Health Care Utilisation among Persons with a type 2 Diabetes Mellitus a Mixed-Method Study

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Abstract

Background: Type 2 diabetes mellitus (T2DM) is a chronic condition requires Self-management to achieve optimal glycaemic control. The utilisation of healthcare services is a critical component in diabetes self-management

Objectives:. To assess the healthcare utilisation among the people with T2DM and to explore the healthcare utilisation practice among the people with T2DM.

Method: A mixed-method using sequential explanatory design was adopted to conduct the study. The study was conducted in two phases. In the first phase, a cross-sectional survey design was used to collect the quantitative data and further explored it qualitatively in phase II by thematic analysis. For Phase I and II, a simple random and purposive sampling technique were adopted, 35 participants (Phase II) who are recruited from the sample of 467 (Phase I).

Results: Among all participants, only 16% with T2DM had health insurance coverage. Furthermore, complementary healthcare service consultations among these T2DM participants were low 28.3 % the participants had an inadequate score of healthcare service utilisation. The qualitative data analysis in phase II generated three themes which are “Information driven healthcare utilisation”, “Health Care Utilisation in the dependent” and “Constraints vs Solutions”.

Conclusion: diabetes self-management Education (DSME), employee staff welfare, patient-centred hospital/clinic management, positive attitudes of healthcare professionals and employees supportive policies for the utilisation of healthcare services, would facilitate the optimal use of healthcare services by individuals with T2DM.

Keywords: *Type 2 Diabetes Mellitus, Health Care Utilisation, Self-Management*

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Introduction

The International Diabetes Federation (IDF) estimated that in 2017 about 425 million adults (20-79 years) were living with T2DM; this could grow to 629 million by 2045.[1] There is a substantial rise in the number of diabetics in India from 1990 to 2016.[2]

T2DM is a complex, chronic condition with many acute and chronic complications which are mainly determined by poor glycaemic control.[3] People with T2DM require requires lifetime management and consistent compliance.[4]

In addition to medication the glycaemic control in people with T2DM depends upon lifestyle modification (dietary control, physical activity, stress management), compliance to medications, self-monitoring of blood pressure and, most notably, optimal utilisation of health services such as periodic check-ups, laboratory tests and counselling.[3-5]

The income, health literacy, depression, competing demands, family dynamics and support limits the health care utilisation among the people with T2DM.[3,6] Very little known on the extent to which access of healthcare services in diabetics. It is essential to have an insight into the overall picture on use of healthcare services along with facilitating factors and challenges. So, we have designed this study with the objective also to explore the healthcare utilisation practice among the people with T2DM.

Materials and Methods

A mixed-method approach using sequential explanatory design was adopted. This approach comprised of collecting, analysing, and integrating both quantitative and qualitative data. The study was conducted in two phases. After collecting quantitative data during phase I using a cross-sectional survey design, further explored the healthcare utilisation practice in diabetics qualitatively by a thematic analysis in Phase II.

The research was conducted among People with T2DM from Udupi Taluk of Karnataka state. Simple random technique was adopted in phase I. The sample size of the study was 467. This study included people with T2DM (both genders), between the ages of 30 and 65 years, irrespective of their medication status for T2DM.

In phase II, purposive sampling was adopted. In the cross sectional survey among 467 participants, who scored the lowest and the highest in the Diabetes Self-Management Questionnaire (DSMQ) were selected. Data saturation was achieved after obtaining the data from 35 participants.

For the cross-sectional survey, the structured interview schedule was used comprising of a demographic proforma, healthcare utilisation checklists and DSMQ.[7,8] In phase-II, in-depth interview adopted using the validated questions on healthcare utilisation. The main question to participants was "describe how you utilise healthcare services".

The data set was prepared and analysed using SPSS version 16.0 in phase I. In phase II, audio recording from the interview was transcribed verbatim. The transcripts were checked for accuracy and further processed for analysis. Open Code software (OPC; version 3.6.2.0) was used to analyse the interviews. Six-step process of thematic analysis was used.[9]

Results

Quantitative Findings:

The descriptive analysis of the diabetes-related information and healthcare utilisation is presented in Table 1. The descriptive statistics are represented using mean and standard deviation (SD).

