

Evaluating the Direct Cost of Diabetes Care in Varanasi, Uttar Pradesh

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Abstract: *Diabetes Mellitus is a potential catastrophic metabolic disorder. It jumped from 37th to 15th place in a ranking of primary causes of death and disability in Uttar Pradesh, from 1992 to 2016". The cost of diabetes affects everyone everywhere, but they do not only cause financial problems; it also causes pain, anxiety, inconvenience and generally lower quality of life. The purpose of the current study is to estimate the economic burden of health care on diabetic patients in the Urban area of Kashi Vidyapeeth Block, Varanasi, Uttar Pradesh, India. A community-based study was conducted among 250 diabetes mellitus patients during Oct 2019 - December 2019. Data were collected through a personal interview, and a questionnaire was developed to obtain specific information. The mean age of diabetic patients participated in the study was 51.26 years, with 7.66 years of the mean duration of illness. Mean Monthly expenditure (direct cost) due to illness was Rs. 2320.30. The current study indicates that the economic burden of diabetes mellitus and its complications are very high and affecting the quality of life of diabetes patients.*

Keywords: *Economic burden, Diabetes Mellitus, Direct cost, health-care expenditure.*

1. INTRODUCTION:

Noncommunicable diseases kill 41 million people/year, globally [1]. Diabetes Mellitus is a potential catastrophic metabolic disorder, if not adequately treated, can give birth to fatal diseases such as neuropathy, nephropathy, and retinopathy and leads to organ and tissue damage in approximately 1/3 to 1/2 of diabetes patients [2-4]. People with diabetes have increased from 108 million (1980) to 422 million (2014). In 2016, an estimated, diabetes killed 1.6 million people directly [5, 6]. According to IDF, "India has the most massive numbers of people with diabetes (40.9 million), and a total of 425 million people (age 20 to 79 years) are affected globally; thus, it is a global epidemic [7, 8]. In 2017, India was the most significant contributor to the regional (South East Asia) mortality, with nearly 1 million estimated deaths attributable to diabetes [8]. "Diabetes jumped from 37th to 15th place in a ranking of primary causes of death and disability in Uttar Pradesh, from 1992 to 2016". It has high morbidity, mortality, economic impact, resource consumption, systemic complications, calm yet progressive nature, and generally less curative [9, 10]. The cost of diabetes affects everyone everywhere, but they do not only cause financial problems; it also causes pain, anxiety, inconvenience and generally lower quality of life [11]. A community-based cross-sectional study, using a bottom-up approach, would be done focusing on quantifying direct health care costs. The prime objectives of this study would evaluate the economic cost of diabetes mellitus on patients and their families and assess the effectiveness of medical care and Identification of the challenges and interventions that are needed to strengthen health care services.

2. METHODS:

Diabetes patients belong from the urban area of kasha Vidyapeeth block was chosen for the study purpose, randomly. The study (survey) was conducted during Oct 2019 - December 2019. A total of 250 diabetes patients were identified by extracting the doctor's prescription reached the medical stores/ pharmacy stores of kasha Vidyapeeth urban area. A suitable time was taken for interview from the patients if they are agreed to do enroll themselves into the study. In the study only patients having age more than 30 years was included. No personal information was recorded and survey was conducted only after taking the oral consent from the patients.

3. DATA COLLECTION:

Data collected by personal interview method; predesigned, pre-tested, validated questionnaire was used to collect the information. Questionnaire was developed based on various previous study to collect the appropriate information [12, 13]. The questions included basic socio demographic details direct costs. Retrospectively the expenditure incurred for diabetes care was obtained. In this study direct cost was considered in relation to medical care such as diagnosis and treatment of diabetes and its complications i.e., lab investigations, physician's consultation charges, and medication.

4. DATA EDITING AND ANALYSIS:

Collected data was entered in excel sheets for the purpose of analysis and validated using proofreading method. Percentages, proportions and ratios were used.

5. RESULTS AND DISCUSSION:

A total of 250 patients were interviewed for the retrospective, direct medical cost calculation at urban area of Kashi Vidyapeeth Block of Varanasi district, Uttar Pradesh, India. The mean age of the study participants was 51.26 years. Figure (1) shows age distribution of diabetic respondent individuals aged above 30 year. Study shows that 57% of diebetics patient were old agei.e. above 55 years, gives an impression that diabetes is an old age complication.

