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KNOWLEDGE & SELF- CARE PRACTICES OF DIABETES AMONG TYPE 2 DIABETES MELLITUS PATIENTS RESIDING IN RURAL BELAGAVI - A CROSS SECTIONAL STUDY

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Abstract

Background: India is deemed as the world's Diabetic capital, with about 77 million Type 2 Diabetic people and is estimated to have 134.3million by 2045. The challenge is increasing burden of diabetes in rural India [47% cases].The problems in rural area may have serious impact because of poor awareness, and poor accessibility to health care facilities. Poorly managed diabetes mellitus causes life-threatening complications like neuropathy (27.8%), foot ulcer (25%), coronary artery disease (21.4%), retinopathy (17.6%), peripheral vascular disease (8.6%), nephropathy (6.9%).

Objective: 1. To assess the knowledge &complications towards diabetic care among type2 diabetes mellitus patients.

2. To assess the self-care practices among Type 2 diabetes mellitus Patients.

Materials& methods: A cross sectional study was conducted in Kadoli rural centre, Belagavi, Karnataka, among selected 200 individuals with Type 2 Diabetes Mellitus. To assess knowledge& self-care practices. Data was collected using pre designed, pre structured and pre tested questionnaire.

Results:

200 diabetic individuals from Rural Kadoli PHC area, Belagavi were chosen randomly and questionnaire regarding their knowledge of the disease and its complications and their self-care practices to avoid complications were assessed.

37% of the study population had good knowledge; 39% had fair knowledge regarding diabetes and 24% poor knowledge about Diabetes Mellitus.

32% of the study population had good self-care practices; 18% had fair self-care practices and 50% of the study population had poor self-care practices for management of Diabetes Mellitus and its complications.

Key words: Knowledge, Rural, Self-care, Type2 diabetes mellitus

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INTRODUCTION: Diabetes is a chronic metabolic disorder characterised by Hyper Glycaemia and is one of the leading causes of morbidity and mortality worldwide. It can cause a variety of comorbidities, including cardiovascular disease, stroke, neuropathy, retinopathy, and nephropathy. Type 2 diabetes mellitus (T2DM) is the most common form of diabetes and accounts for around 90% of all cases globally.[1]

India is deemed as the World Diabetic Capital: estimated as 70 million(2025) and Type 2 Diabetic people 134.3 million by 2045.[2]

The purpose of this cross-sectional study was to assess the knowledge and self-care practices among type 2 diabetes mellitus patients residing in rural Belagavi district. We aimed to evaluate the awareness level among T2DM patients regarding self-care practices such as dietary modifications, physical activity, medication adherence, glucose monitoring etc., as well as their ability to recognize symptoms/complications associated with T2DM. Furthermore, we sought to explore potential barriers that may prevent patients from following recommended self-care practices for optimal disease management. The findings of this study could provide insights into the current state of diabetes management in rural areas and inform the development of targeted interventions to improve patient education and self-care practices. Additionally, understanding the barriers that prevent patients from following recommended self-care practices could help healthcare providers tailor their approach to better meet the needs of T2DM patients in rural settings.[3]The high prevalence of diabetes in India is attributed to various factors such as sedentary lifestyle, unhealthy diet, and genetic predisposition. Efforts are being made to increase awareness and promote healthy habits to prevent and manage diabetes.[2] The difficulties include the rising burden of diabetes in rural India (47%), inadequate knowledge, and subpar practises for managing the disease (such as diet, exercise, blood sugar monitoring, medication adherence, and risk

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reducingbehaviours). These challenges are further exacerbated by limited access to healthcare facilities and a shortage of trained healthcare professionals in rural areas. Efforts to address these issues require a multifaceted approach that involves community education, improved healthcare infrastructure, and increased access to affordable diabetes care.[4]

OBJCTIVES:

i. To assess the knowledge of DM & its complications among Type 2 Diabetes Mellitus patients.

ii. To assess the self-care practices among Type 2 Diabetes Mellitus Patients.

