International Journal of Community Medicine and Public Health
Majgi SM et al. Int J Community Med Public Health. 2020 Jul;7(7):2667-2671
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20202995

Original Research Article

Preference of tertiary care centres over peripheral health centres for routine non-communicable disease care: a cross-sectional study in hypertensive and diabetic individuals

Sumanth Mallikarjuna Majgi[1]*, Swathi Kamal S.[2]

[1]Department of Community Medicine, Mysore Medical College and Research Institute, Mysuru, Karnataka, India
[2]Intern, Mysore Medical College and Research Institute, Mysuru, Karnataka, India

Received: 21 April 2020
Revised: 30 May 2020
Accepted: 02 June 2020

***Correspondence:**
Dr. Sumanth Mallikarjuna Majgi,
E-mail: drsumanthmmc@rediffmail.com

ABSTRACT

Background: Although there is a program for non-communicable diseases (NCD) control and facilities for their management at the peripheral health centres (PHCs), many patients visit tertiary health care centres (THCs), spending 25 -35% of their income for health care on a long term basis for routine NCD care. Objective of the study was to identify the reasons for these patients not visiting the nearest PHC facility and to estimate the money and the time spent by the patients visiting the THC for such unwarranted visits.
Methods: This cross-sectional study was conducted on 207 patients with diabetes mellitus and/or hypertension at Medicine OPD at K. R. Hospital, Mysuru, THC and the patients were interviewed with the help of a questionnaire.
Results: All 207 (100%) were routine NCD care. 44% of the participants stated that they felt satisfied with services at THC while 5.8% had no specific reason to state for choosing to seek NCD care at THCs. Also, many patients are not aware of the facilities available at the PHC and hence visit THCs, even for routine NCD care. The average overall expense incurred per person per visit to the THC was approximately Rs. 640. The costs incurred on transportation and on drugs were statistically significant. The major contributing component for the total expense incurred was found to be the money spent on the drugs.
Conclusions: Strengthening health systems are recommended by improvement in availability and prescription of essential NCD drugs along with creating awareness about various government schemes that offer good financial coverage for the poor households.

Keywords: Expenses on travel, Non communicable diseases, Peripheral healthcare centres, Routine NCD care visits, Referral visits, Tertiary healthcare centres

INTRODUCTION

Non-communicable Diseases (NCDs) are emerging as the major cause of morbidity and mortality globally. NCDs accounts for 35% of total outpatient visits, 40% of all hospital admissions and 60% of total deaths (contributes to around 5.87 million deaths) in India every year representing the major causes of morbidity and mortality.[1] Among the NCDs, Cardiovascular diseases (coronary heart disease, stroke, and hypertension) contribute to 45% of all NCD deaths followed by chronic respiratory disease (22%), cancers (12 %) and diabetes mellitus (3%).[1] Health care delivery includes providing primary care, secondary care and tertiary care. A primary health care centre (PHC) is the first level of contact between individuals and the health system. Tertiary

health care facilities have specialists as well as advanced medical investigations and treatment options.

The National Programme for the Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was initiated in 2010 with an aim of diagnosis and cost effective treatment of common NCDs including Hypertension and Diabetes at the PHC level.[2,3] These NCD patients can be referred to higher health care centres for complications like uncontrolled infections, co-morbid conditions, etc. despite this and facilities for management of NCDs at the Peripheral centres (PHC, CHC), many patients visit tertiary health care centres spending a lot of time and money (on travel, food, etc.).[4] In order to minimize this expenditure incurred by these patients, it would be useful to know how many of such visits are not really warranted. Thus, the aim of the study was to analyze the reasons for patients suffering from NCDs preferring the tertiary care centres to PHCs and to shed light on obstacles that may hinder them from visiting a PHC.

Objectives of the study was to measure the proportion of diabetic and hypertensive patients visiting tertiary health care centre for routine NCD care and to identify the reasons for these patients not visiting the nearest primary health care facility.

METHODS

This is a cross-sectional study with a study population comprising of patients with diabetes mellitus and/or hypertension who visited Medicine OPD of K. R. Hospital, Mysuru, between September 2018 and November 2018. The sample size was calculated to be 207 (assuming 16% of patients visit for NCD care with 95% confidence interval and estimated error of 5%).

