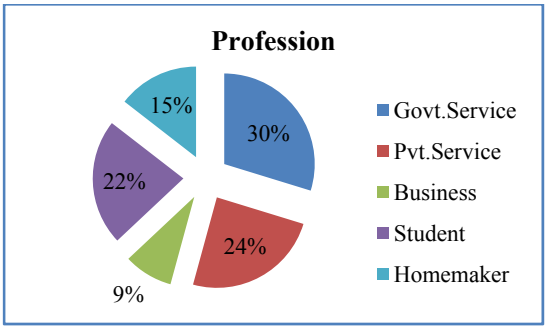

Figure 7: Profession of respondents using private healthcare facility

In the figure 8 below the profession of respondents is shown. Out of 100 respondents 62% respondents was not an earning member of the family as 36% were homemakers and 26% were students. From the remaining working respondents 23% were in private job, 5% had government job and 10% had their own business.

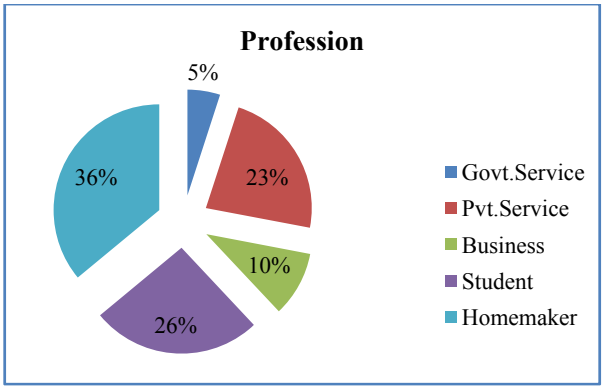

Figure 8: Profession of respondents using public healthcare facility

In the figure 9 below the family structure of respondents' family is shown. Out of 400 respondents 56% respondents lived in a nuclear family setup.28% stayed in a joint family setup and 16% were single.

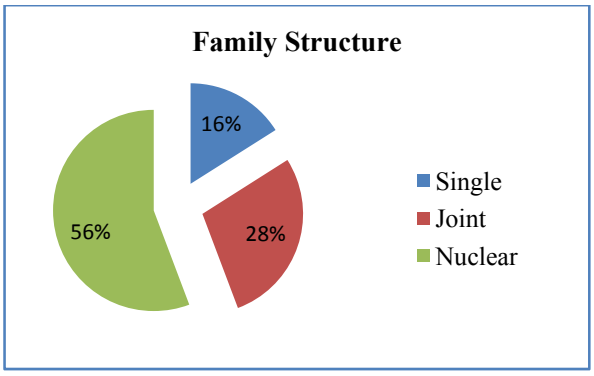

Figure 9: Family Structure of respondents using private healthcare facility

In the figure 10 below the family structure of respondents' family is shown. Out of 100 respondents 46% respondents lived in a nuclear family setup.39% stayed in a joint family setup and 15% were single.

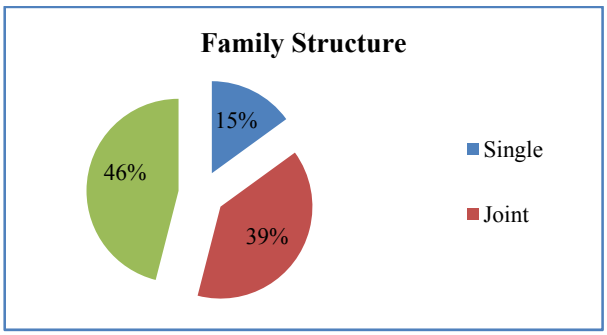

Figure 10: Family Structure of respondents using public healthcare facility

In the figure 11 below the family size of respondents' family is shown. Out of 400 respondents 45% respondents lived with their spouse and dependent children, 19% stayed with their spouse and working children and 18% stayed with their dependent parents. Small number of people stayed alone and 11% stayed either alone or with their dependent in-laws.

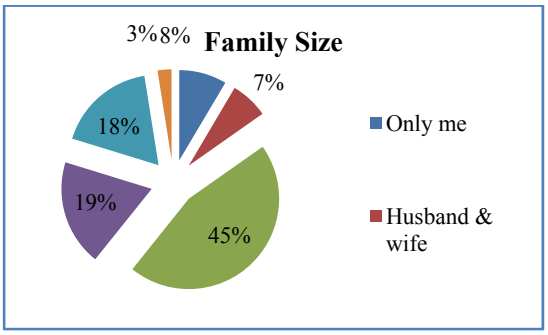

Figure 11: Family Size of respondents using private healthcare facility

In the figure 12 below the family size of respondents' family is shown. Out of 100 respondents 36% respondents lived with their spouse and dependent children, 21% stayed with their dependent parents and 19% stayed alone. 12% respondent stayed with their spouses and 10% stayed with their working children. Only 2% stayed with their dependent in-laws.