MATERIALS AND METHODS:

• Study area: Kadolirural PHC Attached to BIMS, Belagavi

• Study period: March 2022 to May 2022

• Study design: A Cross-sectional study

• Institutional Ethical clearance obtained

• Sample Size: 200.

• $n = \frac{Z^2pq}{d^2} = \frac{(1.96)^2X24X76}{36} = 194 = 200\ with\ 6\%\ absoluteerror$

• Sampling technique: Proportionate simple random sampling technique 200subjects were selected randomly from all sub centres covered under Kadoli rural PHC in proportion to the size of the sub centre.

• Written informed consent–obtained

• Each entity was scored 2 for good knowledge/self-care, 1 forfair knowledge/self-careand 0 for poor knowledge/self-careanswer.

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Study tool: Semi-structured questionnaire {Sociodemographic details, Knowledge regarding Diabetes (32 entities), Self- care practices regarding diabetes(28 entities) }

Data analysis:

• Knowledge and self-care are expressed in percentage.

• Entity wise percentage was calculated for each knowledge entity and self-care.

• Average score for each patient was calculated and analysed as good or poor for both knowledge and self-care practices of Diabetes Mellitus.

RESULTS:

200 diabetic individuals from Rural Belagavi were chosen randomly and questionnaire regarding their knowledge of the disease and its complications and their self-care practices to avoid complications were assessed.

The data was analysed on knowledge and self-care practices among selected type 2 diabetic patients. The results of socio demographic profile, Risk factors of type 2 diabetes mellitus, clinical characteristics of the study participants, Proportion of knowledge and Self-care practices, and complications.

Study population consisted predominantly females (56.5%) who were in the age group of 46 to 60 years (83.5%). 40% of the study population were illiterates and 34 % were unemployed. About 87% of them were married and 28.5% belonged to Class 3 Socio Economic Status of B.G.Prasad Classification.

Table 1: Socio demographic Characteristics of the study population

Characteristics:	Total n = 200
Age: 30-45	33(16.5)

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46-60	167(83.5)
Gender:	
Male	87(43.5)
Female	113(56.5)
Occupation:	
Unemployed	68(34)
Unskilled worker	32(16)
Semi- skilled worker	27(13.5)
Skilled worker	18(9)
Clerk/ farmer/ shop keeper	9(4.5)
Semi-professionals	41(20.5)
Professional	5(2.5)
Marital status:	
Un married	8(4)
Married	174(87)
Widow	16(8)
Widower	1(0.5)
Separate	1(0.5)
Religion:	
Hindu	191(95.5)
Muslim	8(4)
Christian	1(0.5)

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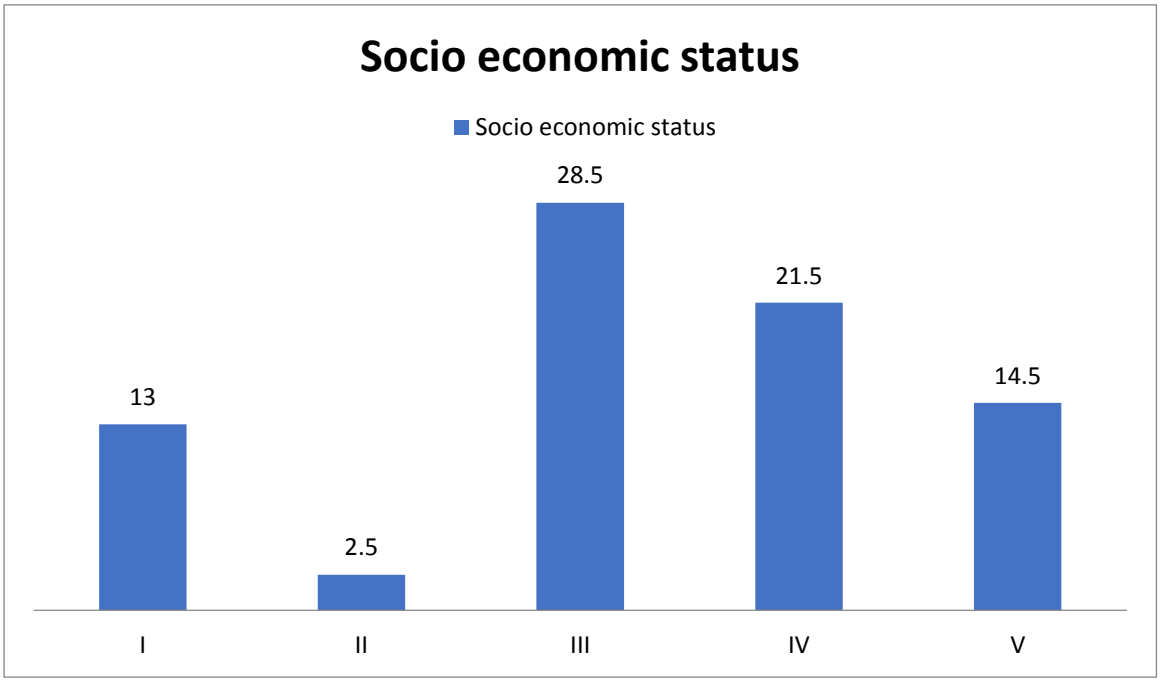

