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Summer Internship Report

Department of Health and Family Welfare

(NHM Punjab)

(April 29th to June 28th, 2024)

A report by

Dt. Priya Bansal

PGDM (Hospital and Health Managaement) 2023-25

International Institute of Health Management Research, New Delhi

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Dt. Priya Bansal

28/6/2024

Assistant Director
O/o Director Health Services, Punjab
Sector 34-A, Chandigarh

IIHMR DELHI

PGDM (Hospital and Health Managaement) 2023-25

International Institute of Health Management Research, New Delhi

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FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student: PRIYA BANSAL

Summer Internship Institution: Department of Health & family Welfare, National Health Mission, Punjab

Area of Summer Internship: Chandigarh

Attendance: 100%

Objectives met: Access patient satisfaction on day-to-day basis
Analysed the progress report by giving necessary inputs to NHM

Deliverables: Estimated the effectiveness of the STOP project for oral cancer in Punjab. Also did the secondary analysis for 3yrs of opportunistic screening of Diabetes & Hypertension

Strengths: Dedication, Team-work & hard working.

Suggestions for Improvement: Improvement are needed wherever possible for doing more & more Quality work.

Signature of the Officer-in-Charge (Internship)

Date: August 01st, 2024

Place: IIHMR, Delhi

Certificate of Approval

The Summer Internship Project of titled "**Yield of opportunistic screening: To describe the yield of Opportunistic Screening among Diabetes Mellitus & Hypertension individuals attending public health facilities in Punjab between 2021-24: Secondary research**" at "**Department of Health and Family welfare (National Health Mission, Punjab)**" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

Dr. Nidhi Yadav
Name of the Mentor

Associate Professor
Designation

IIHMR, Delhi

FEEDBACK FORM

(Organization Supervisor)

Name of the Student: Dt. Priya Bansal

Summer Internship Institution: Department of Health & Family Welfare (NHM Punjab)

Area of Summer Internship: NP-NCD.

Attendance: 100%.

Objectives met: Continuous evaluation of the STOP Project for oral cancer, through feedbacks from patients. Analysis done for three financial years and identified the gaps and formulated remedy.

Deliverables: Secondary analysis of T2DM and Hypertension for three financial years in the state of Punjab. Report of visit to a health and wellness centre.

Strengths: Research skills, Leadership, Problem-solving, Team-work, adaptability.

Suggestions for Improvement: can work more on public speaking.

Signature of the Officer-in-Charge (Internship)

Dr Sandeep Singh Gill
Assistant Director
& SNO — NPNCD

Assistant Director
O/o Director Health Services, Punjab
Sector 34-A, Chandigarh

Date: 24/6/2024

Place: Chandigarh, Punjab.

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ACKNOWLEDGEMENT

I am deeply grateful **Dr. Abhinav Trikha, MD at NHM Punjab**, for the opportunity to complete my summer internship at the **Department of Health and Family Welfare (NHM Punjab)**, Chandigarh. This experience has been both enriching and inspiring, and I owe its success to several individuals who have guided and supported me throughout this journey.

I would like to begin by extending my sincere gratitude to **Dr. Sandeep Singh Gill, State Program Officer and Dr. Ashu Gupta, Medical Officer of the National Programme for prevention and control of Non-Communicable Diseases (NP-NCD)**. Their exceptional guidance and mentorship over the past two months have been invaluable. Their dedication, expertise, and encouragement made my internship journey both easy and fruitful.

I am also immensely thankful to **Dr. Nidhi Yadav, Professor at IIHMR Delhi, who is my mentor**. Her constant support, insights, and encouragement have been crucial in helping me navigate and make the most of this experience.

A special thanks to **Dr. Navneet, Consultant WHO at NHM Punjab**, for his seamless coordination and assistance, which ensured a smooth and productive internship.

I am deeply grateful to **Dr. Meenu Lakhanpal, Consultant HR at NHM Punjab**, who has given this chance to work and grab knowledge about health programmes working and implementation in different domains of NP-NCD, in the state of Punjab.

Finally, I would like to thank IIHMR Delhi for providing me with the opportunity to intern at NHM Punjab. This platform has allowed me to gain invaluable practical experience and insights into the healthcare sector.

Thank you all for making this internship a truly memorable and educational experience.

