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Original Research

Health seeking Behaviour among elderly population with diabetes mellitus type 2 residing in rural Punjab: A Baseline assessment

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ABSTRACT

A drastic increase in prevalence rates of type 2 diabetes mellitus among marginalized populations in rural India has been ignored since long. Moreover several cultural, socioeconomic and changing lifestyle factors appear to contribute to diabetes in rural regions of Northern India. Delays in seeking appropriate care and not seeking at all, may contribute to a large number of deaths in the developing countries. Therefore the study was conducted to assess the baseline health seeking behaviour among elderly population with diabetes mellitus type 2 patients in rural Punjab. A study was conducted on 243 elderly subjects (>60 years) with diabetes mellitus type 2 living in selected villages from Block Dehlon, district Ludhiana, Punjab in North India. Cluster random sampling technique was used to select the samples from villages. The data was collected by interview method with the help of self structured checklist to assess health seeking behaviour based on health services availability, accessibility and affordability. Findings revealed that 94% of the elderly diabetics with mean age 67.13±6.82 years visited PHC for treatment and preferred allopathic treatment. Maximum had adherence to the treatment. Majority subjects were staying within 1 km distance from their residence; taking less than an hour; using own transport and preferred going alone for the consultation. 153(62.9%) subjects were dependent on family support and mean annual treatment cost for DM was nearly 10000 INR including drug cost, travelling, consultation visit and investigations. Elderly rural population suffering from diabetes have appropriate health seeking behaviour in terms of preventive and curative aspects. Community based interventions could enhance health seeking, and could help in glycaemic control.

Key words: Health seeking behaviour, DM Type 2 patients, elderly population, rural area, Punjab

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INTRODUCTION

Diabetes mellitus is a global public health problem of epidemic proportions, and its incidence is on the rise.¹ The International Diabetes Federation has estimated 382 million people suffering with diabetes in 2013. The last three decades have witnessed a drastic and rapid rise in number of people suffering from diabetes, specially type 2, particularly a peak rise in developing countries, where more than 80% of the diabetics live.² With an increase in western approach in lifestyle and associated behavioural changes in the rural settings, the prevalence in diabetes has been observed to be narrowing the gap in urban-rural settings of the developing countries in Asia and Western pacific region. Recent studies from India estimates a fivefold rise in the prevalence of diabetes from 1985 to 2010 in rural populations of

developing countries. The prevalence increased from 1.9% in 1994 to 12% in 2009. Such figures are concerning, especially considering 72.2% of the Indian population live in rural areas characterized by poverty, isolation from advanced facilities, and poor access to health services (Government of India 2011).³ Diabetes is considered to be a silent disease as the disease may not be diagnosed for years till the appearance of one of the life threatening complications. Once diabetes is diagnosed, it becomes a costly disease to manage because of its chronic nature and severity of complications.⁴ Total diabetes related cost is attributed to its complications, especially macrovascular complications.⁵ It is further known that adequate control over diet and lifestyle is considered to be the best cost- effective method to control complications.⁶ There is evidence available that knowledge about DM and its complications has a positive association with attitude and practices for self-care and glycaemic control among diabetics.^{7,8}