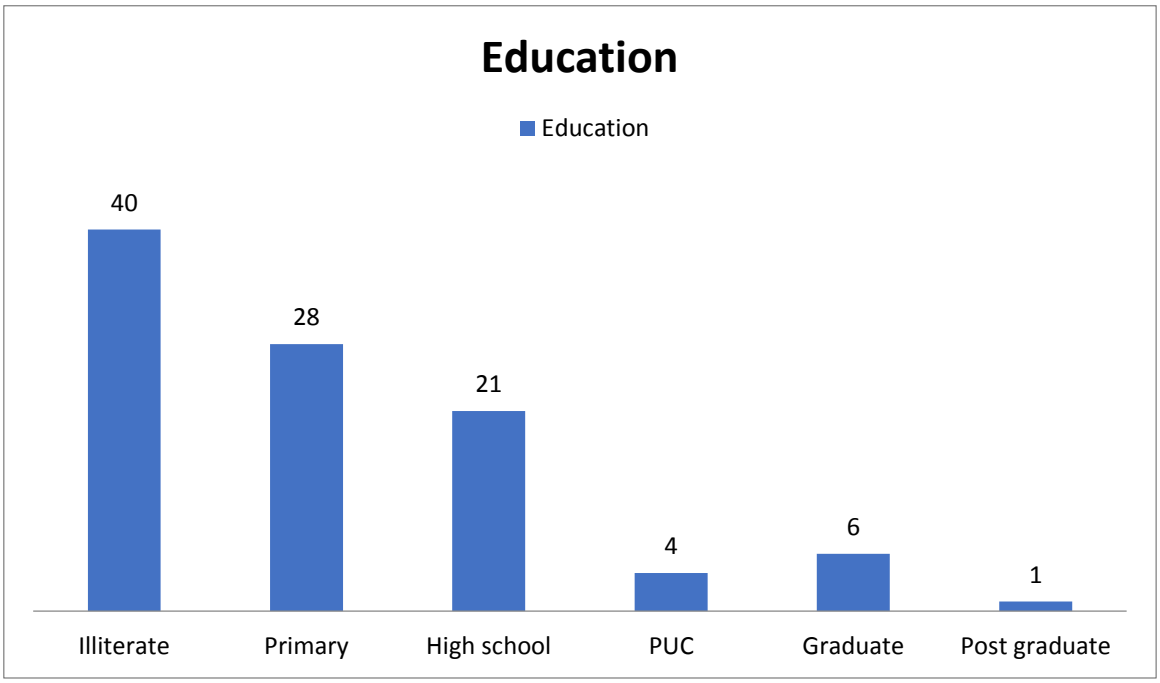

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Table No 2: Distribution of participants according to risk factors of diabetes mellitus