Patients who visited Medicine OPD of K. R. Hospital for follow up of diabetes mellitus and/or hypertension (patient's statement is taken for considering the visit as referred or routine) were included in the study.

Diabetic and hypertensive patients who came with acute emergencies or complications due to the disease were excluded from the study.

Data collection procedure

The respondents were assured about the confidentiality of information given and written informed consent was obtained. The patients were interviewed with the help of a questionnaire containing details such as Socio-demographic data, distance to nearest health facility, distance from their house to the nearest Tertiary Care centre (distance travelled by the patient was enquired and if they were not aware, it was calculated based on the town or village from which they arrived), the time and money spent on each visit to the Tertiary Care Hospital, type of visit (whether it is referred or routine), number of visits in a year, duration since diagnosis of the NCD, reasons for their visit to THC instead of PHC, etc. Routine NCD care visit was considered in patients visiting tertiary hospital for recording their blood pressure, analysis of blood glucose and for getting medicines and those visiting without any referral.

The descriptive statistics employed in the present study were mean, standard deviation, frequency and percentage. Chi-square test was used for analyzing the various parameters. Socioeconomic Status (SES) was assessed using modified BG Prasad classification, 2018. All the statistical methods were carried out through the SPSS for windows (version 22.0).

RESULTS

In this study, among 207 patients, 123 were males and 84 were females (Table 1). The mean age of the study population was 59 years. The percentage distribution of age showed that 21.7% were less than 50 years, 33.3% were between 51 to 60 years, 39.6% were between 61 to 70 years and 5.3% were over 70 years. The morbidity pattern was as follows - 90 of them had diabetes mellitus, 75 had hypertension and 42 had both diabetes mellitus and hypertension. Majority of the study population belonged to class II socio economic status, according to modified BG Prasad Socio-Economic scale (Figure 1).

Table 1: Age and gender distribution of the study population.

Variable		Diabetes mellitus (in percentage)	Hypertension (in percentage)	Both diabetes and hypertension (in percentage)	Total (in percentage)
Age groups (in years)	<50	23.3	24.0	14.3	21.7
	51-60	32.2	29.3	42.9	33.3
	61-70	41.1	42.7	31.0	39.6
	>70	3.3	4.0	11.9	5.3
Gender	Male	53 (58.9)	42 (56.0)	28 (66.7)	123 (59.4)
	Female	37 (41.1)	33 (44.0)	14 (33.3)	84 (40.6)

Table 2: Complication screening status of the participants.

Screening for complications	NCD type							
	Diabetes		Hypertension		Both DM and hypertension		Total	
	N	%	N	%	N	%	N	%
Done	61	67.8	46	61.3	28	66.7	135	65.2
Not done	26	28.9	23	30.7	14	33.3	63	30.4
Not aware	3	3.3	6	8.0	0	0	9	4.3

Table 3: Percentage distribution of the reasons provided by patients for visiting THC instead of PHC.

Reasons for visiting a THC instead of a PHC for NCD care	Diabetes Mellitus (DM) (%)	Hypertension (%)	Both DM and hypertension (%)	Total (%)	P value
Not aware of/ not satisfied with facilities at PHC for NCD care	21.1	29.3	31.0	26.1	0.353
Non availability of drugs at PHC	11.1	22.7	7.1	14.5	0.035*
Non availability of health-care providers at PHC	8.9	20.0	4.8	12.1	0.025*
Non availability of laboratory facilities at PHC	3.3	4.0	0.0	2.9	0.441
Personal satisfaction with services at THC	48.9	40.0	40.5	44.0	0.456
Emergency management facilities at THC	27.8	18.7	28.6	24.6	0.322
Better infrastructure	13.3	16.0	16.7	15.0	0.841
No specific reason	0.0	16	0.0	5.8	0.001*

*P value< 0.05

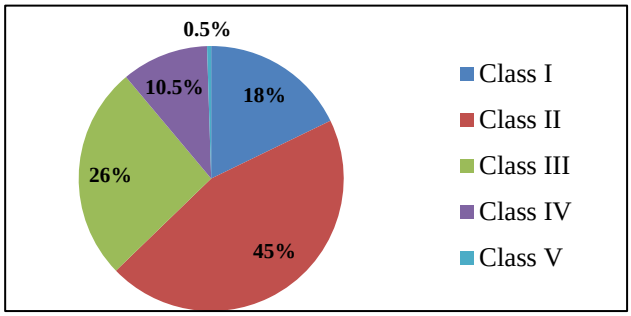

Figure 1: Distribution of the study population into various socio economic classes (as per BG Prasad SES scale, 2018).