If patients are to contribute to the effective control of their diabetes, their awareness and practices can assist in reducing the incidence of its complications.⁹ Data from the 2011 National Diabetes Fact Sheet in U.S. (released January 26, 2011) states that amongst people with age 65 years or older 26.9% of all people have diabetes.¹⁰ Moreover the elderly with diabetes have a higher risk of developing multiple complications than the young with diabetes.¹¹ This calls for an appropriate health seeking behavior that may help to plan diabetes care and management upon diagnosis so that complication can be minimized and quality of life can be improved. Health care seeking behavior is a complex result of many factors operating at individual, family, and community level.¹² Health seeking behavior is influenced by matters like availability of services, transportation and wealth of the patient¹³. People in rural areas frequently use the popular or folk sector as they are easily accessible and it is less expensive than the professional sector.¹⁴ Economic status of the patients is the decisive factor in the choice of therapy.¹⁵ The villagers use different systems of medicine such as indigenous, western, Ayurveda, unani etc¹⁶ A study by Basity in 2009 in rural India found that religion, economic and educational status had a significant effect on the use of multiple therapies¹⁷ According to Kleinman for each illness there is a set of beliefs about its etiology, onset of symptom development, severity and treatment as well as an appropriate role for those afflicted.¹⁸ A study revealed that 29% of patients in urban and 7.5% of patients in a rural area in Delhi were not taking any treatment for diabetes (J. Kishore, 2015). Expenditure on drugs and hospitalization are higher than travel. For 66.4% of the patients, the cost of DM management was considered as a burden on their families. Poor availability of transport, physical distance to the health facility and the time taken to reach such facilities have been found to influence health-seeking behavior and health service utilization.¹⁹ Therefore Diabetes can be a very difficult condition to live with for many patients. The requirement of self management in this disease can be burdensome, frustrating and overwhelming to achieve the overall goal of preventing acute and chronic complications while maintaining a good quality of life for the patient. Diabetes awareness campaigns have always been an effective method of spreading information regarding the disease; however this information is still limited to underserved regions.²⁰ This article discusses the results of a study conducted among people with T2DM elderly in rural areas of Ludhiana, Punjab (India) with an objective to assess their health seeking behavior.

AIM

To assess the health seeking behavior of elderly population (>60 years of age) living in rural area district Ludhiana, Punjab.

MATERIALS AND METHODS

Study design, setting and participants

A baseline cross-sectional study was conducted on 243 elderly subjects (>60 years) with diabetes mellitus type 2 living in selected village from field practice area of Rural Health and Training centre (RHTC), Pohir, block Dehlon, district Ludhiana. The target population comprised of elderly aged more than 60 years diagnosed with DM Type 2 patients for more than 1 year, residing in these selected rural areas. The subjects were randomly selected

by using Cluster random sampling technique. The study was conducted over a period of 3 months from October 2017- December 2017 after the screening survey.

Methodology

All the subjects were screened for baseline assessment by checking blood glucose levels and Hb1Ac along with health seeking behavior and lifestyle modification practices. Total 243 patients were enrolled after inclusion and exclusion criteria and were interviewed after taking informed consent and providing patient information sheet.

Study tool

The data was collected by Interview method with the help of self structured tools in the form of a checklist: The tool was developed after an extensive review of literature, guidance of the experts and an informal observation in the area concerned. Personal data was obtained prior to & check list was prepared to collect data. The tool comprised of two parts , Tool 1: Socio-bio-demographic characteristics and diabetic history of subjects Tool 2: Health Seeking behaviour with multiple choice items exploring the behaviour on health access, distance, type of treatment, type of escort, source of finance for treatment and mean annual cost related to diabetes treatment. The Tool was validated by experts and reliability was also computed. The reliability of the tool was calculated by using split half method using spearman's Brown prophecy formula where $r=0.8$, therefore tool was reliable. Data was collected by face to face interview and observational method. Average time duration of each baseline interview was approximately 10-15 minutes.

Inclusion & Exclusion criteria

All elderly population aged equal to or more than 60 years diagnosed with DM type 2 for more than 1 year and willing to participate in the study were included. No patient refused to participate, and none was seriously ill who could not complete the baseline interview.

Analytical Approach

Analysis of the data was done in accordance with the objectives of the study. Calculations were done with Microsoft excel and SPSS-20 using both descriptive and inferential statistics.

Ethical issues

All patients were explained the purpose of the study and confidentiality was assured. A written informed consent was duly taken from each patient before collecting data. The study was approved by the Institutional Ethical Committee.