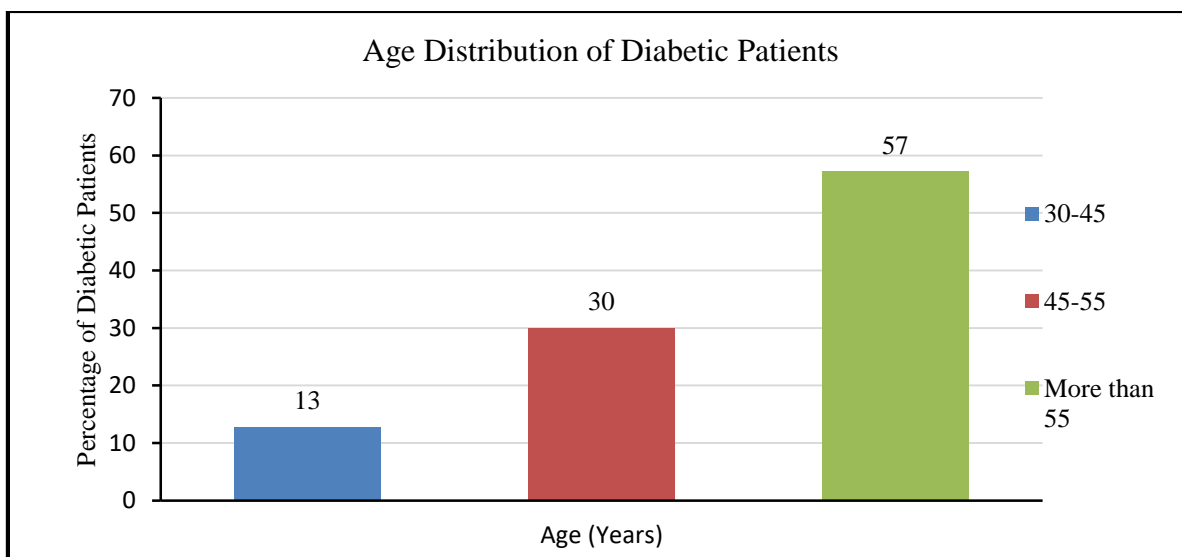


Figure 1. Age Distribution of Diabetic Patients

Figure no. 2 denotes gender distribution of diabetic study population. There were 140 (56%) male and 110 (44%) female participants associated with study (See Fig. No. 2).

