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## Research Article

# IMPACT OF NATIONAL PROGRAMME FOR PREVENTION AND CONTROL OF DIABETES, CARDIOVASCULAR DISEASES, CANCER AND STROKE (NPCDCS) IN KALABURAGI DISTRICT

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### ABSTRACT

**Introduction:** Non communicable diseases are an emerging diseases in India. Government of India launched National Programme for Prevention and Control of Cardiovascular Diseases Cancer and Stroke (NPCDCS) during the year 2008 on pilot basis in Karnataka. The Government of India launched the programme with the aim to reduce the burden of non communicable diseases by health promotion and prompt treatment.

**Objective:** To assess the impact of NPCDCS programme in Kalaburagi District.

**Material and Method:** A longitudinal study carried out in 7 talukas of Kalaburagi district during the year April 2017- March 2018. The target population for screening was age group above 30 years. The Junior Health assistants (Jr HA) were trained and provided with the equipment for screening of non communicable diseases. 23 NCD clinic were established in kalaburgi district which are spread across 7 talukas and District hospital. NCD clinics have trained special NCD team comprising of Medical Officer, Lab technicians, Counselor, Staff nurse and Data entry operator. A total of 466791 members were screened for Non communicable diseases during the year 2017-18. A sample of 7447 patients attending District NCD Clinic were analysed using SPSS 20 version. Data was presented in term of percentage, bar diagram and pie charts. Chi square test, p value and Odds ratio was used to check the association.

**Results:** The total Population of Kalaburagi District is 2809221. The population above 30 years is 1039412 (37% of total population). The total number of person screened for non communicable diseases was 466791. Out of which suspected Diabetes were 36797 and hypertensive were 45178. The numbers of patients attending NCD clinics were 104902. The total number of outreach camp organized during the year 2017-18 were 152. The total confirmed cases of Diabetes were 10925, were as hypertensive were 10401, those with both diabetes and hypertensive were 4578. A total of 91 percent, 89% and 90% of confirmed cases of diabetics, Hypertensive and co morbid conditions of Diabetes and hypertensive were initiated on treatment.

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### INTRODUCTION

Although Non communicable diseases were ignored during the formation of Millenium Developmental Goal, their leading and preventable cause have drawn the attention of policy makers to frame programmes for control of non communicable diseases. In past the Non communicable diseases were restricted to rich and affluent society and was neglected due to affordability. But Non communicable diseases are lifestyle related diseases

affecting all sector of society including rural areas. About 63% Deaths were due to NCDs, principally cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. 80% of NCD deaths occur in low-and middle income countries. In India, the estimated deaths due to NCDs in 2008 were 5.3 million. The overall prevalence of diabetes, hypertension, Ischemic Heart Diseases (IHD) and stroke in India is 62.47, 159.46, 37.00 and 1.54 respectively per 1000 population.<sup>1</sup> World Bank analysis have revealed that control of non

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communicable diseases in low middle income countries have more impact on increasing the life expectancy.<sup>2</sup> Therefore NPCDCS programme was launched in 2010 in across 21 states of 100 district to prevent and control major Non Communicable Diseases. The main focus of programme was health promotion, early diagnosis, treatment and referral of patients with non communicable diseases.

Objectives of NPCDCS Programme are Health promotion, Opportunistic screening, Prevention and control chronic Non-Communicable diseases, Capacity Building, Support for diagnosis and cost effective treatment and support for development of database of NCDs. Based on this Objectives NPCDCS Program was implemented in Kalaburagi in the year 2014-15. The target population for screening of NCD was taken as 37 Percentage (above 30 years of age) by scheduled camp based screening as well as opportunistic screening at Community Health center, primary Health center and subcenter level.

## METHODOLOGY

NPCDCS Programme in Kalaburagi was established during the year 2014-15. A separate NCD Clinic in District Hospital Kalaburagi was started in April 2016 the staff consists of one Medical officer, two staff nurse, one lab technician, one counselor and one data entry operator. At the initial phase the Junior Health assistant Male and Female placed at 326 subcenters across Kalaburagi district were trained for 5 days for screening of non communicable diseases and provided with the following instruments:

1. Glucometer: for measuring of Random blood glucose,
2. Digital BP apparatus for measuring blood pressure
3. Measuring tape and weighing scale for calculating BMI.

This longitudinal study was carried out to assess the impact of NPCDCS programme in Kalaburagi district from April 2017-march 2018. The population was initially screened by Junior Health Assistants at each subcenters through camp approach and the suspected cases of non communicable diseases were further referred to nearest Primary Health Centers, Community Health centers or District Hospital for further confirmation and treatment.

The criteria used for suspecting Non communicable Diseases were as follows:

NCDs	Criteria
Diabetes	RBS >140mg/dl
Hypertension	>140/90
Oral cancer	Any suspected oral lesions with reduced mouth opening
Breast cancer	Lumps, nodes or ulcer on and around breast
Cervical cancer	Bleeding between periods, bleeding post menopause, and bleeding after contact.