RESULTS

I. Socio-bio-demographic variables

Majority of the rural elderly subjects with DM type 2 belonged to 60-70 years with mean age 67.14 ± 6.83 years having majority as females (55.9%). 44.03% of the subjects had onset of DM type 2

in the age group of 45-60 years with 53.81 ± 9.52 years as mean age of onset and 56.7% were having >10 years in duration of present illness (13.06 ± 7.41 years) with 53.9% of subjects having duration of treatment of >10 years (12.64 ± 7.68 years). Half of the population had family history of diabetes mellitus type 2 with 47% having mother as the predominant relation with family history of diabetes.²¹ Baseline clinical parameters showed mean BMI (27.95 ± 5.49 kg/m²). Waist circumference (1.05 ± 0.13) and WHR (0.95 ± 0.06) were falling in high risk category for subjects. Mean glycaemic values showed above normal range values for FBS (156.01 ± 33.70 mg/dl), RBS (243.77 ± 63.73 mg/dl) and HbA1c (7.74 ± 0.53 mg/dl). The prevalence of DM type 2 related complications were 93.82% among elderly subjects. Retinopathy (84.2%) and cardiovascular (72.4%) were the most prevalent microvascular and macrovascular complications respectively. Only 2.9% of the elderly were following good lifestyle practices with a mean 20.16 ± 4.34 lifestyle practice score. The least modified

components in lifestyle were physical activity (29%) followed by stress management (32.4%) and dietary modifications (41.6%).²¹

II. Health Seeking Behavior

1.1 Health services and disease pattern

Table 1 depicts the frequency distribution of subjects regarding health seeking behavior and disease pattern. 240 (98.7%) subjects had access to health care facility for treatment. 114 (46.9%) were visiting PHC/ Sub centre followed by 56 (23.1%) private hospital/Nursing Home. Allopathic was the most preferred type of treatment by 222(91.35%). Majority of the subjects 217(89.3%) in rural area were having home visits by the health care providers Only 39(16.04%) subjects have been hospitalized due to diabetes in the past. However 218(89.71%) had adherence to the treatment (all type).

Table 1: Frequency distribution of subjects regarding health services and disease pattern

N=243

Health services & disease Pattern	Freq. (f)	Freq %
Access to health care facility for treatment	240	98.7
Type of health care facility		
a) PHC/sub centre	114	46.9
b) Govt. Hospital	05	2.05
c) Private hospital/Nursing Home	56	23.1
d) Private Doctor (qualified)	41	16.8
e) Private Doctor (unqualified)	29	11.9
Type of practitioner		
a) Allopathic	220	91.66
b) Homeopathic	02	0.83
c) Ayurvedic	08	3.33
d) Traditional healer	10	4.16
Home visit by health care provider	217	89.3
Hospitalized for diabetes in past	39	16.04
Adherence to treatment	218	89.71

1.2 Physical accessibility to health care system

Table 2 depicts the physical accessibility of elderly with DM type 2 residing in rural areas. Most of the subjects 134(55.1%) were visiting health care facility situated within 1 km distance and majority of them 199(81.85%) were using their personal mode of transport like bike/car and travelling alone to visit health care practitioner. Therefore, 191(78.65%) of the subjects took less than 1 hour to reach health care facility. 38.27% of the subjects were visiting once per month for consultation related to diabetes and its

management. Table 3 depicts that most of them were dependent on family support 153(62.9%) followed by 74 (30.5%) on their own income. No subject was getting any reimbursement or medical insurance paid from either medical insurance company or government. Mean annual cost of treatment (in rupees) for elderly with diabetes mellitus type 2 is 12387 ± 16486 . Majority of the subjects 95 (39.1%) were spending between >10001 Indian rupees followed by 93(38.3%) spending 1001-5000 Indian rupees on treatment of diabetes mellitus type 2.