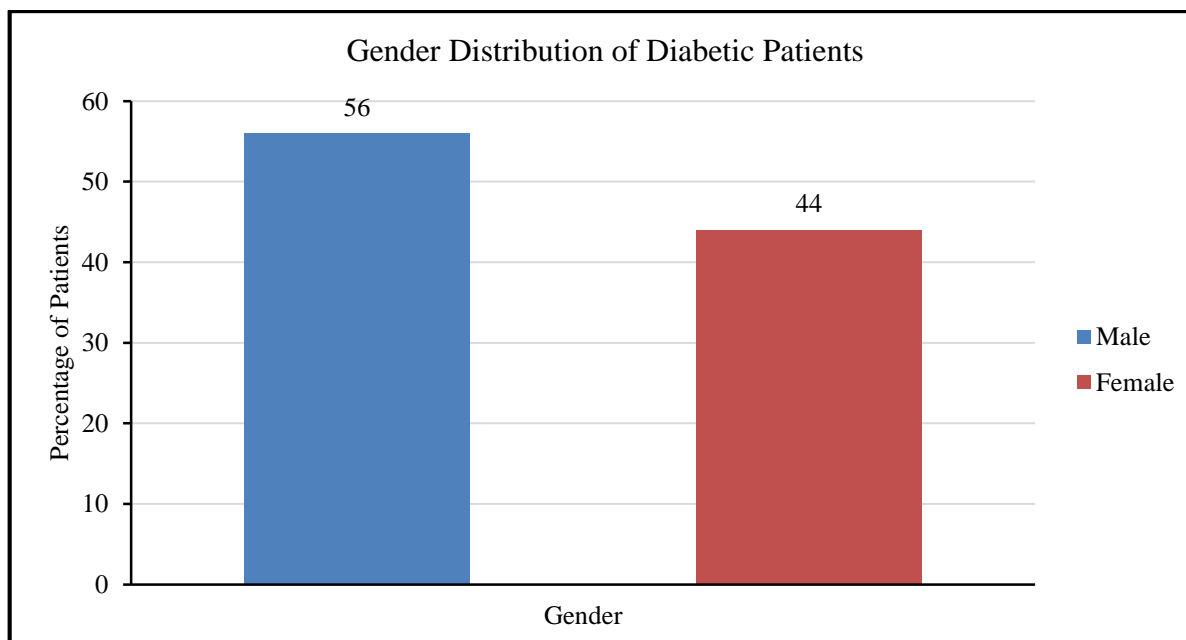


Figure 2. Gender Distribution of Diabetic Patients

In this study majority of the participants 243 (97%) were literate and only 7 (3%) participants were illiterate (See Fig. No. 3).

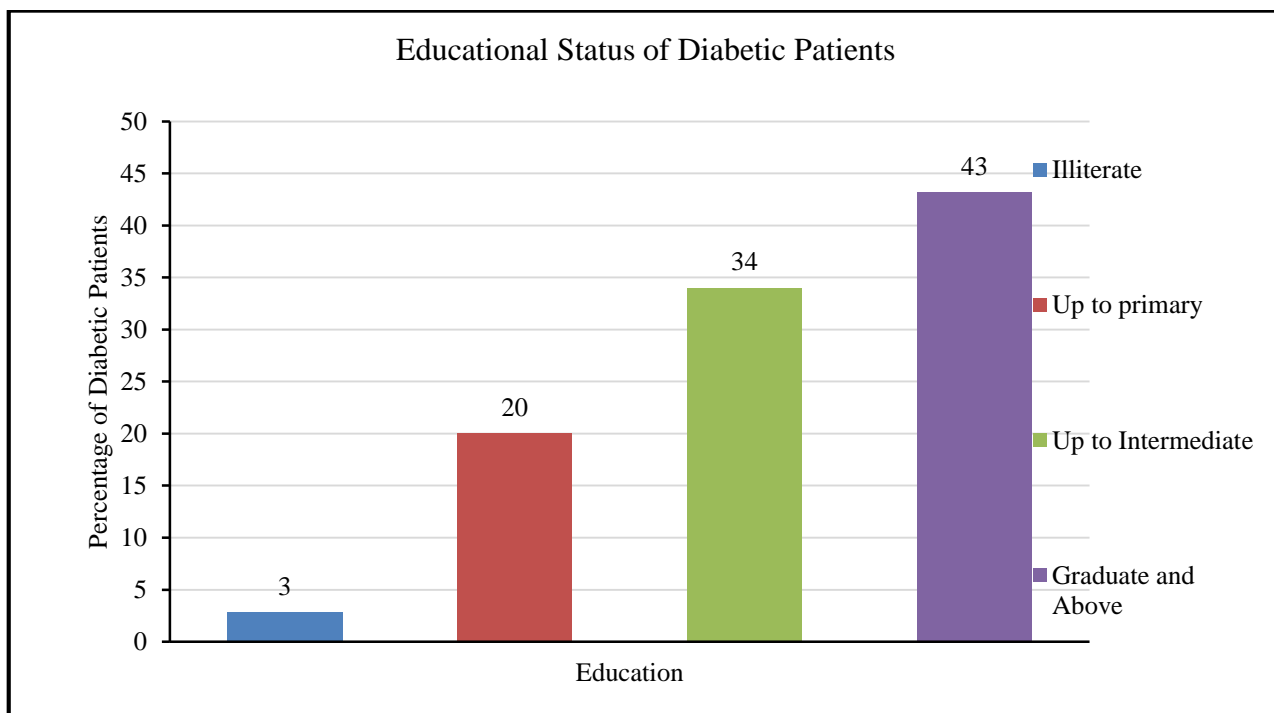


Figure 3. Educational Status of Diabetic Patients

Among the study participants 148 (59%) were employed, the most common reason for not having a full time job was housewife 45 (18%), 57 (23%) people who were either retired or were not able to work due to disease and complications (See Fig. No. 4).

