

## Original Research Article

DOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20194517>

# Assessment of knowledge on non-communicable diseases and their screening tests among elderly population in an urban area of Bengaluru

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Received: 07 August 2019

Accepted: 10 September 2019

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## ABSTRACT

**Background:** Non-communicable diseases (NCDs) are the leading cause of morbidity and premature mortality in most low and middle income countries (LMIC) around the world. Recent estimates shown that about 80% of NCDs deaths occur in LMIC and nearly three fourth of global NCDs related deaths take place after the age of 60. The knowledge of NCDs and their related screening tests among elderly is essential for early detection which reduces further development of the disease and its complications, thereby reducing the burden of health care cost. Hence, the present study was undertaken.

**Methods:** A descriptive study was conducted among 245 study subject after obtaining informed consent. Using pre-tested structured questionnaire, information was collected regarding knowledge on NCDs and their screening tests. Results were entered in Microsoft excel and analyzed using descriptive statistics.

**Results:** 81.6% of study subjects were aware of common NCDs. Off which only 02% were aware of 6 NCDs (out of 12 NCDs considered in this study). Regarding individual diseases, about 61.6% subjects were aware of Hypertension and 52.7% about DM. About knowledge of screening test, 69% were aware about any screening test and 58.8% were aware of screening test for hypertension and 41.6% for diabetes mellitus.

**Conclusions:** The overall knowledge regarding NCDs and their screening tests is poor among elderly population.

**Keywords:** Non-communicable diseases, Knowledge, Screening tests, Elderly, Urban area

## INTRODUCTION

Non-communicable diseases (NCDs) are the diseases of long duration, and generally progresses slowly.<sup>1</sup> Non-communicable diseases (NCDs) are the leading cause of morbidity and premature mortality around the world, which were primarily due to cardiovascular diseases, diabetes, cancers and chronic respiratory diseases.<sup>2,3</sup> According to the National Sample Survey (NSS) data for 2004 and 2014 show that the burden of NCDs has increased slowly. However, there is a marked increase among the old. It increases to twice among 60-69 years and 70-79 years and nearly three times among 80 years and older persons.<sup>4</sup>

India is in the midst of an epidemiological transition from the burden of communicable diseases to the burden of NCDs. This transition is mainly due to increase in ageing population, lifestyle modification, fast urbanization and financial expansion of a country and advancement in technology.<sup>2</sup> The four NCDs (cardiovascular diseases, diabetes, cancers and chronic respiratory diseases) account for 42% of all deaths and 22% of disability-adjusted life-years (DALY) in India.<sup>4</sup>

Most common risk factors responsible for NCDs are behavioural factors which include use of tobacco,

physical inactivity, alcohol consumption, changing diet patterns and metabolic factors like overweight/obesity, high blood pressure, increased cholesterol level and increased blood glucose level.<sup>2</sup> Majority of these risk factors are behaviourally acquired and are due to changing lifestyle during adulthood.

Screening is defined as “the presumptive identification of unrecognized diseases in an apparently healthy, asymptomatic population by means of tests, examinations or other procedures that can be applied rapidly and easily to the target population”.<sup>5</sup> Importance of screening is to identify a disease in its early stages so that it can be treated and further development of the disease can be prevented. Screening is not a diagnostic measure but it is a preliminary step in the assessment of the individuals' chances of becoming unhealthy.

The knowledge on screening tests to detect common NCDs among elderly is essential for early detection which reduces further development of the disease and its complications, thereby reducing burden of health care cost. With this background the present study was undertaken to assess the existing knowledge on NCDs and their screening tests among elderly population.

## METHODS

A community based survey was conducted in an urban field practice area of Kempegowda Institute of Medical Sciences, Bengaluru for a period of three months from May 2018 to July 2018.

After taking institution ethical committee clearance, a descriptive study on 245 elderly individuals, calculated by taking  $p=41.9\%$  with 15% precision using the formula  $n=4pq/d^2$  were enrolled, after taking informed consent and by fulfilling inclusion and exclusion criteria.<sup>6</sup> Study subjects who are residents of urban field practice area for a minimum duration of 6 months and those who are

willing to participate in study were included. Seriously ill, with cognitive impairment and with severe abnormality in speech and hearing were excluded from the study.