Risk factors	Total n = 200
a.Diet: Non diabetic diet - **Diabetic diet**	68(34%) 132(66%)
b. Exercise: Yes	 105(52.5%)
Brisk walking Yoga Running Multiple exercise	97(48.5%) 2(1%) 3(1.5%) 3(1.5%)
In adequate (<2days/wk) Adequate (3 to 5 days/wk) More than adequate (>6days/wk)	57(28.5%) 25(12.5%) 23(11.5%)
No exercise	95(47.5%)
c. Family history of NCD Yes : H/O DM H/O other NCDs NO:	 31(15.5%) 28(14%) 3(1.5%) 169(84.5%)
***Relation:** Father Mother Both Sibling	 9(4.5%) 17(8.5%) 2(1%) 3(1.5%)

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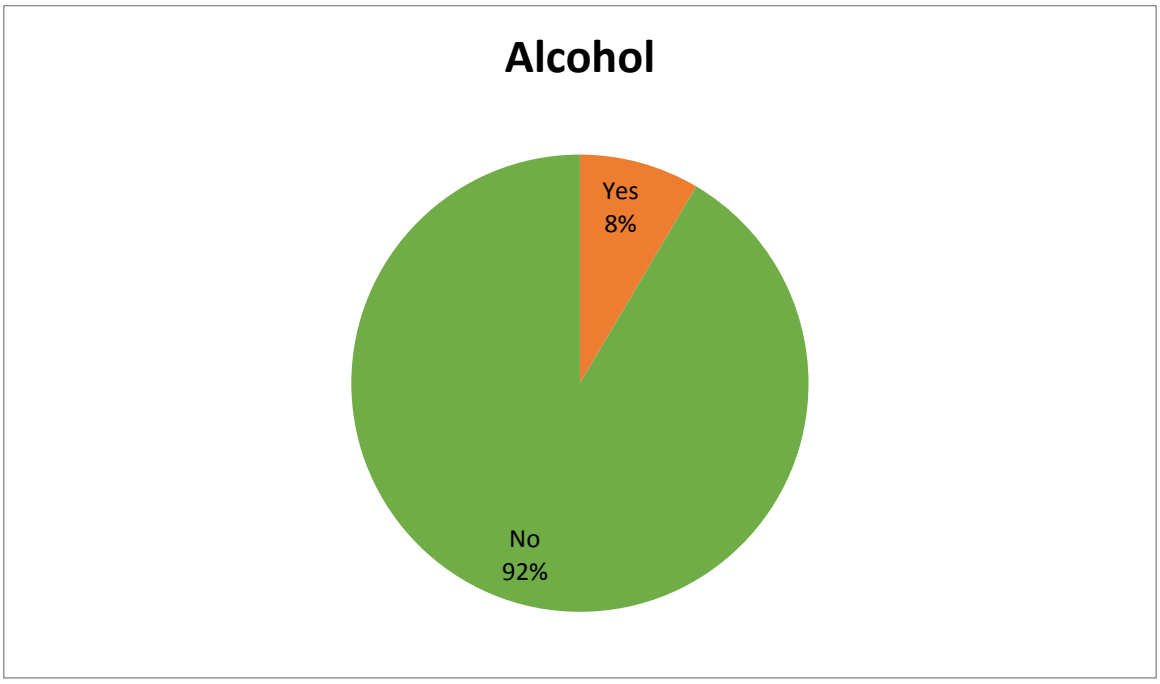