Dt. Priya Bansal

TABLE OF CONTENT

TITLE OF RESEARCH

Yield of Opportunistic Screening:

To understand the yield of Opportunistic Screening among Diabetes Mellitus & Hypertension individuals attending Public Health Facilities in Punjab between 2021-24: Secondary Research

ABBREVIATIONS

S.no.	Abbreviation	Full form
1.	NCDs	Non-Communicable Diseases
2.	HTN	Hypertension
3.	DM	Diabetes Mellitus
4.	NPCDCS	National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
5.	SCs	Sub-Centres
6.	PHCs	Primary Health Centres
7.	WHO	World Health Organization
8.	IDRS	Indian Diabetes Risk Score
9.	CBAC	Community-Based Assessment Checklist
10.	BMI	Body Mass Index
11.	OPD	Out-Patient Department
12.	DH	District Hospital
13.	SDH	Sub District Hospital
14.	CHCs	Community Health Centres

GLOSSARY

S.no.	Terms	Definition
1.	Opportunistic Screening	Opportunistic screening aims to detect diseases early in individuals who consult healthcare providers for various reasons. This method involves checking the eyes of diabetic patients whenever possible, such as during their visits to a NCD clinic for treatment or a routine check-up with an optometrist.
2.	Initiated for Treatment	These are individuals who are screened either for hypertension or diabetes mellitus, diagnosed and put on treatment in the same facility or referred to another or higher facility.
3.	Normoglycemic	the condition of having a normal blood sugar level (capillary blood glucose less than 250 mg/dL)
4.	Diagnosed	Identification of a disease, condition, or injury from its signs and symptoms
5.	IDRS	The Indian Diabetes Risk Score (MDRF-IDRS) was created by the Madras Diabetes Research Foundation to identify undiagnosed Type 2 diabetes (T2DM) within the community. It was later discovered that the MDRF-IDRS could also be useful in predicting the onset of diabetes, metabolic syndrome, coronary artery disease (CAD), non-alcoholic fatty liver disease, and sleep disorders within the community.
6.	CBAC	The Community-Based Assessment Checklist (CBAC) Form is an important tool for the early detection of Non-Communicable Diseases (NCDs) in communities.
7.	Form 5A	See annexure 1
8.	Diabetes Mellitus	Diabetes is a long-term metabolic condition characterized by elevated blood glucose (blood sugar) levels, which can progressively lead to severe damage to the heart, blood vessels, eyes, kidneys, and nerves. Diagnosis of Diabetes: • Fasting Blood Sugar (FBS) ≥126 mg/dL • Random Blood Sugar (RBS) ≥200 mg/dL • Post-Prandial Blood Sugar (PPBS) ≥200 mg/dL • or HbA1c ≥6.5%
9.	Hypertension	Measure the blood pressure of all adults aged 18 and above. High BP: Systolic Blood Pressure ≥ 140 or Dystolic Blood Pressure ≥ 90 mmHg

Observational Learning

Introduction

The purpose of this report is to evaluate the operational guidelines and effectiveness of various healthcare programs in Punjab, with a focus on screening and treatment for breast cancer, cervical cancer, oral cancer, Type 2 Diabetes Mellitus, and hypertension. The analysis covers both primary and secondary data sources to identify gaps and provide actionable recommendations.

Objectives

1. Breast Cancer Screening:

   - Evaluate the effectiveness of thermography as a screening method for women under 40 and those with dense breast tissues.

   - Compile diagnostic reports and treatment outcomes from NHM's breast cancer project.

2. Cervical Cancer Detection:

   - Understand the operational guidelines for the Visual Inspection with Acetic Acid (VIA) test.

3. Oral Cancer Data:

   - Identify gaps at patient and hospital levels concerning oral cancer data.

4. Diabetes and Hypertension:

   - Analyze secondary data to identify gaps in the management of Type 2 Diabetes Mellitus and hypertension across all districts of Punjab.

5. Program Implementation and Monitoring:

   - Monitor the implementation and effectiveness of healthcare programs among different districts.

   - Develop a Programme Implementation Plan (PIP).

6. Inspection at Fatehgarh Sahib

7. Visit at Health & Wellness Centre (Saini Majra)

Method of data collection

Data for different programme has been collected from the NP-NCD Database.

Findings

1. Breast Cancer:

specificity compared to mammography.

2. Cervical Cancer:

- Preparation and application of 5% Acetic Acid for VIA testing were assessed.

3. Oral Cancer:

- Identified issues include the lack of communication between patients and hospitals, incomplete information, and a lack of follow-up.

4. Diabetes and Hypertension:

- Gaps include incomplete data, limited disaggregation, insufficient healthcare facilities, and lack of awareness programs.

5. Program Implementation:

- Identified gaps in policy compliance, resource allocation, and healthcare disparities.

- The need for standardized data collection protocols and enhanced data quality.

6. Reviewed the implementation of the NCD Programme and its related work and functioning such as pending bills, maintenance of NCD registers & follow-up etc.