In the present study 12 common NCDs were considered such as obesity, hypertension, diabetes mellitus, anaemia, coronary artery disease, stroke, cataract, osteoporosis and cancers (breast cancer, oral cancer, cervical cancer and prostate cancer). Using pretested semi-structured proforma, information was collected on socio-personal characteristics and knowledge on NCDs and their screening tests.

Questions were asked regarding the causes, symptoms, complications, screening tests, prevention and control measures for all NCDs considered in the study. Knowledge was assessed by giving a score of one (1) to correct and zero (0) for wrong response. Knowledge was graded as poor (<50%), average (50-80%) and good (>80%) depending on the total scores. Data was entered in MS Excel and analysed using descriptive statistics.

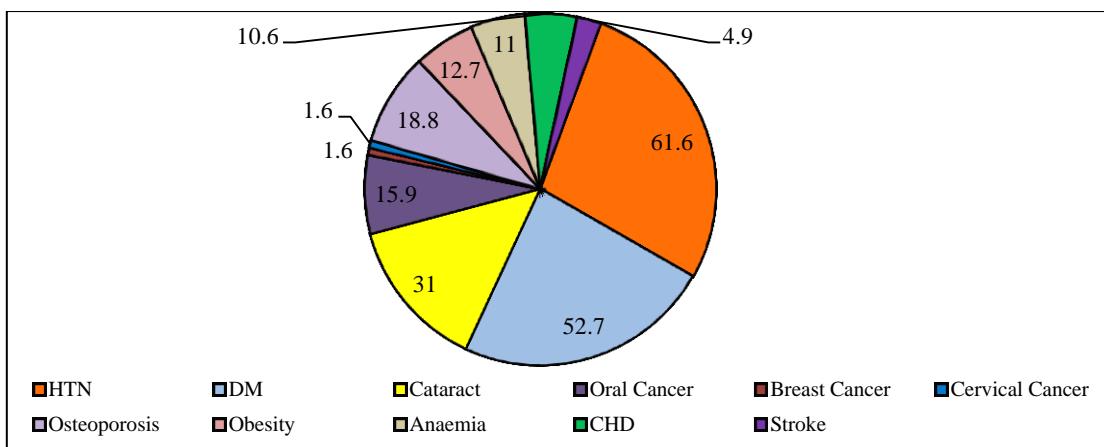
## RESULTS

Among 245 study subjects, majority 64.9% belonged to the age group of 60-69 years, 69% were female, 53.5% were Hindu by religion, 93.5% were educated less than secondary high school and 72.7% were not working, 46.9% belonged to three generation family (Table 1). The present study showed that, 61.6% knew about hypertension and 52.7% about DM. Knowledge regarding other NCDs considered in the study was poor in all subjects (Figure 1).

According to our study 58.8% and 41.6% were aware of the screening tests for hypertension and diabetes mellitus respectively. Knowledge regarding screening tests for other NCDs was poor (Table 2).

**Table 1: Socio-demographic characteristics of the study subjects (n=245).**

Socio-personal characteristics	Number	%
Age (years)	60-69	159
	70-79	65
	≥80	21
Gender	Male	76
	Female	169
Religion	Hindu	131
	Muslim	112
	Christian	02
Education	<High school	229
	≥High school	16
Occupation	Working	67
	Not working	178
Marital status	Married	138
	Others	107



**Figure 1: Knowledge of study subjects regarding NCDs (n=245).**

**Table 2: Knowledge on screening tests for NCDs (n=245).**

Screening for NCDs	Number	%
<b>Hypertension</b>	144	58.8
<b>Diabetes mellitus</b>	102	41.6
<b>Cataract</b>	32	13
<b>CHD</b>	18	7.3
<b>Anaemia</b>	17	6.9
<b>Stroke</b>	2	0.8
<b>Oral cancer</b>	2	0.8
<b>Breast cancer</b>	2	0.8
<b>Cervix cancer</b>	1	0.4
<b>Prostate cancer</b>	-	-
<b>Obesity</b>	1	0.4
<b>Osteoporosis</b>	-	-

**Table 3: Distribution of study subjects based on knowledge on NCDs and their screening tests.**

Group	Awareness of NCD		Aware of screening test for NCD	
	Yes	No	Yes	No
<b>Hypertension (n=115)</b>	107 (93)	8 (7)	103 (96.3)	12 (03.7)
<b>Diabetes mellitus (n=74)</b>	67 (90.5)	7 (9.5)	60 (89.6)	14 (10.4)

