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The Socio- Demographic Status of Diabetic Patientattending at NHNs in Dhaka City

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Abstract **Original Research Article**

Objective: In this study our main aim is to evaluate the socio- demographic status of diabetic patient. ***Method:*** This retrospective Cohort study was conducted among 430 Diabetic population of adult age group (≥18 years) of all socioeconomic strata attending at different NHNs in Dhaka city from October 2017 to October 2018. ***Results:*** Among the patients, (77%) had education level SSC or above, (10%) illiterated and (13%) primary passed. Most of the patients 79.50% leading sedentary life style and from the remaining patients 10.2% were light worker, moderate worker was 6.50% and heavy worker only 3.7%.Only 68(15.8%) had knowledge about foot care and 36(8.40%) had knowledge about sick day management out of 430 patients. Most of the patients 47.7% treated with combined oral drugs and 30.9% with oral drug plus insulin during their intervening time. ***Conclusion:*** From our result we can say that, pattern of diabetes management at different NHNs (National Healthcare Networks) in Dhaka city were heterogeneous. In some cases, diabetes education was poor and guide line based treatment regimens were lacking at initial and follow up visit on the light of present recommendations. Further study is needed for better outcome.

Keywords: Diabetes, glycemic control, socio- demographic status.

INTRODUCTION

Diabetes mellitus is a chronic illness, which requires continuous medical care, patient self-management and education to prevent acute complications and to reduce the risk of long-term complications. Acute life-threatening consequences of DM are hyperglycemia with Diabetic ketoacidosis or the Hyperglycemic Hyperosmolar State. Long-term complications of DM include retinopathy, nephropathy, neuropathy, stroke, ischemic heart disease, and diabetic foot. The United Kingdom Prospective Diabetes Study (UKPDS) showed intensive blood glucose control by either sulfonylureas or insulin substantially decreased the risk of micro-vascular complications [1-3]. Monitoring of glycemic status is considered a cornerstone of care in diabetes. Results of monitoring are used to assess the efficacy of therapy and to guide the adjustment in medical nutrition therapy (MNT), exercise, and medications to achieve the best possible blood glucose control [4].

American Diabetes Association (ADA) recommends blood glucose testing by patients through self-monitoring of blood glucose (SMBG) and by health care providers for routine outpatient management of DM.[5]Recently SMBG has revolutionized management of DM as it helps to achieve and maintain specific glycemic goals. In Bangladesh, limited studies have focused on diabetes care and provide an insight into the current profile of patients and their management. More than 50% of people with diabetes have poor glycemic control; uncontrolled hypertension, dyslipidemia and a large percentage have diabetic vascular complications. In this study our main goal is to evaluate the socio-demographic status of diabetic patient.

OBJECTIVE

General objective

- To assess the socio- demographic status of diabetic patient;

Specific objective

- To detect baseline characteristics of study population;
- To identify treatment modalities of the patients;

METHODOLOGY

Type of study	**Retrospective Cohort study**
Place of study	National Healthcare Networks (NHNs) in Dhaka city. Six NHNs are selected by lottery and data is collected from the patients attending in those NHNs.
Study period	October 2017 to October 2018.
Study population	430 Diabetic population of adult age group (≥18 years) of all socioeconomic strata attending at different NHNs in Dhaka city.
Sampling technique	Purposive

Exclusion criteria

- Patients unwilling to participate in this study.
- Patients in whom treatment modality had been changed within three months of initiation.
- Registered and treated outside those NHNs.

Study procedure

- Current study involved collection of both primary and secondary data. Primary data was collected by face to face interview of the patients by the researcher at health facility during the period of NHNs visits upon their consent and convenient. Socioeconomic and personal information was recorded from patient through interview, with a semi structured pre-tested questionnaire and their guidebook (provided from NHNs) record. Secondary data about the treatment (at initial and follow-up visit), present state and diagnosis was collected from the diabetic guide book

Data Analysis

- Data were entered in the template of Statistical program, SPSS-15 after necessary editing and coding. Descriptive statistics were generated for socio-demographic variables and were presented with relative frequency.