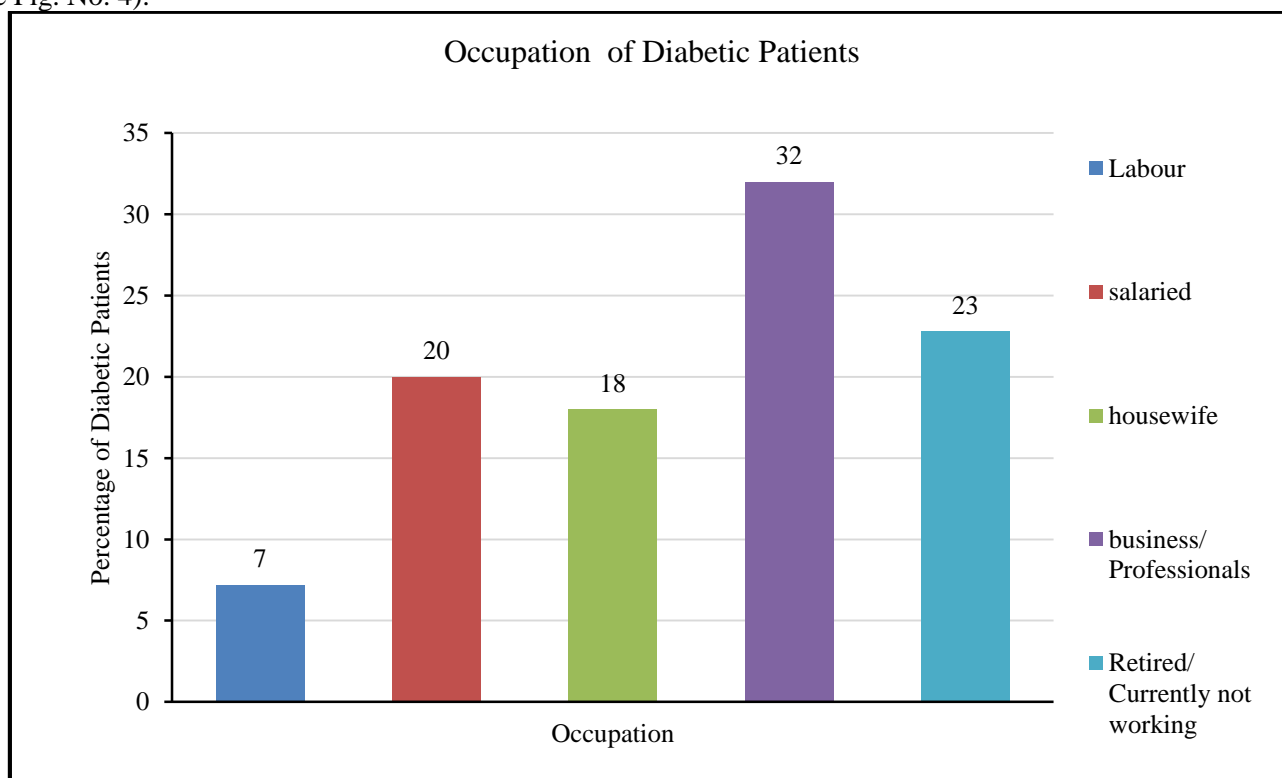


Figure 4. Occupation of Diabetic Patients

More than half of them 159 (63.6%) of them belonged to middle class according to the classification. The mean duration of patients who has suffered from diabetes was 7.66 years, ranging from a minimum of 1 year to as high as 15 years. 47% of respondents were having diabetes for more than 6-10 year while 29% were suffering from 11-15 year or more (See Fig. No. 5).