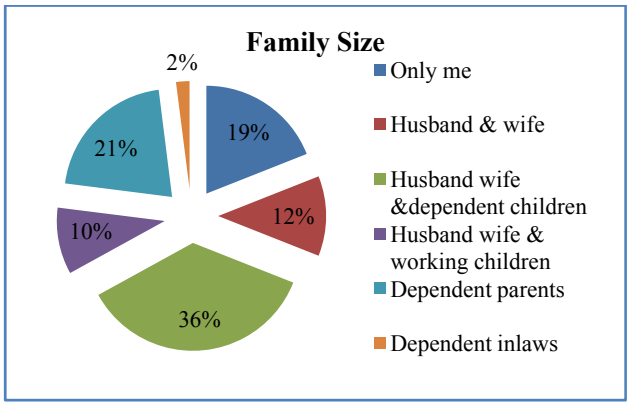

Figure 12: Family Size of respondents using public healthcare facility

In the figure 13 below the monthly family income of respondents' family is shown. Out of 400 respondents 65% respondents earned more than Rs 55,000 per month and 14% earned Rs 46000 to Rs 55000/-per month. 16% respondents earned Rs 36000 to 45000 and only 5% earned between Rs 21000 to 35000 per month.

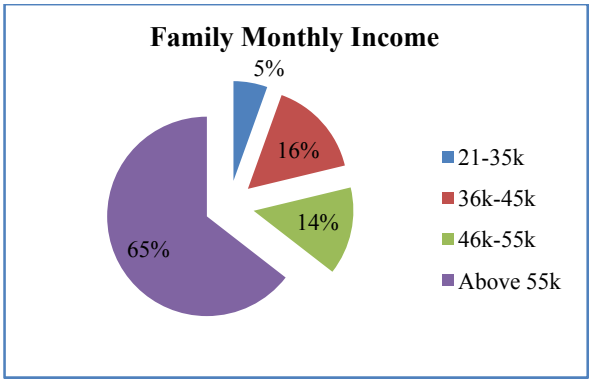

Figure 13: Family monthly income of respondents using private healthcare facility

Researcher carried out the descriptive research for the private healthcare facility users and the mean came out to be Rs 54000/ per month for the group, as shown below:

Table 1: Descriptive statistics for income of the family

INCOME DESCRIPTIVE STATS	
Mean	54000
Standard Error	0.046962731
Median	6
Mode	6
Standard Deviation	0.939254624
Sample Variance	0.882199248
Kurtosis	0.147169211
Skewness	-1.219458068
Range	3
Minimum	25000
Maximum	55000+
Sum	2151
Count	400

In the figure 14 below the monthly family income of respondents' family is shown. Out of 100 respondents 60% respondents earned monthly income between Rs 6000 to Rs 20000 and rest 40% earned less than Rs 6000 per month.

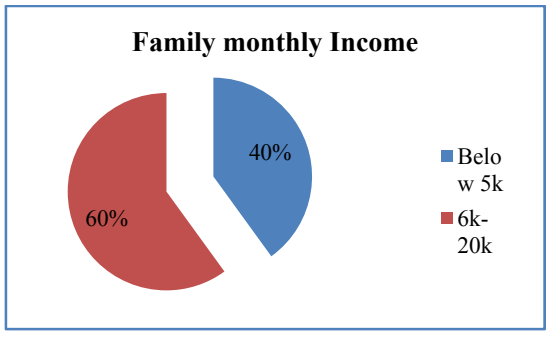

Figure 14: Family monthly income of respondents using public healthcare facility

Researcher conducted One-way ANOVA way to test the weather age was independent of type of facility opted by the respondents. Output of ANOVA as per table no 2 proved that p significant was less than 0.0.5, hence, researcher concluded that age was dependent on the type of facility.

Table 2: ANOVA; Single factor analysis

Anova: Single Factor						
SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
50	399	21418	53.6792	160.7812		
1	399	765	1.917293	1.79465		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	534519.3	1	534519.3	6575.628	0	3.853168
Within Groups	64705.21	796	81.28795			
Total	599224.5	797				

CONCLUSION

Based on the analysis which researcher carried out also showed that there are other factors like family size, vicinity of the healthcare , ease of going the medical facility, loss of income and other factors which were more dependent factors had a lot of impact on the type of facility chosen by the diabetic patient. Sometimes the people diagnosed with the ailment are aging population and they are dependent on the other members of the family due to which they don't have much choice of choosing a facility for themselves. The earning member of the family or the decision maker has more ability to take such decisions rather than the person who is suffering from the disease.

More such studies can be taken in future to understand the other influencing factors in decision making when it comes to choosing a facility by the diabetic patient.

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