**Table 4: Distribution of knowledge on NCDs and their screening tests according to socio-personal characteristics.**

Characteristics	Knowledge of NCDs		Knowledge on screening tests for NCDs	
	YES	N (%)	YES	N (%)
<b>Age (years)</b>	<70 (n=159)	131 (82.4)	114 (71.7)	
	≥70 (n=86)	69 (80.2)	55 (64)	
<b>Gender</b>	Male (n=76)	63 (82.9)	53 (69.7)	
	Female (n=169)	137 (81)	116 (68.6)	
<b>Religion</b>	Hindu (n=131)	104 (79.3)	84 (64)	
	Muslims (n=112)	94 (84)	83 (74)	
<b>Education</b>	<High school (n=229)	186 (81)	157 (68.6)	
	≥High school (n=16)	14 (87.5)	12 (75)	
<b>Occupation</b>	Working (n=67)	53 (79)	43 (64.2)	
	Not working (n=178)	147 (82.6)	126 (70.8)	
<b>Marital status</b>	Married (n=138)	116 (84)	99 (71.7)	
	Others (n=107)	84 (79)	70 (65.4)	

The present study showed that, 61.6% knew about hypertension and 52.7% about DM. Knowledge regarding other NCDs considered in the study was poor in all subjects (Figure 1).

According to our study 58.8% and 41.6% were aware of the screening tests for hypertension and diabetes mellitus respectively. Knowledge regarding screening tests for other NCDs was poor (Table 2).

Out of 115 hypertensive subjects, 107 knew about the disease and 103 knew about screening test to detect the disease. Among 74 diabetics, 67 knew about the disease and 60 knew about the screening test (Table 3).

Table 4 shows association of knowledge on NCDs and related screening tests according to socio-demographic characteristics. It is observed in our study that, knowledge on NCDs and their screening tests was found to be average in subjects who were <70 years, studied upto high school and were not working anymore.

## DISCUSSION

Increasing burden of NCDs is one of the major public health challenges for developing countries. According to recent WHO report, commonest NCDs like cardiovascular diseases (CVD), cancers (Ca) and diabetes mellitus (DM) account for 53% of all deaths in India. Awareness about NCDs and their risk factors among general population is low.<sup>7</sup> To decrease the burden of NCDs, we should assess the existing knowledge regarding NCDs and their screening tests among general population so that early interventions targeting primary prevention is essential. This study was conducted among elderly population in an urban field practice area of medical college to assess the knowledge regarding NCDs and their screening tests.

In the present study, majority were females and were in the age group of 60-69 years. Most of them were Hindu, educated up to secondary high school. In the study conducted by Feng et al, it was found that among 1329 elderly, majority were females, belonged to age group 60-63 years, and had only attended elementary school.<sup>8</sup>

Among 115 hypertensive subjects, 107 (93%) were aware of the disease and 103 (96.3%) knew about the screening test. In 74 diabetes subjects, 67 (90.5%) were aware of DM and 60 (89.6%) knew about screening test. The study conducted by Kalavathy et al showed that among 185 hypertensive, only 44.9% were aware of the disease and 42.7% were aware about treatment.<sup>9</sup> Similar study conducted by Kaur et al, found that among 100 elderly patients 93 were aware of both hypertension and diabetes. Among 61 hypertensives, 52 knew the symptoms and among 42 diabetics, 25 knew the symptoms.<sup>10</sup>

In the present study, knowledge on NCDs and their screening tests was found to be average among subjects

who were aged <70 years, males, Muslim religion and with high school education.

To conclude, the overall knowledge regarding NCDs and their screening tests is poor among the elderly population. However, the knowledge regarding Hypertension, Diabetes Mellitus and their screening tests is found to be good.

## ACKNOWLEDGEMENTS

We greatly acknowledge the support of faculty of Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bengaluru. We also thank all the study participants for their support and co-operation during the study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Ramegowda C, Kathali S, Rajanna P. Assessment of knowledge on non-communicable diseases and their screening tests among elderly population in an urban area of Bengaluru. *Int J Community Med Public Health* 2019;6:4489-93.