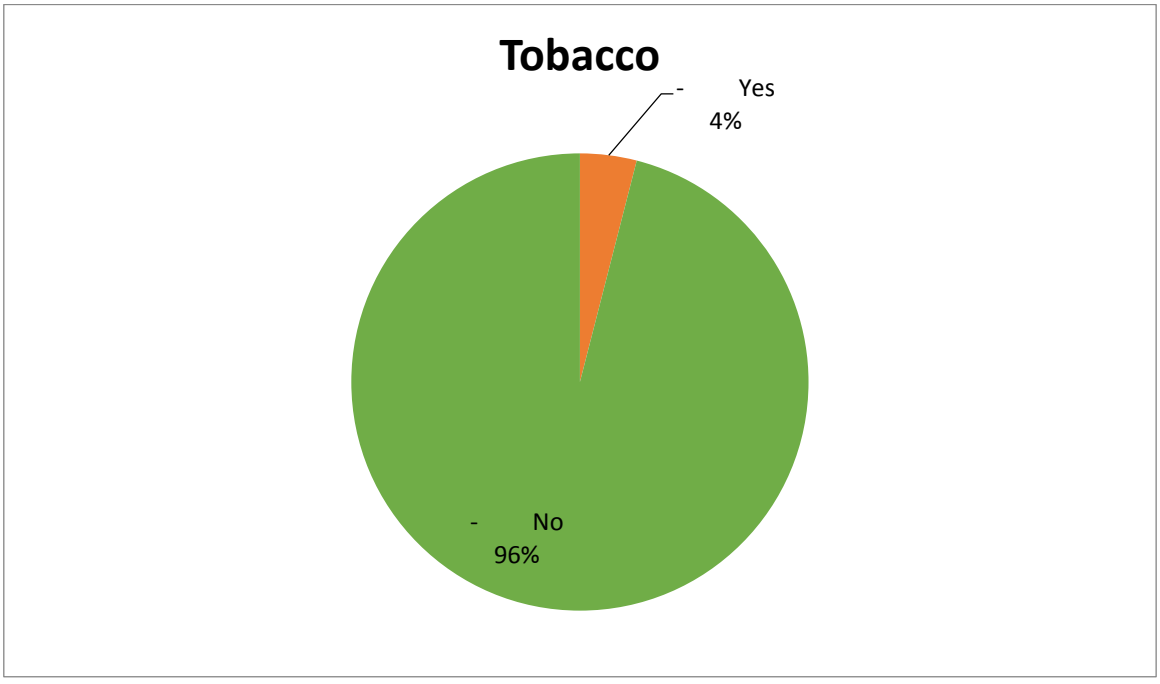

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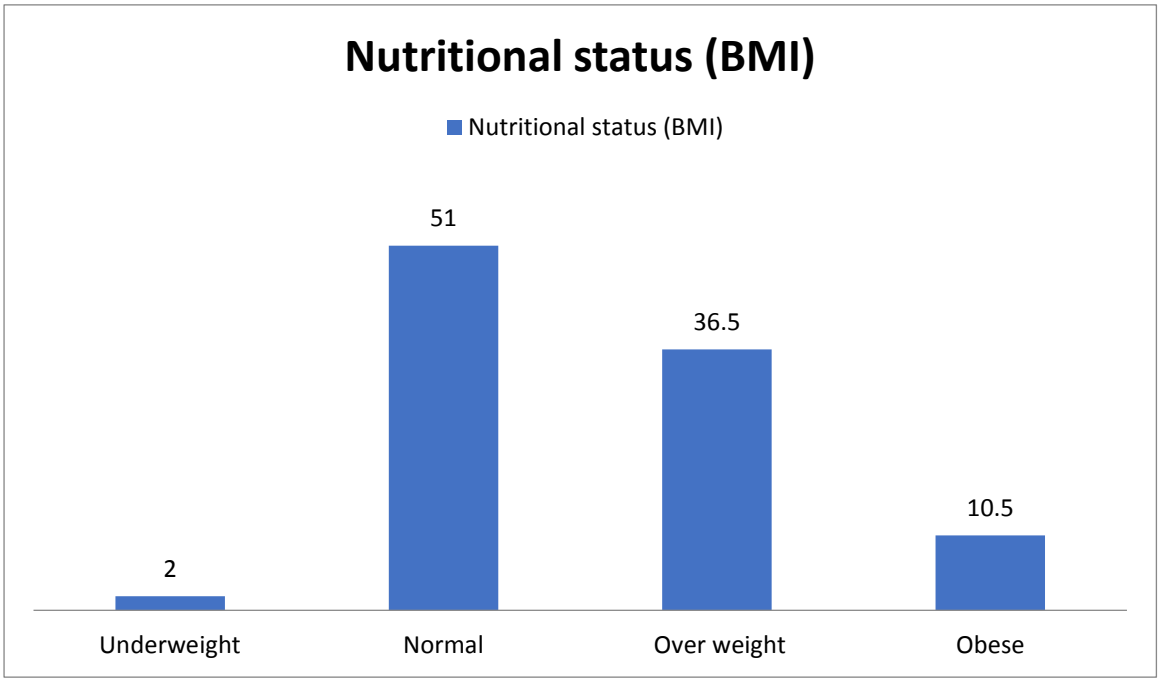