According to our study, only 29.1% of the participants had adequate diabetes self-management practice score. Only 28.3 per cent of participants had an adequate score, and the remaining 71.7 per cent had an inadequate score for the use of health services.

Qualitative Finding:

Exploration and description of healthcare utilisation in diabetes self-management practice using thematic analysis:

In phase II, the qualitative study group consisted of 20 males and 15 females, the mean age of participants was 50.95 (SD 8) and the mean duration of diabetes was 7.4 (SD 4.65).

Information-driven healthcare utilisation: lack of information on periodic check-up as a part and current practice:

The majority of participants were ignorant about the need for the regular check-up and test schedule recommended for the T2DM. However, 75% of

the participants adhered to a quarterly physician consultation or family doctor. During each visit, most of them underwent a blood glucose test along with Blood pressure (BP) measurement. The majority of participants relied heavily on pharmacological management.

"Doctor writes some other tests and gives, in a lab I do and show the doctor, after three months they write a different test, today they have given, I did not do." Female Participant (FP) 4

"Yes, since I have diabetes and it is a lifetime disease, I made a point to consult a doctor regularly, medication is all for this" Male Participant (MP) 11

Healthcare Utilisation is dependent: Periodic check-up and consultation is the doctor's decision

Predominantly, doctors decided on the periodic check-ups and examinations. The knowledge about diet, exercise, and other complementary healthcare consultations limited. However, most of the participants volunteered for the eye examination.

"Only cholesterol test was performed no other tests. Whatever the doctor says I am performing it." MP 8

"My eyes were blurred for a few months, I heard that diabetes leads to the eye complications so last month consulted the eye specialist and done with the required test" MP 14

Constraints vs Solutions: Challenges and solutions in healthcare utilisation other than lack of knowledge:

The missing of periodic check-ups were due to multiple difficulties. Some are related to a healthcare setting such as the behaviour of healthcare providers, long wait in the hospital, expensive consultation fees, expensive tests and poor quality care in public and private sectors. Some difficulties are related to patient behaviours such as the inclination to alternative medicine, complementary therapy, festival and function (event) seasons, feasts, inadequate daily wages, non-availability of leave and dependency on others for visiting a clinic.

"I have to bear one day for that... here I lose my earnings there I have to spend his consultancy charges etc two side loss, needs one hour to reach Udupi." MP 11

"I have to go in the morning, 7'O clock bus if we go, till 12.30 we have to be there waiting for the doctor and long queue… It is difficult for me at home it has been six months since I tested now. …" FP 15

Health insurance covering the OPD or discount health card, advance appointment and patient registration, effective individual time schedules, staff-friendly wellness programs and quality healthcare facilities in a number of the proven public health favourably contributed to compliance with periodic health check-up and healthcare utilisation.

"I have plenty of work at home; when it comes to the consultation I will not miss the appointment, I finish the house chore work early in the morning, my son drops me, while coming I comein a bus" FP 11

The behaviour of healthcare providers is the one factor that determines the participants' periodic check-up. Most of the participants who had better attendance with the routine check-up were positively attributable to doctor availability, time spent by a healthcare provider, good doctor, , doctor's elucidation, compassionate, appropriate, beneficial interaction. Contrary to this, non-availability of the doctor, impatient doctor, sporadic doctor communications, annoyance by a junior doctor, language barriers, and lack of eager listening was the list of factors making periodic check-ups detrimental.

Structured health clinic registration, affordable care, health cards and quality service in the public health system are the factors facilitating the periodic check-up; expensive consultation charges, costly drugs, long queues were hindering the adherence to periodic check-up.

Table 1: Details of diabetes and healthcare utilisation of the phase I participants (N = 467)

Details	Mean (±SD)	Frequency (Percent)
Type of Health Care Utilisation		
Private		350 (74.7%)
Government		117 (25.3%)
Health Insurance Holders		
Yes		75 (16%)
No		392 (84%)
OPD Benefit Card Holders		
Yes		66 (14.13%)
No		401 (85.87%)
Consultation of Ophthalmologist		
Consultation Obtained		268 (57.4%)
Consultation not obtained		199 (42.6%)
Consultation of Dietitian		
Consultation Obtained		65 (13.9%)
Consultation not obtained		402 (86.1)
Consultation of Physiotherapist/Yoga therapist		
Consultation Obtained		10 (2.1%)
Consultation not obtained		457 (97.9%)
Consultation of Diabetes Educator		
Consultation Obtained		40 (8.6%)
Consultation not Obtained		427 (91.4 %)