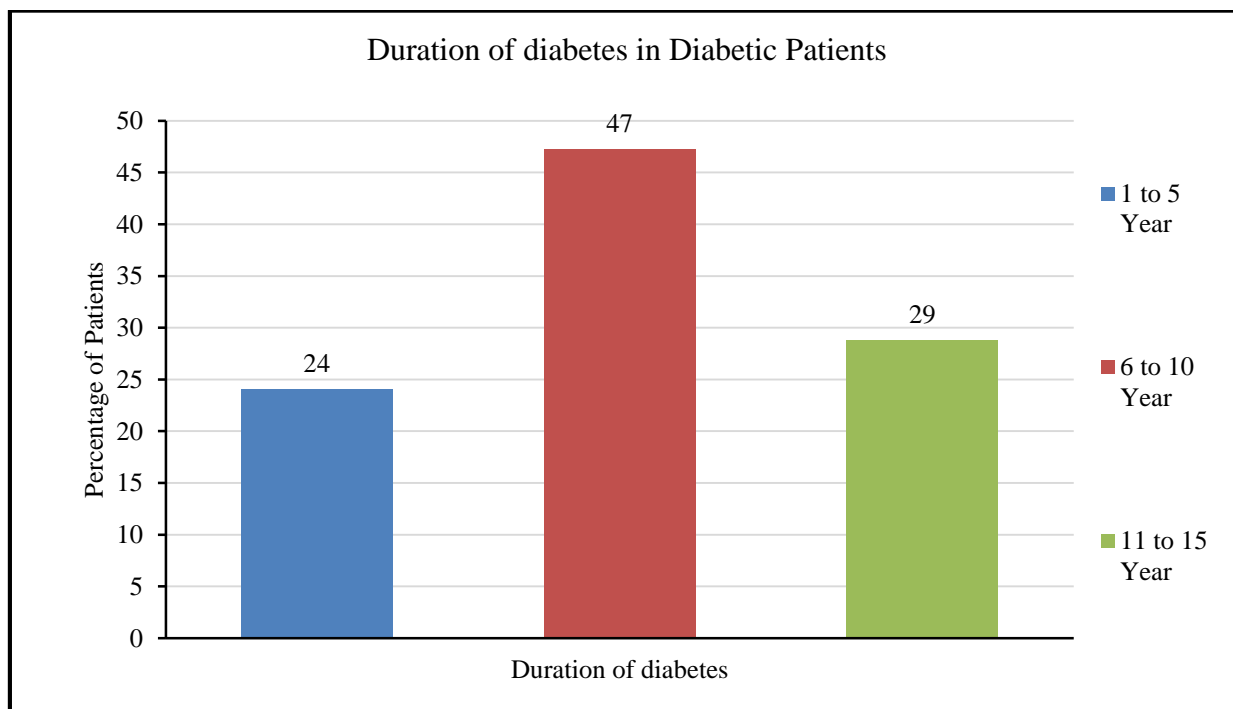


Figure 5. Duration of diabetes in Diabetic Patients

All study participants are on either oral or parentral or on combination mode of treatments i. e. oral and paraentrals, out of them most of participants are on oral mode of treatment (See Fig. No. 6). The respondents who are on oral mode of treatment have to administer tablets and capsules of various active pharmaceutical ingredients and the respondents who are on parentral treatment mode have to inject insulin injection to their body before every meal and also have to take some nutrition supplements. The mode of treatment for diabetes among participants included 215 (86%) on oral hypoglycaemic drugs, 35 (14%) were on insulin. Some respondents also told that initially they were on parentral mode of treatment but now they are on oral mode of treatment because they adopted some changes in their lifestyle.