84.5% of the study population did not have family history of any Non communicable diseases. They were all predominantly non-alcoholic (92%) and non-smokers (96%). 51% of them were having normal Body Mass index.

Table:3 Distribution of study population according to clinical characteristics

Clinical Characteristics:	Total n =200
a. NON SYMPTOMATIC	104(52%)
b. SYMPTOMATIC	96(48%)
i. Fatigue	21(10.5%)
ii. Thirsty	5(2.5%)
iii. Hunger	5(2.5%)
iv. burning sensation of urination	8(4%)
v. 2 symptoms (fatigue, thirsty)	21(10.5%)
vi. >2 symptoms	37(18.5%)
C. Treatment history	

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Oral	185(92.5%)
Insulin	5(2.5%)
Both	5(2.5%)
Not taking treatment	5(2.5%)

52% of the study population did not have any symptoms and 92.5% were on oral medications.

KNOWLEDGE ABOUT DIABETES MELLITUS:

Item No	**Knowledge**	**Good knowledge** No(%)	**Fair knowledge** No(%)	**Poor knowledge** No(%)
1	If I am diabetic, my children have a higher chance of being diabetic.	77 (38.5%)	78 (39%)	45 (22.5%)
2	If I am overweight, it is difficult control diabetes	94(47%)	60 (30%)	46 (23%)
3	Cuts and abrasions on diabetes heal more slowly.	115(57.5%)	49 (24.5%)	36 (18%)
4	Frequent urination and thirst are signs of high blood sugar.	128 (64%)	40(20%)	32 (16%)
5	Diabetes can be cured	100(50%)	21 (10.5%)	79(39.5%)
6	A fasting blood sugar level should be	69 (34.5%)	56(28%)	75 (37.5%)
7	How much HbA1c levels should be there for diabetic to say good control	37 (18.5%)	102 (51%)	61 (30.5%)
8	The best way to check my diabetes is by testing my urine.	43(21.5%)	114 (57%)	48 (24%)
9	Diabetes can damage my kidneys	45 (22.5%)	115(57.5%)	40 (20%)
10	Diabetes can damage my eyes	68 (34%)	100 (50%)	32 (16%)
11	Diabetes can damage my heart	39 (19.5%)	121(60.5%)	40 (20%)

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37% of the study population had good knowledge; 39% had fair knowledge regarding diabetes and 24% poor knowledge about Diabetes Mellitus.

SELF CARE PRACTICES TOWARDS DIABETES MELLITUS AND ITS COMPLICATIONS:

	Self – care Practices (n=200)	Good	Fair	Poor
1	Do you follow diabetic diet	132 (66%)	22 (11%)(forget occasionally)	46 (23%)
2	Did you eat sweets in the last 1 week?	84 (42%)	54 (27%)(last 1 month)	62 (31%)
3	Did you exercise or walk for 45 minutes on all days last week?	57 (28.5%)	41(20.5%)(few days)	102 (51%)
4	Do you monitor your weightmonthly?	66 (33%)	42 (21%) (occasionally)	92 (46%)
5	Do you wear MCR chappal / shoes daily?	31 (15.5 %)	12 (6 %) (occasionally)	157(78.5 %)
6	Did you get your eye check-up done in the last 1 year?	25 (12.5%)	27 (13.5%)(last 3 years)	148 (74%)
7	Did you get your kidney function tested in the last 1 year?	19 (9.5%)	15 (7.5%) (last 3 years)	166 (83%)
8	Do you take diabetic medication as prescribed?	86 (43%)	91 (40.5%)(forget occasionally)	23 (11.5%)

32 % of the study population had good self-care practices; 18 % had fair self-care practices and 50 % of the study population had poor self-care practices for management of Diabetes Mellitus and its complications.