All the NCD patients in our study, who visited the OPD, came for routine NCD care alone, making the proportion cent percent. 2/3rd of the study subjects had already undergone complication screening and found normal, nearly 1/3rd had not under gone it, but also not referred for that purpose, nearly 4% were not aware anything about it. None of the subjects carried referral slip from the peripheral centre.

Most common reason why they visited tertiary care was personal satisfaction, followed by not aware of facilities at PHC/ not satisfied with the services at PHC as shown in Table 3. Of the various reasons stated by the participants 44% felt satisfied with services at THC. 5.8% had no specific reason to state for choosing to seek NCD care at THCs. Few reasons such as non-availability of drugs and health-care providers at PHC were statistically significant.

The average income in our study group was Rs. 4650 per month. The average overall expense incurred per person per visit to the THC was approximately Rs. 640. The majority of the expenses incurred were due to transportation and drugs with an average amount of Rs.107 and Rs.158 respectively while the cost of food and other incidental expenses were about Rs.83 and Rs.313 respectively. These components of total expenditure per visit are represented in Figure 2.

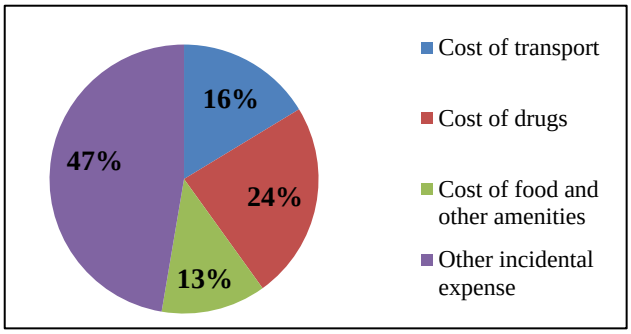

Figure 2: Mean expenses incurred by the patients on each visit to the THC for NCD care.

Over all, the NCD patients travelled an average distance of 20±12 km during every visit to the THC. On an average, an NCD patient visited the THC around 7 times in a year to avail the services for routine NCD care. People suffering from NCDs for less than 5 years spend an average of Rs. 650 per visit while those suffering for longer duration of over 15 years spend nearly Rs. 735 per visit. The duration since diagnosis of NCD and average

cost incurred by each patient per visit to THC is shown in Table 4. This cost did not vary significantly with variation in duration of the NCD's

Table 4: Duration since diagnosis of NCD and average cost incurred per visit to THC.

Duration since diagnosis of NCD (in years)	Number of patients (%)	*Average cost per visit (in Rs.)
Less than 5	111 (53.6)	650±235
5-10	70 (33.8)	621±215
10-15	19 (9.2)	573±289
15-20	7 (3.4)	735±345
Total	207 (100)	636±238

*p=0.36, ANOVA

DISCUSSION

It has been observed in this study that many patients are not aware of the facilities available at the PHC and hence visit THC, even for routine NCD care which is similar to the study done by Khanal et al.[5] This study also states that there is lack of awareness among people about facilities at PHCs even when many treatments are provided at low cost or no-cost.[5] One of the reasons for the high proportion of patients seeking routine NCD care may be that complicated NCD cases that have been referred are brought into the emergency set-up. Another reason could be that most of them come directly to the THC and are seldom referred. The lack of the referral slip, also indicate the inadequate coordination between different levels of care under the NPCDS program. As NCD patients spend 25-35% of their income for health care on a long term basis, this study aimed to identify and analyse the reasons as well as estimate the money and the time spent by the patients visiting the THC instead of the nearest PHC.[6] In our study we observed that the major contributing component for the total expense incurred was found to be the money spent on the drugs, as seen in the diabetic group and hypertensive group. As the duration of NCD increases, the expenditure also increases, as observed in this study. Similar findings were seen in various studies done under CADI Research Foundation.