Table 2: Frequency distribution of subjects regarding physical accessibility to health care system

Physical accessibility to health care system	Frequency (f)	Freq %
Distance of health care system from home		
<1 km	134	55.1
1-4 km	60	24.6
>5 km	49	20.1
Mode of transport used to visit health care facility#		
Not available	04	1.64
Bus	21	8.64
Auto rickshaw	08	3.29
By own bike/car	199	81.8
Cycle/foot	18	7.40
Time taken to reach health care facility		
< 1 hr	191	78.6
1-2 hrs	52	21.3
>2 hrs	-	-
Nature of Escort		
None	97	39.9
Spouse	57	23.4
Children	60	24.7
Friends	08	3.29
No. of visits per consultation (per month)		
Nil	12	4.93
Once	93	38.27
Twice	53	21.81
As per advise	37	15.22
Only if needed	48	19.75

1.3 Economic factors

Table 3: Frequency percentage distribution of subjects as per economic factors to health care services

Economic factors	Frequency (f)	Freq %
Source of finance for medical expenses		
Own income	74	30.5
Family support	153	62.9
Re-imburement/mediclaime	-	-
Pension	16	6.6
Annual cost of treatment (in rupees)**		
<1000	22	9.1
1001-5000	93	38.3
5001-10,000	33	13.6
>10,001	95	39.1

**Mean Annual cost 12387±16486 INR

Table 4: Expenditure on treatment of DM type 2 among subjects (per annum)**N=243**

Annual Expenditure**	Cost (INR) Mean \pm SD	Cost %
Consultant cost	3121.6 \pm 4067.5	25.1
Drug Cost	6085.3 \pm 11155.4	49.1
Travel cost	1883.1 \pm 2141.4	15.1
Other cost*	1409.5 \pm 4182.2	11.3

*Other costs: investigations, special diabetes related dietary products.

**Mean annual cost: 12387 \pm 16486

Table 4 depicts that the major expenditure and cost on treatment services for diabetes mellitus was 49.1% related to drugs with annual cost of INR 6085.3 \pm 11155.4 followed by 25.1% expenditure on consultant cost INR 3121.6 \pm 4067.5. Travel and other costs were 15.1% (INR 1883.1 \pm 2141.4) and 11.3% (INR 1409.5 \pm 4182.2) respectively.

DISCUSSION

The present study was conducted in parts of rural areas of district Ludhiana, Punjab in Northern India. The results showed that the rural elderly population mean age 67.14 \pm 6.83 years and mean duration of diabetes 13.06 \pm 7.41 years. The mean glycaemic values were above normal range for FBS (156.01 \pm 33.70 mg/dl), RBS (243.77 \pm 63.73 mg/dl) and HbA1c (7.74 \pm 0.53). A study by Vishvanathan reported subjects with diabetes (95.8% type 2), mean age 51.9 \pm 12.4 years and mean duration of diabetes, 6.9 \pm 6.4 years were included. Mean HbA1c was 8.9 \pm 2.1% and the mean fasting (FPG), post prandial (PPG) and random (RBG) plasma glucose levels were 148 \pm 50 mg/dl 205 \pm 66 mg/dl and 193 \pm 68 mg/dl respectively.²¹ Selvin E (2006) reported that age-related DM is characterized by lower A1C and the use of less insulin, with frequent occurrence in non-Hispanic whites.²² The present study showed 94% prevalence of Diabetes related complications among. Most common complication reported was (84.2%) retinopathy followed by 72.4% of the subjects suffering with cardiovascular diseases and neuropathy ranked third in the occurrence of complications. 35.3% subjects reported hypoglycemia.²¹ Selvin E (2006) reported patients over 75 years of age have a higher risk of developing multiple complications than the age group of 65-74. Another similar study by Vishvanathan Mohan et al. (2014)²³ reported diabetic complications increased with mean duration of diabetes in years and maximum number of diabetic complications was observed with a greater duration of diabetes.²² Present study explored the health seeking behavior and disease pattern. 240 (98.7%) subjects had access to health care facility for treatment. 114 (46.9%) were visiting PHC/ Sub centre. 29 (11.9%) subjects were visiting unqualified private doctors. Allopathic was the most preferred type of treatment by 220 (91.66%). 10 (4.11%) reported visiting traditional healers.