The individuals with any of the following criteria are labeled as suspected and referred to nearest government hospital for further confirmation and treatment.

A total of 23 NCD Clinic were set up at Kalburagi district including one at District Hospital. The services provided at NCD clinic Kalaburagi under NPCDCS programme are screening for Non communicable diseases to all the persons above the age of 30 years. Health promotion by counselling of

high risk group, suspected and confirmed cases is provided by counselor at NCD clinics. Physiotherapy to complications of Non communicable diseases is provided by physiotherapist. Laboratory investigations for Non communicable diseases including Diabetes, Hypertension is carried out at NCD clinic laboratory. A total of 7447 members attending NCD clinic during April 2017 to March 2018 situated in District Hospital were analysed using SPSS 20 version.

### Inclusion criteria

1. Individuals above 30 years.
2. ANC (including those below 30 years).
3. Individuals with known history of NCD.
4. BMI > 25.

### Exclusion criteria

Children and adolescents

Ethical Statement: Informed consent was obtained from patients attending NCD clinic. Permission was obtained from District Health and FW officer regarding analysis of data.

## RESULTS

Non communicable diseases in rural areas and low income areas are highly neglected. The present article focuses on impact of NPCDCS program on screening of individuals at rural areas. This longitudinal study was carried during 2016-17 among the population residing in Kalaburagi district. Kalaburagi district profile, the total population of Kalaburagi being 2809221 spread across 7 talukas, 1 District Hospital, 16 Community Health Centers (CHC), 6 Government General Hospitals, 88 Primary Health Centers (PHC), 336 Subcenters (SC). The target for NCD screening was set considering that 37% of the population as above 30 years as per NFHS 4 data. Hence yearly target was set as 1039412 and monthly target as 86618 for NCD screening.

During the acedamic year 2017-18, a total of 466791 were subject to screening for non communicable diseases from all the government institute. Mean Age of the population was 50 ± 2.84. Male comprised 3440(46.2%), whereas Female comprised 4007(53.8%) (Figure No 1). The target achieved was 45% as compared to 40% achievement during 2016-17. A total of 152 outreach camps were held during the year with the screening of 466791. of which 36797 were suspected to be diabetic, 45178 were suspected to be hypertensive. The suspected cases were further referred to nearby government institutes for confirmation and treatment.

**Table No 1** Progress of NPCDCS during April 2017 to March 2018

Variable	Number
Screened for Non Communicable Diseases at Sub-centre	466791
Suspected Diabetes	36797
Suspected Hypertension	45178
NCD clinic screening	104902
Screened for cancer	6068
Total Outreach camp	152

As The patients attending NCD clinic located at CHC and GGH were 104902 per table No.1 the total NCD check up done at 22 NCD clinics located in Kalaburagi district 466791, confirmed diabetes were 36797(7.9%), Hypertension was

45178(9.6%) and cancer were 224(0.04%) respectively. The data was further classified talukawise. The yearly target was mentioned for each taluka by considering 37% of the population above 30 years and monthly target obtained by dividing it with 12.

As per the Age distribution the individuals below 30 years (ANC) were 4.9%. and those between 31 to 80 years compromised 90.9%. The incidence of Diabetes, Hypertension and cancer was 1.82%, 1.8% and 0.3% respectively of the target population. Analysis of 7447 samples attending NCD clinic, District Hospital, Kalaburagi. The cumulative achievement during 2017-18 was 45%. Sedam taluka achieved 61% of target followed by chittapur 60%, least was achieved by Kalaburagi 28%. As per the age and Sex distribution. Majority of them belonged to age group of 40 to 69 years. Females were slightly more as compared to males. Age above 40 years was significantly associated with Diabetes, Hypertension and co morbid conditions of Diabetes and hypertension. As per table no.2 the sex distribution the odds of developing hypertension among males was 1.224 higher than that among females. Whereas the odds of having Diabetes among females was 1.127 times higher as compared to Males. The co morbidity conditions of Diabetes and Hypertension was 1.305 times higher among males as compared to females.

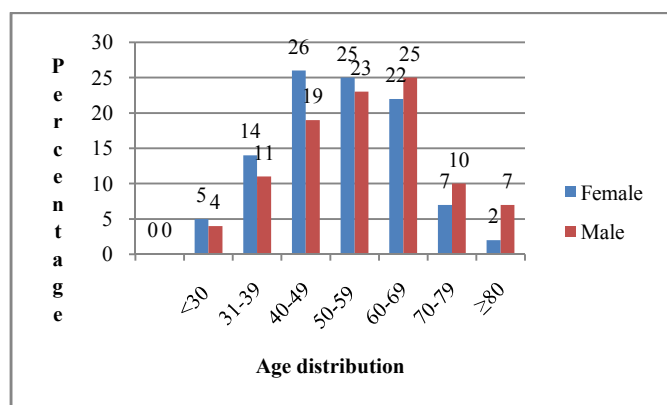


Figure No.1 Age wise Distribution of patients

Table No.2 Sex wise association with Diabetes, Hypertension and Co morbid Conditions of Diabetes and Hypertension