RESULTS

In table-1 shows age distribution of the patients where most of the patients (31.8%) belong to age group 40-50 years. The following figure is given below in detail:

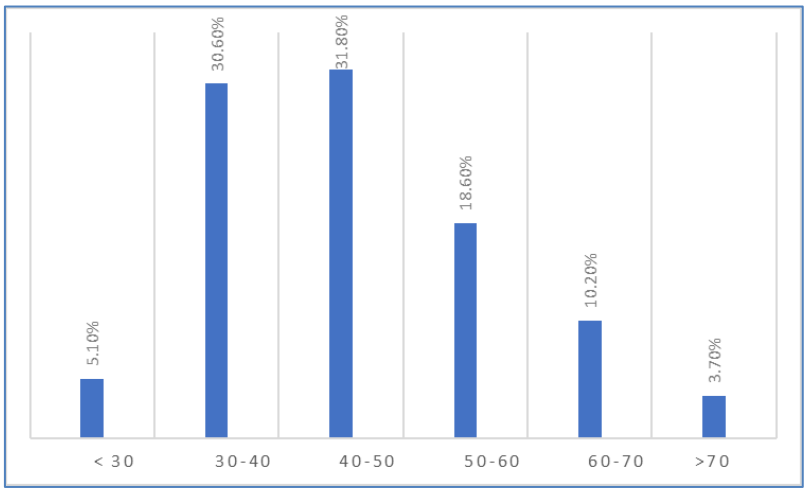

Fig-1: Age distribution of the patients

Table-1 shows socio-demographic parameters of the study patients. Among the patients, (77%) had education level SSC or above, (10%) illiterated and (13%) primary passed. Most of the patient's 79.50% leading sedentary life style and from the remaining patients 10.2% were light worker; moderate worker was 6.50% and heavy worker only 3.7%. The following table is given below in detail:

Table-1: Socio-demographic parameters of the study patients

Socio-demographic parameters	Distribution	Frequency (n)	Percentage (%)
Gender	Male	242	56.3
	Female	188	43.7
Area of residence	Urban	355	83
	Rural	75	17
Educational Status	Illiterate	44	10.2
	Primary	56	13.0
	SSC	164	38.1
	HSC	98	22.8
	Graduate or above	68	15.8
Physical status	Sedentary	342	79.5
	Light worker	44	10.2
	Moderate worker	28	6.5
	Heavy worker	16	3.7
Total		430	100

In table-2 shows distribution of the patients according to educational status and monthly expenses where the respondent's housewife 160 (37.2%), non-government employee 150(34.9%), teacher 16 (3.7%), retired from service 16 (3.7%), govt-employee 28(6.5%) and on self-service 60(14.0%). Most number of patients (37%) had monthly family expense 5000-10000 taka. The following table is given below in detail:

Table-2: Distribution of the patients according to educational status and monthly expenses

Socio-demographic parameters	Distribution	Frequency (n)	Percentage (%)
Occupational status	Housewife	160	37.2
	Non-govt.employee	150	34.9
	Govt. employee	28	6.5
	Self-service	60	14.0
	Teacher	16	3.7
	Retired from service	16	3.7
Monthly family expense (BDT)	<5000	32	7.4
	5000-10000	158	36.7
	10000-20000	92	21.4
	20000-30000	68	15.8
	>30000	80	18.6
Total		430	100

In figure-2 shows distribution of the patients according to positive family history (First degree relatives) of diabetes mellitus (N=430). The following figure is given below in detail:

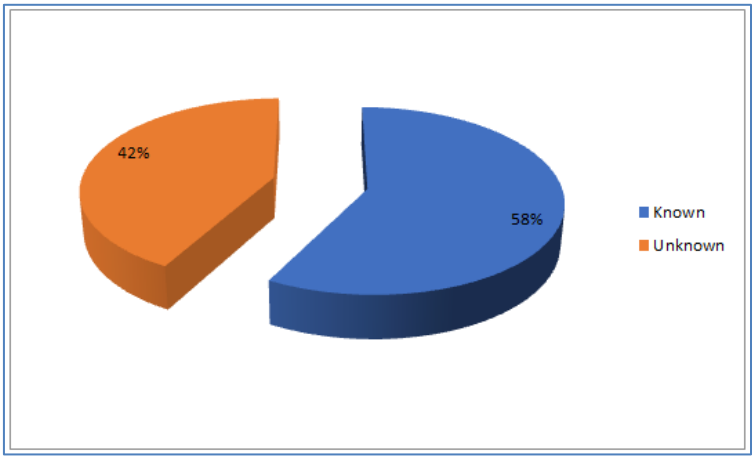

Fig-2: Distribution of the patients according to positive family history (First degree relatives) of diabetes mellitus (N=430)