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84 % of the study population did not know how to self-measure blood glucose levels and 73.5% were not interested to measure their blood glucose levels.

88.5 % of the study population did not know how to self-measure blood pressure and 76.5% were not interested to measure their blood pressure.

DISCUSSION:

Diabetes is a chronic disorder that is associated with significant morbidity, mortality andincreasing health care cost.[5]Orems theory suggested that, the self-care skills depend on several factors like education, individual knowledge and health status. It has been suggested that information about the disease and self-care activities should be given to individuals or their families to help as far as possible and help to regain the patients self-care capacity.[6] Practices of self-care are key components of diabetic care and aid in good diabetic control and reduce diabetes related complications.[7-9] Diabetes self-care is multi-dimensional and it is essential to assess each component separately. The present study is done to assess the knowledge and practice of self-care activities among diabetic patients residing in rural Belagavi which are villages under Kadoli PHC.

Amongst the study population, it was predominated by females (56.5%) and majority of themwere in the age group of 46 to 60 years (83.5%).

Around 40% of the study participants were uneducated which was a significantly higher number when compared to Dinesh PV et al., study which had only 9.5%[10]and 34% of them were unemployed which was comparable to the study done by Srinath KM et al.(31.75%) [11]

About 87% of them were married which showed that there was a person who could take care of the patient and 28.5% belonged to Class 3 Socio Economic Status of B.G.PrasadClassification which showed that the monthly per capita income of the study individuals was lesser than the study participants of Dinesh PV et. al.,[10] study had Upper middle class individuals.

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About 66% of the study population followed the diet as advised by their treating doctors which was better by 11% than the study population of Chandrika K et. al.,[12]

Apart from their work related activties, 52.5% of them did regular exercises and 48.5% of them were practising brisk walking, although only about 20% of them were practising them regularly (<3 times a week). Studies carried out by Gopichandranet al[13] and Hailu et al[14] have observed that daily physical activitywas around 10 to 20%. Treating physicians should advice and recommend diabetic patients toundertake regular walking and exercises as engaging in physical activity has beneficial effects andbetter blood sugar and blood pressure control.

84.5% of them denied having any family history of Non Communicable diseases, and preponderance of non-smokers (96%) and non-alcoholics (92%) was significant.

About 48% of them were symptomatic and fatigue was the most common symptom (10%). Although, 97.5% had compliance towards the treating doctors medication advice. This was significantly higher when compared to the study done by Rajashekharan et al., (around 60%) [15]

It is well-established that patient knowledge of diabetes improves health outcomes in diabetes patients which include improved glycaemic control and reduced complications.[16] Strikingly, only 37% of the study participants had good knowledge about diabetes and 39 % had fair knowledge, although they were better than Dinesh PV et al., study which was 24%.[10]This is a matter of concern because India has around 65.1 million Diabetic people and poor knowledge about their own health status and disease may be one of the barriers for healthfulliving. Further knowledge can serve as an important resource base for improving their health and that of the society. Amongst the knowledge

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related questions, 64% of the study participants were having good knowledge about the frequent urination and thirst are the signs of high sugar.

Almost about 50% of the study participants were not following self-care practices. 84% did not know how to measure their blood sugar levels and 88.5% their blood pressure values. The deficiencies identified in the self-care practices suggest a dire need to develop and integrate diabetes self-care educationprograms in routine clinical practice.

CONCLUSION:

Around 75% of the study population had fair to good knowledge about the Diabetes Mellitus and its complications but about 50% were not following their self-care activities. This shows that the difference between knowing and implementing has been at a striking difference in our rural population. There is a need for bringing the awareness of self-care activities and its importance in bringing the disease to control and avoiding the complications. There is also a need to continuously monitor the self-care practices by cross questioning the patients during their regular follow up visits by their treating doctors and also the local health workers such as ASHA workers.

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CONFLICT OF INTEREST:

There are no conflicts of interest.

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