

Original Research Article

Screening of non-communicable diseases in outpatient department of government tertiary care hospital in Maharashtra: a cross-sectional study

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ABSTRACT

Background: Noncommunicable diseases (NCDs), also known as chronic diseases. A total of 55.4 million deaths occurred worldwide during 2019. Of these, 41 million were due to NCDs. Detection, screening, treatment and palliative care are key components of the response to NCDs. Objectives were to estimate the magnitude of non communicable diseases in patients attending government tertiary care hospital. To determine the association between non communicable diseases and socio demographic factors. To study the health seeking behavior for non communicable diseases.

Methods: A hospital-based descriptive cross-sectional study was conducted in out patient department of a tertiary care hospital in Maharashtra. All eligible patients who attended the screening OPD for 2 months period were included in this study. Blood pressure, random blood sugar and BMI were checked. Females were screened for breast lesion with iBeastExam. Data was analysed for statistical significance using Chi square test.

Results: Among the total 1241 individuals screened, 63.58% of population had at least one NCDs. Magnitude of hypertension, diabetes, obesity and breast lesion was 51.97%, 21.11%, 17.89% and 5.35% respectively. 41.55% of hypertensive and 23.28% of diabetic patients were newly diagnosed. 59.68% of hypertensive and 46.76% of diabetic patients were inadequately treated.

Conclusions: The present study concluded that, even today a significant number of patients with NCDs remain unaware of their condition and a considerable percentage of them are not adequately treated.

Keywords: Breast lesion, Diabetes, Hypertension, Obesity

INTRODUCTION

Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of long duration. and are the result of a combination of genetic, physiological, environmental and behavioural factors.¹

A total of 55.4 million deaths occurred worldwide during 2019. Of these, 41 million were due to NCDs, principally cardiovascular diseases (44%), cancer (16%), chronic respiratory diseases (9%) and diabetes (4%).²

As per NFHS-5 report (2019-21), prevalence of hypertension is 24% in males and 21.3% in females, diabetes is 15.6% in males and 13.5% in females. Prevalence of overweight and obesity are 22.9% in males and 24% in females.³ In India, breast cancer is the top most cancer with incidence rate about 25.8 per 100,000 population.² In India 5-10% breast cancers main risk factor is genetic predisposition, in the remaining 90% of sporadic breast cancers, the identified risk factors are either reproductive, lifestyle or environmental factors,

primarily through their influence on the hormonal milieu.⁴

Screening of HTN is recommended in all adults >18 years at every outpatient visit. Follow-up is recommended every 2 years for normal blood pressure (systolic BP<130 and diastolic BP<80 mmHg) and once a year in case of high normal blood pressure (systolic BP130-139 mmHg and Diastolic BP80-89 mmHg).⁵ The ICMR recommends screening of all individuals >30 years of age every 3 years and once a year in case of pre diabetic. Screening individuals at earlier age is recommended if they have additional risk factor for diabetes.⁶

Population wide mammographic screening program of asymptomatic women is neither feasible in India nor it may be as useful due to lower breast cancer incidence and population structure in India. Opportunistic screening may be considered for some high risk and concerned women in India.⁴

This study estimated the magnitude of NCDs and will also help to identify the unrecognized diseases. This leads to early diagnosis, treatment and prevention of complications.

Objectives

To estimate the magnitude of non-communicable diseases in patients attending government tertiary care hospital. To determine the association between non communicable diseases and socio demographic factors. To study the health seeking behavior for Non communicable diseases.

METHODS

Study design and setting

A hospital-based descriptive study with cross-sectional study design was conducted in OPD of a government tertiary care hospital in western Maharashtra.

Study participants and sample size

All patients more than 18 years who attended the screening OPD for 2 months period (July and August 2024) was included in this study.

Those who were having acute severe illness, intake of tobacco/caffeine within 30 minutes, pregnancy, type 1 diabetes mellitus, physical disability patients, patient who has breast lesions, on systemic corticosteroid and having generalized oedema excluded from this study.

Diseases screened

The diseases screened were 1) hypertension, 2) diabetes, 3) obesity and 4) breast lesion.

Study tool and technique

Manual sphygmomanometer, digital glucometer, digital weighing scale, digital stadiometer and intelligent breast exam machine (piezo-electric palpation). Females with breast lesions in iBreastExam were retested with ultrasonography.