7. The visit to HWC showed the impoverished condition of facilities, diagnostic, infrastructure, etc.

therefore, the headquarters need to look after and intervene by providing to resources they need.

Conclusion

The report highlights significant gaps in the healthcare programs' implementation and effectiveness, particularly in early detection, treatment accessibility, and data management. Addressing these gaps is crucial for improving health outcomes in Punjab.

Limitations

1. Thermography:

- Inability to localize lesions or tumours.

- Sensitivity and specificity lower than mammography.

2. Data Quality:

- Incomplete and inconsistent secondary data.

- Lack of detailed demographic information.

3. Healthcare Infrastructure:

- Insufficient facilities and trained personnel.

- Limited access to affordable screening and treatment, especially in rural areas.

General Recommendations:

- Training and capacity building for healthcare personnel.

- Implement digital health solutions and centralized data management systems.

- Engage communities and stakeholders in program implementation and feedback.

- Utilize comprehensive data sources for better policy recommendations.

INTRODUCTION

Non-communicable diseases (NCDs), including cancer, diabetes mellitus, heart disease, stroke, and chronic respiratory disorders, are increasingly common in Asian regions. This rise is linked to risk factors such as alcohol and tobacco use, poor diets, physical inactivity, and high blood pressure. Over the past three decades in India, hypertension—a key contributor to cardiovascular disease—has surged significantly. Currently, hypertension affects 20-40% of adults in urban areas and 12-17% in rural regions, a substantial increase from the former prevalence of 5% (Majumdar et al., 2014).

Non-communicable diseases (NCDs) were responsible for 63% of all deaths in India in 2016, mirroring the global trend. The country has approximately 72 million individuals with diabetes mellitus (DM), representing 49% of the global burden, and 207 million people with hypertension (HTN). Preventing premature death and morbidity from NCDs relies on early detection and timely management through a robust health system. To tackle this issue, India launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) in 2010. In Karnataka, the NPCDCS was gradually introduced in various districts starting in 2010-11 and was fully implemented in Dakshina Kannada district in 2018. A key NPCDCS strategy for early detection of diabetes and hypertension is opportunistic screening for adults aged 30 and above at all public health facilities, ranging from sub-centres (SCs) to primary health centres (PHCs) and beyond. (Raghuveer et al., 2020)

A common chronic Non-Communicable Disease in both industrialized and developing nations are type 2 Diabetes mellitus (DM) and Hypertension (HTN). Diabetes mellitus, one of the most prevalent metabolic diseases globally, leads to significant mortality and disability. Diabetes impacts 19.4 million individuals in India, with the country recognized by the World Health Organization (WHO) as the global diabetes capital. It is projected that nearly 80 million people will have diabetes in India by 2030. Additionally, the prevalence of hypertension among adults is expected to increase by 60%, affecting 1.56 billion people by 2025. Approximately 70% of diabetics have hypertension, and they are twice as prone to develop it as normoglycemics. Before diabetic mellitus (DM) manifests itself, hypertension frequently occurs. Hypertension significantly increases the risk of coronary heart disease, stroke, kidney disease, and eye complications in individuals with diabetes. Furthermore, the risk of cardiovascular disease increases by 75%, adding to the morbidity and death in this high-risk population. Epidemiological and clinical studies indicate that these diseases tend to occur together in individuals and within families. [Sharma *et al.,* (2022)]

RATIONALE FOR STUDY

1. Opportunistic Screening can identify patient-specific risk factors that might result in serious diseases in the future.

2. Opportunistic screening for hypertension and diabetes aids in detecting these diseases early, facilitating timely prevention and treatment.

3. Research from studies conducted in the UK supports conducting opportunistic screening every five years for individuals aged over 40, and annually for those with risk factors indicating diabetes.
4. Resource Optimization: Utilize existing healthcare infrastructure and personnel, making it a cost-effective strategy for resource-limited settings.

REVIEW OF LITERATURE

The study conducted opportunistic screening for hypertension and cardiovascular risk factors among adults at a Primary Health Center (PHC) in rural Puducherry, India. It involved individuals aged 30 and older who visited the outpatient department, excluding those already diagnosed with hypertension and pregnant women. Data on age, gender, diabetes, tobacco, and alcohol use were gathered, along with measurements of blood pressure, blood sugar levels, height, weight, and waist circumference. Among the 324 participants (56.8% female, mean age 47.7 years), 17.9% were found to have hypertension and 37.7% had prehypertension. Additionally, 17.3% had diabetes, 22.2% used tobacco, 21.3% consumed alcohol, 31.8% were generally obese, 19.1% were overweight, and 45.1% had central obesity. The findings highlight a significant presence of prehypertension and obesity, emphasizing the need for early intervention in this population (Majumdar et al. 2014).