Majority of the subjects 217 (89.3%) in rural area were having home visits by the health care providers. In a study done in rural areas of Tanzania by Baskin (2012)²⁶ reported 14.9% of the diabetic patients were not taking any treatment at the time of interview. Most common reasons for not taking treatment were lack of money and distance of health facility from the residence. J

Kishore¹⁹ reported that 7.5% patients in rural area were not taking any treatment for DM. Majority of patients reported to be taking allopathic (metformin) and one reported using herbal remedies for DM. None of them reported self-monitoring of glucose at home. Another study by Mehrotra et al. in Allahabad, India, reported 67.8% of patients using alternative system of medicine apart from allopathic system of medicine.²⁷ In present study the physical accessibility of elderly with DM type 2 residing in rural areas reported that most of the subjects 134 (55.1%) were visiting health care facility situated within 1 km distance and majority of them 199 (81.85%) were using their personal mode of transport like bike/car and travelling alone to visit health care practitioner. In a study done in rural areas of Tanzania by Baskin (2012) reported cost burden was prime barrier to medications.²⁶ Poor availability of transport, physical distance to the health facility and the time taken to reach such facilities has been found to influence health-seeking behavior and health service utilization. Mehrotra R²⁷ A study by Dressler¹³ points out that health seeking behavior is influenced by availability of services, transportation and wealth of the patient. Leininger¹⁴ is also of the opinion that people who frequently use the popular or folk sector choose this system as they are easily accessible and it is less expensive than the professional sector. Freed and Freed¹⁶ have discussed that village was exposed to innovations from urban centers. The villagers were using different systems of medicine such as indigenous, western, Ayurveda, unani etc. A study by Katarina Hjelm revealed that among those who felt that healthcare have failed, most had turned to traditional healers in the folk sector for prescription of herbs or food supplements, more so in women than men²⁸. J Kishore reported in his study that reasons for not taking any treatment in an Indian Village was lack of money, distance of the health facility from residence, dissatisfied with long queues and waiting time and no need of taking treatment were some of the reasons.¹⁹ The present study also reports that most of elderly subjects were dependent on family

support 153(62.9%) and 74 (30.5%) on their own income. Reimbursement, medical insurance paid from either medical insurance company or government was not available among any subject in rural Punjab. Mean annual cost of treatment (in rupees) for elderly with diabetes mellitus type 2 is 12387± 16486. The major expenditure was related to drugs (49.1) followed by 25.1% expenditure on consultant cost. The International Diabetes Federation, Diabetes Atlas (2006) reported that public mechanisms for financing health care are nonexistent in most developing countries, hence, health costs typically represent out-of-pocket expenditure.²⁹ Studies in India, for example, have shown that a low-income family with one adult with diabetes may spend as much as 25% of family income on the care of the patient.³⁰ Mean direct annual cost for outpatient care for all patients with diabetes was INR 4724/-, those without complication had 18% lower cost. According to Ramachandran (2007), annual expenditure on inpatient care on investigations, physicians fees and medicine were Rs. 6725 (107.29\$), on hospitalization was Rs. 5000 (79.77\$) and transport was Rs. 300 (4.79\$) for diabetes.³¹

CONCLUSION & RECOMMENDATIONS

Lifestyle practices were average to below average among elderly with DM type 2 with physical activity being least practiced component. Most of the subjects had good access to health care facility. Allopathic was the most preferred type of treatment. Family support was the financial source of cost majorly spent on drugs and consultant fees. Individualized face to face counselling sessions at regular intervals are required to bring about lifestyle modifications and promote health seeking behavior. Nurses can contribute effectively to the counselling sessions given at ground root level. Further research should be carried out to assess the effect of face to face counseling sessions that is hypothesized to improve lifestyle modifications and health seeking behaviour among DM type 2 elderly population.

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Conflict of Interest

There is no conflict of Interest

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