In table-3 shows baseline characteristics of study population regarding the knowledge and practice of DSME. 406(94.40%) patients received health education, 402(93.50%) had knowledge about diet plan but among the 402 patients, 67.16% followed diet chart. Among the study people 406(94.40%) had knowledge of exercise but out of 406 patients, 80.29% did exercise regularly. 192(44.70%) had glucometer but out of them can interpret SMBG 41.66%. Only 68(15.8%) had knowledge about foot care and 36(8.40%) had knowledge about sick day management out of 430 patients. 117 patients were taking insulin at present and out of them, 105 (89.74%) patients can inject insulin with correct technique. The following table is given below in detail:

Table-3: Baseline characteristics of study population regarding the knowledge and practice of DSME

DSME characteristics	Knowledge and practice of DSME		Total
	Yes n(%)	No n(%)	
Health education received	406(94.40)	24(5.6)	430
Knowledge about diet plan	402(93.50)	28(6.5)	430
Follow the diet plan	270(67.16)	132(32.84)	402
Knowledge about exercise	406(94.40)	24(5.6)	430
Perform regular exercise	326(80.29)	80(19.71)	406
Have glucometer	192(44.7)	238(55.3)	430
Can interpret SMBG	80(41.66)	112(58.34)	192
Knowledge about foot care	68(15.8)	362(84.2)	430
Knowledge about sick day management	36(8.40)	394(91.60)	430
Can inject insulin correctly	105(89.74)	12(10.26)	117

In table-4 shows baseline clinical characteristics of the study subjects (N=430). Where most (96%) were diagnosed as type-2 diabetes (Clinical diagnosis, record from their guide book) and (73%) were asymptomatic. At initial visit 34.4% were hypertensive and 39.1% had complication. Most of the patients (54.2%) were overweight, 23.5% obese and 3.7% had low BMI. Among the patients 78(18.1%) were smoker, 252(58.6%) non-smoker, 100(23.3%) were ex-smoker. At initial visit 80.2% patients undergone fundoscopy and 94.4% patients advised to follow-up in schedule. Most of patients 52.21% advised to come 3 months later. The following table is given below in detail:

Table-4: Baseline clinical characteristics of the study subjects (N=430)

Clinical characteristics	Distribution	Frequency (n)	Percentage (%)
Type of Diabetes	Type -1	4	1
	Type-2	411	96
	Other specific types	15	3
Mode of presentation	Typical symptoms	52	12.1
	Atypical symptoms	64	14.9
	Asymptomatic	314	73.0
Hypertension	Present	148	34.4
	Absent	282	65.6
Complication at presentation	Present	168	39.1
	Absent	262	60.9
BMI (Kg/m²)	<18.5	16	3.7
	18.5-22.9	80	18.6
	23-24.9	233	54.2
	>25	101	23.5
Smoking status	Smoker	78	18.1
	Non-smoker	252	58.6
	Ex-smoker	100	23.3
Fundoscopy	Done	345	80.2
	Not done	85	19.8
Follow-up advice	Written	406	94.4
	Not written	24	5.6
Advised to come in follow-up after	One month	165	40.64
	Two months	29	7.15
	Three months	212	52.21

In table-5 shows characteristics of patients in follow up visit. (N=430).In follow-up visit 46% patients came within 6-12 months and most of the patients 88.8% had FPG record. Among the patients, treatment stepped-up 52%, stepped-down 7.4% and had no change in regimen 40.3%. The following table is given below in detail:

Table-5: Characteristics of patients in follow up visit (N=430)

Characteristics	Distribution	Frequency	Percentage
Patients came in follow up	3-6 months	122	28.4
	6-12months	196	45.6
	>12months	112	26.0
Glycemic parameter done	HbA_{1c}	158	36.7
	FPG	382	88.8
	PG-2HABF	378	87.9
Changes in the regimens	Step up	226	52.3
	Step down	32	7.4
	No change in Regimen	172	40.3
No change in Regimen	Same prescription	76	17.7
	Increase dose of same drug	67	15.7
	Decrease dose of same drug	21	4.9
	Change to another molecule of same group	1	1.0
	Change in brand name	7	1.3

In figure-3 shows treatment modalities of the patients. Most of the patients 47.7% treated with combined oral drugs and 30.9% with oral drug plus insulin during their intervening time. The figure is given below:

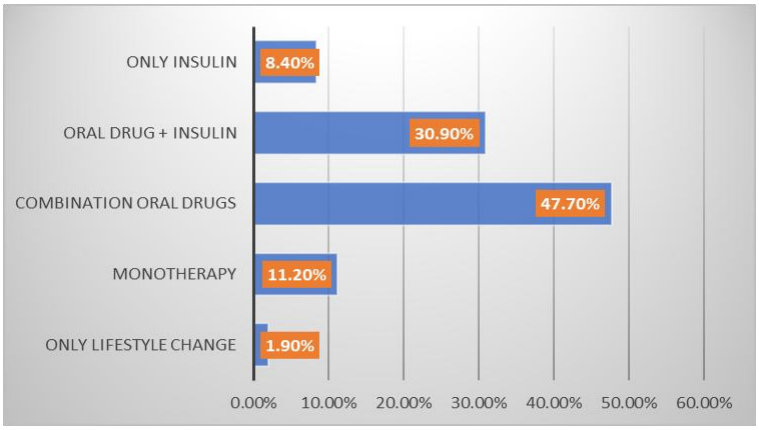

Fig-3: Treatment modalities of the patients

DISCUSSION

Mean age of our patients is 45.91±13.02 years, ranging from 21 to 81 years. Most frequent number 30.7% is in the age group 41-50 years and second frequent 31-40 years 28.4%. 76.4% patients are below 50 years of age. In one study found that risk of diabetes mellitus is more in age group 31-40 years. [5]This finding is similar to our study as most of the patient of our study was in this age group at the time of diagnosis. Another study found diabetes prevalence is more than two times higher (71%) in age group > 40 years compared to age group < 40 years in BIRDEM [6].

Among the study subjects 56% are male and 44% female. In the study in BIRDEM, found 56.25% were male that is similar to our study [6]. Another report found that prevalence of diabetes mellitus is higher in male compare to female in urban area where vice-versa in rural area [7].

Among the patients most (83%) reside in urban areas and (17%) in rural areas. One report found in a study 29% of diabetic patients are from rural area which is similar to our study [8]. Another article found 36% of the patients were from rural area of Bangladesh, which is not similar to our study [6].

According to descending order of frequency, occupation of the study population is housewife (37.2%), non-government employee (35%), teacher (4%), self-employed (14%), govt-employee (6.5%) and retired from service (3.7%). This pattern of occupation related with physical activity of the patients. Out of the study patients 79.5% leads a sedentary lifestyle, 10.2% are light worker, 6.5% moderate worker and only 3.7%

heavy worker. Occupation and life style is associated with development of diabetes mellitus. One study found 76.31 %(11286) patients were sedentary which is similar to our study [9].

Majority (38.1%) of our patients has SSC or equivalent education, HSC or equivalent (22.8%), graduate or more (15.8%), primary 13% and illiterate 10.2%. One report found 16.4% are illiterate and 83.6% literate, which is similar to our study [10].

In our study 44% patient`s monthly family expenditure is below 10000 taka and 55.8% patient`s >10000 taka. Monthly family expenditure is much higher than previous study of Bangladesh. Another study found annual income >10000 taka in 92.16% which is not consistent with our study [11]. Other study found 50% male had monthly income >10000 taka and opposite is true for female which is consistent to our study [12].

Among 430 patients 54.9% has known positive family history of diabetes mellitus in first-degree relatives and 42.1% patients has no known positive family history of diabetes. In one study 5.54% patients had either one or both parent's diabetes [6]. However, 23.06% was unaware about parents` diabetes status. In Nepal one study found positive family history in 36.1% cases [13].

Among study subjects pattern of treatment modalities started at first visit were only lifestyle change in 5.6%, monotherapy with single oral anti-diabetic drug in 26.0%, combination of oral anti-diabetic drug in 41.4%, insulin with oral anti-diabetic drug in 17.7% and only insulin in 9.3% cases. In this study, insulin started in 27.0% of the patients and oral anti-diabetic drug in 67% and with life style modification in 5.6% of the patients.one study found 39% with insulin, 57% with oral anti-diabetic drug and 4% with lifestyle change only which is similar to our study [14].

CONCLUSION

From our result we can say that, pattern of diabetes management at different NHNs (National Healthcare Networks) in Dhaka city were heterogeneous. In some cases, diabetes education was poor and guide line based treatment regimens were lacking at initial and follow up visit on the light of present recommendations.

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