Sex	HTN		Total	Diabetes		Total	HTN and Diabetes		Total
	0	1		0	1		0	1	
Male	Count 2588	852	3440	1951	1489	3440	3040	400	3440
Female	Count 3196	811	4007	2468	1539	4007	3650	357	4007
Total	Count 5784	1663	7447	4419	3028	7447	6690	757	7447
$\chi^2$	21.879			18.247			14.979		
P value	0.000			0.000			0.000		
Odds ratio	1.224			1.127			1.305		

Table No.3 NCD Clinic Data During 2017-18

Indicator		Male	Female	Total	Percentage
<b>I. Common NCDS under NPCDCS</b>					
No. of persons attended NCD Clinics (New and follow up)		49682	55220	104902	
No. newly diagnosed with	A. Diabetes Only	4473	6452	10925	10
	B. Hypertension Only	4358	6043	10401	10
	C. HTN & DM	1815	2763	4578	4
No. of newly diagnosed patients put on Treatment	A. Diabetes Only	4212	5732	9944	91
	B. Hypertension Only	4232	5049	9281	89
	C. HTN & DM	1760	2377	4137	90

No. of persons on treatment follow up	A. Diabetes Only	7132	6731	13863	13
	B. Hypertension Only	2988	3462	6450	6
	C. HTN & DM	1672	1725	3397	3
No. of persons counselled for health promotion & prevention of NCDs		12005	16362	28367	27
No. of patients underwent Physiotherapy		1412	2387	3799	4
Among all confirmed Diabetic patients [New (2A+2C) & Follow up (5A+5C)]	A. No. of known TB cases on ATT	37	39	76	9
	B. No. screened for TB Symptoms	406	347	753	16
	C. No. suspected for TB & referred to DMC/ PI	45	32	77	3

As per Table no.3, a total of 104902 members attended NCD clinic in Kalaburagi both old and follow up out of which 10925(10.4%) were only diabetic, 10401(9.9%) were only hypertensive, 4578(4.3%) cases were both diabetic and hypertensive. 763 had cardiovascular diseases and 142 cases had stroke. Age above 40 years was significantly associated with Diabetes, Hypertension and co morbid conditions of Diabetes and hypertension. As per the sex distribution the odds of developing hypertension among males was 1.224 higher than that among females. Whereas the odds of having Diabetes among females was 1.127 times higher as compared to Males. The co morbidity conditions of Diabetes and Hypertension was 1.305 times higher among males as compared to females.

The number of Diabetic patients taking treatment in government hospital during the year 2016-17 were 23807 which includes newly diagnosed as well as those on follow up whereas the number of hypertensive patients taking treatment at district government hospital were 15731 includes both newly diagnosed as well as follow up. The factors significantly associated with diabetes and hypertension were age between 40-80 years. Hypertension was significantly more among male gender as compared to females. Whereas Diabetes was more among females as compared to males.

## DISCUSSION

The non communicable diseases are growing like a wild fire increasing the prevalence and incidence of morbidity and mortality caused due to mainly Diabetes, Hypertension and Cancer. Although the urban population has access to better screening and treatment for non communicable diseases the rural areas are lacking in terms of accessibility to screening and treatment of Non communicable diseases. Hence the NPCDCS program was launched with the intention to provide accessibility to screening and treatment of non communicable diseases.

As per 2008 data the deaths due to non communicable diseases were 5.2 million. The patient attending NCD clinics have increased dramatically due to rise in awareness among the population. The etiology of diabetes is multifactorial caused by genetic as well as environmental causes including obesity, living standards, migration etc.<sup>3</sup>

The prevalence of diabetes in our study was 13% as compared to overall prevalence of diabetes 13.5% in south India.(A) The NCD screening among rural areas is poor as compared to urban areas. The cause for increased rate of diabetes and other non communicable diseases among rural areas can be attributed to poor accessibility and ill distribution of health facilities, food insecurity, illiteracy, poor sanitation and rise in communicable diseases.<sup>4</sup> Care for the geriatrics is ill among the rural

population and the non communicable diseases are predominant among geriatric population.<sup>5</sup>

India has gained the label as Diabetic epidemic with more than 62 million people suffering from Diabetes. It is predicted that by 2030 an whopping 79.4 million Indian population will be diagnosed as diabetics.<sup>3</sup>As per the data the prevalence of Diabetes in Kalaburagi district is 10.4%.

Our study revealed that non communicable diseases are more commonly seen among age above 40 years can be attributed to physiological and lifestyle changes contributing to emerging non communicable diseases. Hypertension was significantly higher among males as compared to females can be attributed to higher stress and unhealthy lifestyle like smoking and alcohol consumption. Whereas diabetes was more among females can be attributed to high intake/ craving for sugar and sweets as compared to males.

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