Discussion

Our results revealed that per capita direct monthly expenditure on T2DM care in was Rs 1333.5/-. Similarly, a study from in Bengaluru had reported Rs 1,288.36/ was the per capita mean.[10] However, the study published by the *Ramachandran et al*. reveals a lower direct expenditure of Rs 833/- per month in the Urban and Rs 522/ month in the rural areas.[11] The indirect cost in our study includes the costs related to absenteeism, income loss of caregiver and patient, and permanent disability. The indirect cost was reported as Rs 470.22/ per month. In contrast, the indirect cost reported were Rs 297.66/- and Rs 174/- by *Rayappa et.al* and *Ramachandran et al*.[10,11]

According to our study, 25.3% of the study population availed healthcare services from the government sector. The public health system of India accounts for 18% of total outpatient services and 44% of total inpatient care.[12]

In the present study, 16% of the diabetics had health insurance coverage, while the remaining 84% had no coverage. 14.13% of participants had OPD benefit cards of specific hospitals, and 25% used public health services to manage their T2DM. Similar to our observations, *Swagatika Priyadarshini Swain et* al. published a report, which observed that 76% health expenditures on T2DM management is beyond their ability to spend and 56% of T2DM patient's drug expenditure was beyond their financial ability.[13]

In the present study, 57.4% of T2DM patients consulted the ophthalmologist, whereas only 13.9%, and 2.1% consulted the dietician and exercise/yoga trainer. There were 8.6% of diabetics consulted the diabetes educator. None of the previous studies reported details

on diabetes management consultation on above streams. ICMR suggested T2DM patient should consult respective experts such as ophthalmologist, dietician exercise consultants at least once annually.[14] Predominantly, instead of patient, their doctors decided the need and importance of periodic check-ups and examinations. However, the only consultation for which participants volunteered was the eye examination.

There were 71.7 % of participants had inadequate score in healthcare. Further, in the qualitative results reported majority of participants were ignorant of the regular check-up and test schedule recommended for diabetics. However, 75% of the participants adhered to a quarterly physician's or family doctor's consultation. The ICMR recommended minimum one clinical examination for three months and monthly FBG and PPBS testing.[14] Similarly, a study carried out in the Netherlands found that people with T2DM were underutilising the healthcare facilities.[15] In contrast, a research study reported from Bangladesh and Australia showed that participants visited a doctor and associated healthcare practitioners 2-12 times and four times in a year, respectively.[6,16]

Long wait in the hospital, the behaviour of healthcare providers, alternative medicines, complementary therapy, festival and function season, feasts, expensive consultation fees, expensive tests, poor quality care in public and private sectors, loss of daily salaries, non-availability of leaves, dependence on others for visiting clinic were the difficulties that participants shared on missing the periodic check-ups and examination. Also, negative attitudes of the health care providers were causing periodic check-up detrimental. The similar findings in the study conducted in Oman reported that patients found certain shortcomings such as: unfriendly welcome; disrupted empathetic of consultation; inadequate focus; and lack of motivation for the patients to ask questions.[17]

The present study reported structured health management includes (advance clinic registration, crowd management etc) affordable care, effective individual time scheduling, staff-friendly wellness programs, health cards and quality service in the public health system are the factors facilitating the periodic check-up. Similarly, Substantial in-person contact programs that address mild to severe patients may be cost-neutral and enhance many facets of healthcare;[18] imparting education, eliminating the financial obstacles and patient centred model of communication integrates persons preferences, literacy, numeracy and cultural differences could be used in care.[19-21]

Conclusion

Strengthening of NCD clinics in public health sector, social health insurance schemes, outpatient reimbursement, T2DM self – management education, staff welfare, employees – supportive policies, patient centred hospital/clinic management and positive attitudes of heath care providers would allow optimal use of healthcare services by people with T2DM.

Ethical Clearance: The study protocol has been approved by the Institutional Ethics Committee, (IEC No. 453/2016, Kasturba Hospital).

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Conflict-of-Interest: Nil.

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