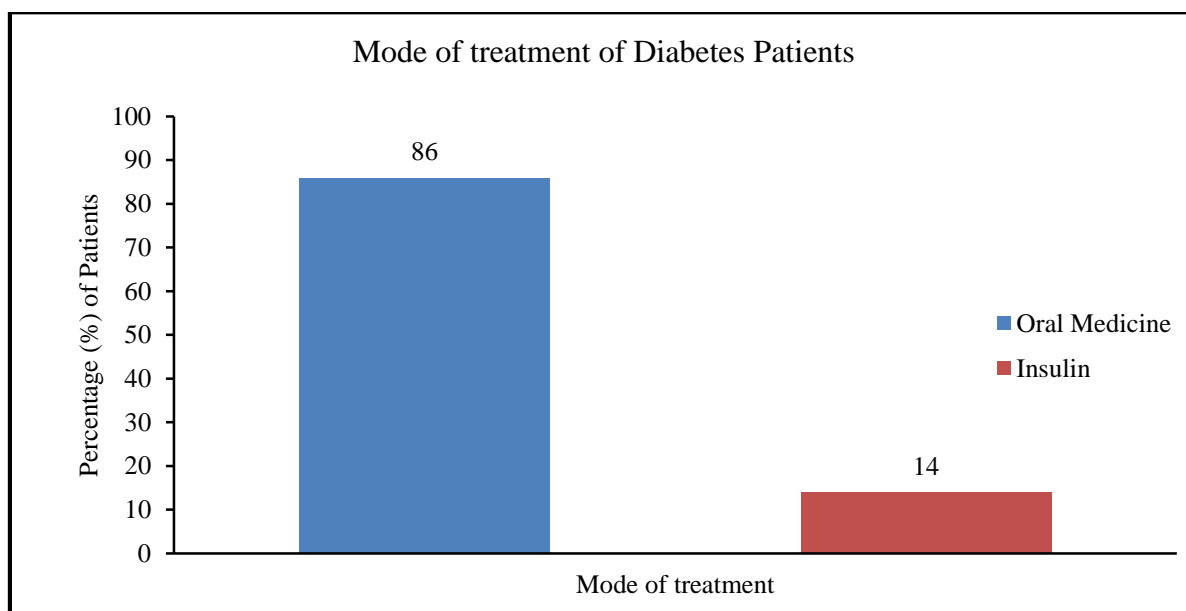


Figure 6. Mode of treatment of Diabetes Patients

A metabolic disorder such as diabetes may come with a package of diseases nevertheless 102 (56%) of the participants stated they had suffered from other diseases also such as (hypertension 35%, heart disease 22.5%, depression 4.6%, others 13.6%) while 44% stated that they are till now not having any associated complications (See Fig. No. 7). Respondents with complications of diabetes stated that there is an increase of the financial and emotional burden on families. Here we observed that the expenditure on treatment of complications of diabetes varied significantly between the respondents.