For screening of blood pressure at least 2 readings should be taken at an interval of 1 minute. If the readings differ by more than 5 mmHg takes a third reading. The lower of the readings should be taken as the representative SBP and DBP.⁵ Systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg taken as a cut off for diagnosing hypertension.² As per WHO diagnostic criteria, random plasma glucose level ≥ 200 mg/dl considered as diagnostic cut off value for diabetes and BMI ≥ 30 was considered as obese.² Target for control of blood pressure was taken as <140/90 mmHg (adequately treated) and target for control of blood sugar was taken as <180 mg/dl (adequately treated).^{5,6}

At the time of screening, participants were informed about the screening process, its purpose and benefits of participation in the screening and also informed about the history taking and examination procedure and assured that they could refuse to be examined at any point during interview and examination. Once a participant agreed to the process, written informed consent was obtained. A total of 1241 patients age >18 years were screened for DM, HTN and Obesity. 318 willing females were screened for Breast lesion. Females with breast lesions in iBreastExam were retested with ultrasonography.

The data were collected in case record form. The data were analyzed using MS Excel for descriptive statistics. For analytical statistics Chi-square test was used.

RESULTS

Among the total 1241 individuals screened, 63.58% of population had at least one NCDs.

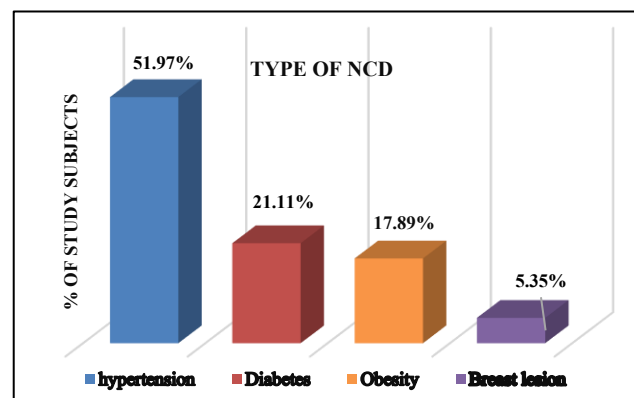


Figure 1: Distribution of study subjects according to type of NCD (n=1241, for breast lesion n=318).

Among 1241 patients screened, 645 (51.97%) were hypertensive, 262 (21.11%) were diabetic and 222 (17.89%) were obese. Among 318 patients screened, 17 (5.35%) were having breast lesion.

Table 1: Association of non-communicable diseases with socio demographic factors.

Socio demographic factors	With NCDs (%)	Without NCDs (%)	Total	Test
Age (in years)				
18-30	39 (24.38)	121 (75.63)	160	χ^2 : 212.61 df: 5 P<0.00001*
31-40	128 (47.58)	141 (52.42)	269	
41-50	186 (67.15)	91 (32.85)	277	
51-60	168 (80.77)	40 (19.23)	208	
61-70	155 (84.24)	29 (15.76)	184	
>70	113 (79.02)	30 (20.98)	143	
Sex				
Male	340 (64.03)	191 (35.97)	531	χ^2 : 0.08 df: 1 P=0.777297
Female	449 (63.24)	261 (36.76)	710	
Religion				
Hindu	499 (63.16)	291 (36.84)	790	χ^2 : 4.86 df: 3 P=0.18234
Muslim	132 (69.84)	57 (30.16)	189	
Buddhist	3 (75.00)	1 (25.00)	4	
Christian	155 (60.08)	103 (39.92)	258	
Education				
Illiterate	254 (73.20)	93 (26.80)	347	χ^2 : 38.8 df: 6 P<0.00001*
Primary	210 (66.46)	106 (33.54)	316	
Secondary	122 (54.46)	102 (45.54)	224	
S.S.C	86 (66.15)	44 (33.85)	130	
H.S.C	43 (48.31)	46 (51.69)	89	
Graduate	63 (52.94)	56 (47.06)	119	
Post graduate	11 (68.75)	5 (31.25)	16	
Marital status				
Unmarried	24 (26.37)	67 (73.63)	91	χ^2 : 61.74 df: 2 P<0.00001*
Married	706 (65.86)	366 (34.14)	1072	
Others	59 (75.64)	19 (24.36)	78	
Total	89	452	1241	

*Significant.

Age, education and marital status was found to be significantly associated with noncommunicable disease. Highest magnitude of noncommunicable disease was observed in 61-70 years age group, males, illiterate and those with other marital statuses (widow and separated).