Various responses were provided by the patients as their reasons for visiting the THC, instead of the nearest PHC facility. In our study, majority of the participants felt satisfied with services at THC. These reasons are similar to an earlier study that suggests that the quality of services in the primary centre is inadequate in India.[7] In contrast, another study has raised the issue of dissatisfaction in patients in tertiary care.[8] The number of visits to the THC for routine NCD care by the patients diagnosed with both diabetes and hypertension was more compared to persons diagnosed with hypertension or diabetes alone, as this group has higher morbidity than the groups with only diabetes or only hypertension. As observed, frequent visits to THC by these NCD patients leads to loss of wages, and indirectly increases their expenses in the form of lost earnings.[9] These morbidities in productive age group aggravate the economic burden.[10] The frequency of visits to seek health care at THC is more in patients residing nearby. Various factors like personal satisfaction, availability of healthcare, drugs, etc., makes the NCD patients to prefer THCs for their routine NCD care.

The main drawback of the study was, author could not get the clinical information of the participants in detail, as there was lack of uniformity in the record, and this was primary done as undergraduate research, and there no opportunity for the follow up the subjects.

CONCLUSION

Our study implies that coordination between PHCs, secondary and tertiary care services has to be enhanced. Health care services for diabetes and hypertension are currently organized and delivered within an acute care model of service delivery. Reorganization of these health care services is required to respond to the demands of the chronic conditions to improve social and clinical outcomes. Strengthening health systems are recommended by initiation of active surveillance for NCD risk factors, enhancement of availability of laboratory facilities at PHCs, improvement in availability and prescription of essential NCD drugs, ensuring access to quality medicines at low cost, periodic investigations to detect the complications of NCDs, etc. Patient-centric approach rather than a disease-centric one is the need of the hour. Hence, patients with NCDs require a comprehensive treatment plan delivered at all levels of health care delivery systems, by a multi-disciplinary health team. The study also, emphasizes need of monitoring and supervision checklist and protocols for NPCDS similar to RCH program.

ACKNOWLEDGEMENTS

Authors would like to acknowledge the MMC alumni association trust (MAA Trust) of MMC and RI for the opportunity to conduct this study and funding the same

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Upadhyay RP. An overview of the burden of non-communicable diseases in India. Iran J Public Health. 2012;41(3):1-8.
2. Lewandowski CM. National programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke (NPCDS). Interv Acute Pain Exp An Exam Individ Differ. 2010;1:1689-99.

3. Verma R, Khanna P, Bharti J. National programme on prevention and control of diabetes in India: need to focus. Australasian Med J. 2012;5(6):310-5.
4. Bhojani U, Devedasan N, Mishra A, Henauw S, Kolsteren P, Criel B. Health system challenges in organizing quality diabetes care for urban poor in South India. PLoS One. 2014;9(9):44-9.
5. Khanal S, Veerman L, Nissen L. Use of healthcare services by patients with non-communicable diseases in Nepal: a qualitative study with healthcare providers. J Clin Diag Res. 2017;11(6):1-5.
6. Ramachandran A, Ramachandran S, Snehalatha C. Increasing expenditure on health care incurred by diabetic subjects in a developing country: a study from India. Diab Care. 2007;30(2):252-6.
7. Sumanth MM, Giri PA, Nivetha B. Don't we need non-communicable diseases block in government tertiary care hospitals? Arch Community Med Pub Health. 2017;3(2):85-7.
8. Saini NK, Singh S, Parasuraman G, Rajauora OP. Comparative Assessment of Satisfaction Among Outpatient department patients visiting secondary and tertiary level government hospitals of a district in Delhi. Indian J Community Med. 2013;38:114-7.
9. Mahal A, Karan A, Engelgau M. The economic implications of non-communicable diseases for India. Washington DC: The World Bank. 2010.
10. Kasturiratne A, Wickremasinghe AR, Silva A. Morbidity pattern and household cost of hospitalization for non-communicable diseases (NCDs): a cross-sectional study at tertiary care level. Ceylon Med J. 2005;50:109-13.

Cite this article as: Majgi SM, Kamal SS. Preference of tertiary care centres over peripheral health centres for routine non-communicable disease care: a cross-sectional study in hypertensive and diabetic individuals. Int J Community Med Public Health 2020;7:2667-71.