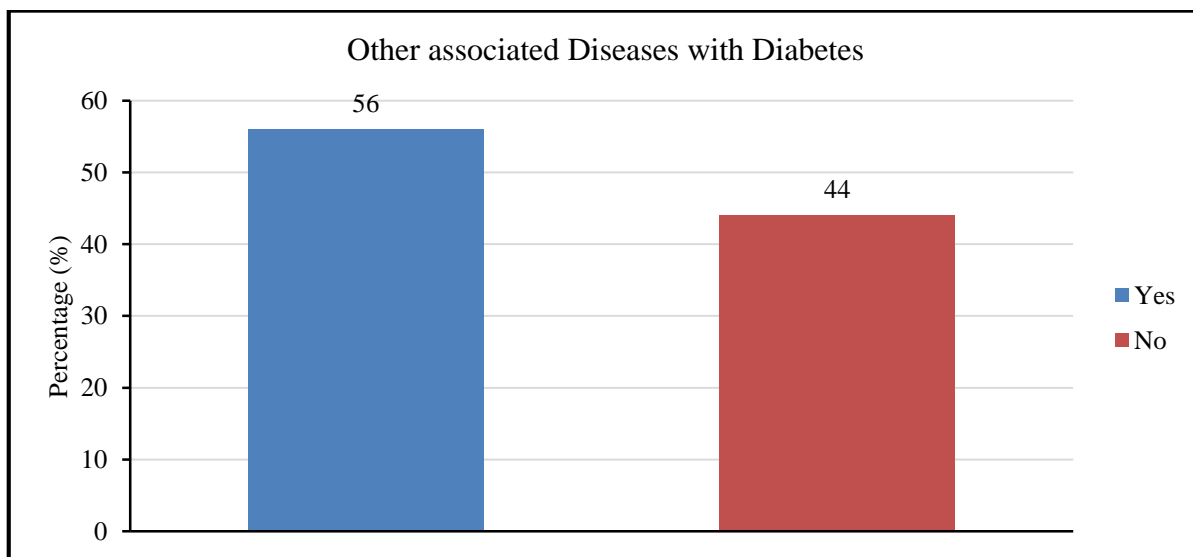


Figure 7. Other associated Diseases with Diabetes

The direct cost of diabetes was estimated based on a total monthly expenditure including various items related to disease treatment. To calculate monthly expenditure, a total sum of expenditures on medicine, laboratory diagnostic tests, home testing and recording, consultation fee and nutritional diet (food)/suppliments was calculated for diabetic individuals. Mean monthly expenditure (direct cost) was Rs. 2320.30, in which largest weightage is given to medicines and Nutritional diet (food)/suppliments which were Rs. 562 and Rs. 1200 respectively. It is always noteworthy that the type of therapy and place of treatment are important determinants of cost.

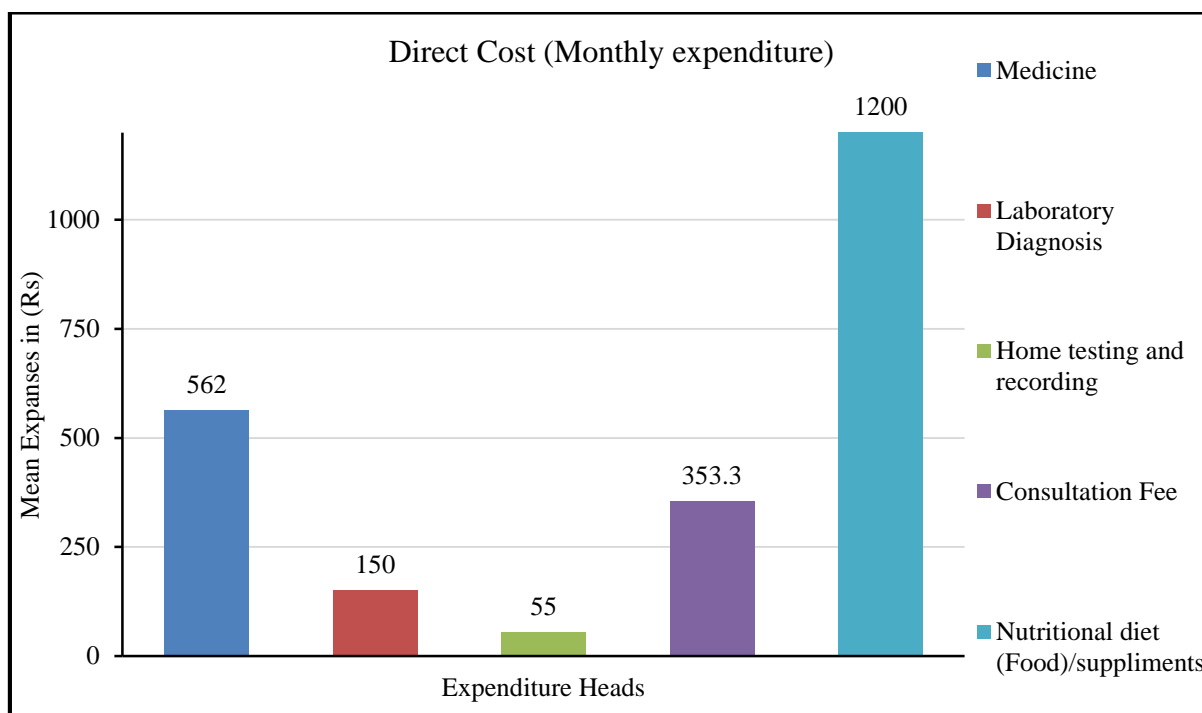


Figure 8. Direct Cost (Monthly expenditure)

6. CONCLUSION:

Diabetes mellitus is a rapidly spreading metabolic disorder and now it become epidemic in the developing countries such as India. In the current study, a through light has been focused on the economic burden of diabetes mellitus and its complications. The high catastrophic burden and resultant impoverishment associated with morbidity highlight the need for better financial protection mechanism in India such as Universal Health Coverage. It is a comprehensive health system approach that helps to provide improved access to health care which significantly improves the health outcomes [14]. There is an urgent need to focus on the community health insurance system that the reduce the economic burden of diabetes.

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