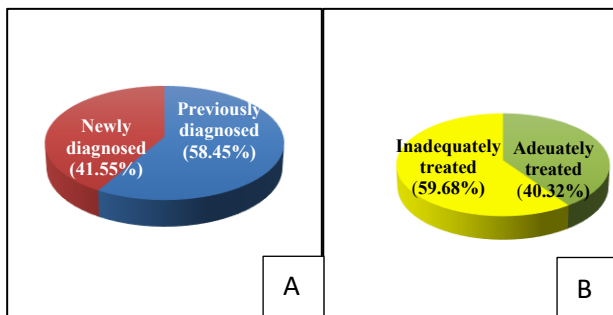


Figure 2 (A and B): Distribution of hypertension patients according to diagnostic status and adequacy of treatment.

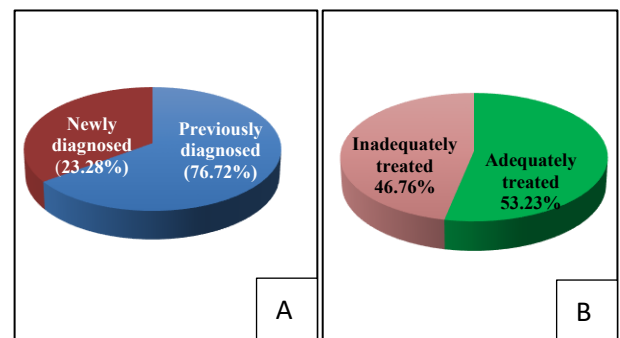


Figure 3 (A and B): Distribution of diabetes patients according to diagnostic status and adequacy of treatment.

Among total of 645 hypertensive patients, 268 (41.55%) patients were newly diagnosed. Of these newly diagnosed hypertension patients, only 152 (40.32%) were adequately treated.

Among total of 261 diabetes patients, 61 (23.28%) patients were newly diagnosed. Of these newly diagnosed diabetes patients, 107 (53.23%) were adequately treated.

DISCUSSION

Overall, the prevalence of hypertension in this study was found to be much higher (51.97%) than the national average (24% and 21.3%) and the studies done in 2019 (26.2%).^{3,7} This high prevalence could be because it was done in a hospital setting and due to the rising burden of NCDs in the elderly group.

The prevalence of diabetes was found to be 18.3% in the SMART India study (2018-2020).⁸ Our study also found near similar results of 21.11%. While the national average was found to be low (15.6 and 13.5%).³

Global prevalence of obesity in 2022 was estimated to be 16%.⁹ Our study also found near similar results of 17.89% (as per BMI>30). While the national average (23 and 24%) and other study (23.4%) was found to be high (where BMI >25).^{3,10}

A study reported that the incidence of hypertension increases with age and decreases with educational level.¹¹ A different study reported that lower the education more the obesity, similar to the present study.¹⁰

Rule of halves for hypertension for the developed countries has been found to be fit in our study.²

The referenced study reported a 42% prevalence of breast lesions, which is significantly higher than the 5.35% lesion detection rate in our study. This difference could be due to screening method differences (mammography versus iBreastExam) or variations in the study population (breast lesions in women with breast-related complaints vs general population).¹²

The iBreastExam study done at Nigeria in 2019 showed a high sensitivity and NPV, but lower specificity for identifying suspicious breast lesions.¹³ In this study we have used iBreastExam as pre-screening tool for breast lesion. False positive patients were excluded by ultrasonography screening.

CONCLUSION

Among the total 1241 individuals screened, 63.58% of population had at least one NCDs. Magnitude of hypertension, diabetes, obesity and breast lesion was 51.97%, 21.11%, 17.89% and 5.35% respectively. Age, education and marital status was found to be significantly associated with noncommunicable disease. 41.55% of hypertensive and 23.28% of diabetic patients were newly diagnosed. 59.68% of hypertensive and 46.76% of diabetic patients were inadequately treated.

The present study concluded that, even today a significant number of patients with NCDs remain unaware of their condition and a considerable percentage of them are not adequately treated.

Recommendations

Strengthen community-based screening and adherence and follow-up. Ensure opportunistic NCD screening at all hospitals. Intelligent breast exam (iBE) may improve triage of breast screening in resource limited regions as it is sensitive and portable.

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Conflict of interest: None declared

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

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