The study evaluated the efficacy of opportunistic screening for Diabetes Mellitus (DM) and Hypertension (HTN) among individuals aged 30 and above at two Primary Health Centers in Dakshina Kannada district, Karnataka, between March and May 2019. Using a mixed-methods approach, the study identified eligible individuals, screened them, and explored enablers and barriers from the perspectives of healthcare providers and individuals. Out of 2697 individuals, 512 (19%) were eligible for DM screening, with 401 (78%) screened, resulting in 88 diagnoses (22%) and 67 of those (76%) starting treatment. For HTN, 337 (13%) were eligible, 327 (97%) were screened, with 55 diagnoses (17%) and 44 of those (80%) starting treatment. Enablers included patient willingness and recognizing the screening's relevance, while barriers included overworked staff, logistical issues, and inadequate training. The study concluded that while the screening yield was high, addressing these barriers is crucial for improving service delivery and uptake. (Raghuveer et al., 2020)

A cross-sectional study was conducted over three months (July-September 2018) among individuals aged 30 and above at a tertiary care hospital in Mangalore to screen for hypertension and diabetes. Data were collected from 150 participants through personal interviews, anthropometry, blood pressure measurements, and random blood sugar tests. The analysis revealed that 48% of individuals were normotensive, 29.3% were prehypertensive, and 22.7% were hypertensive. Additionally, 43.3% had a random blood sugar level exceeding 140 mg/dl. Significant correlations were observed between hypertension and factors such as age, gender, family structure, occupation, religion, alcohol and

smoking habits, and physical activity ($p<0.05$). Moreover, age over 45 years, lack of formal education, Christian faith, family history of diabetes, and being overweight or obese were significantly associated with elevated random blood sugar levels ($p<0.05$). A substantial proportion of hypertensive (67.6%) and prehypertensive (40.9%) individuals also had diabetes. The study concluded that opportunistic screening for hypertension and diabetes is vital for early detection, prevention, and prompt treatment of these conditions. (Sharma *et al.*, 2022)

A screening event was organized on Ambedkar Jayanti (April 14, 2019) in Delhi to identify individuals aged 30 and above with Type 2 Diabetes and Hypertension. The study included 214 participants, with 78% males and 22% females. Blood pressure was measured thrice, and random blood sugar levels were recorded. The findings indicated that 27% had elevated systolic blood pressure and 33% had elevated diastolic blood pressure, with mean values of 130.49±21.7 mmHg and 85.72±12.6 mmHg, respectively. Additionally, 50.7% had elevated random blood sugar levels. About 19% of participants reported prior diagnoses of Type 2 Diabetes and Hypertension and were receiving treatment. The study underscored a notable prevalence of elevated blood sugar and blood pressure, underscoring the importance of integrating opportunistic screening into routine healthcare practices for early detection and treatment of these conditions. (Bharti et al., 2020)

This study aimed to conduct opportunistic screening for Diabetes and Hypertension among individuals visiting outpatient departments at health centers affiliated with the Department of Community Medicine and Family Medicine at AIIMS Jodhpur, India. Conducted at three rural health centers from 2018 to 2019, the study screened 942 individuals aged 30 and above. Data collection utilized Epicollect5, incorporating risk assessments via the Indian Diabetes Risk Score (IDRS), Community-Based Assessment Checklist (CBAC), Waist-Hip Ratio, and BMI. Measurements included random and fasting capillary blood sugar levels, as well as blood pressure. The average age of participants was 52.4 years. Results indicated that 47.4% had an IDRS score of ≥60, 29.3% had a CBAC score of ≥4, and 23.7% had a random blood sugar level of ≥140 mg/dl, with 42.5% diagnosed as diabetic based on fasting blood sugar. Furthermore, 25.6% were identified as hypertensive. Physical activity and hypertension emerged as significant predictors of diabetes, while age and BMI were the primary predictors of hypertension. The study highlighted that the prevalence of diabetes and hypertension aligned with national trends and identified fewer predictive variables for non-communicable diseases compared to existing models. (Gupta et al., 2021)

Hypertension poses a significant public health challenge in India, often referred to as a silent threat. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) advocates for opportunistic screening for hypertension across all healthcare facilities. Ghosh et al. conducted a study in 2018 at a tertiary care hospital in West Bengal to determine the prevalence of hypertension among adults aged 18 and above attending the General Outpatient Department (OPD). The cross-sectional observational study involved 244 participants and assessed socio-demographic factors, as well as modifiable and non-modifiable risk factors. The results revealed that 40.2% of subjects had normal blood pressure, 18.4% were already diagnosed with hypertension, and 41.3% were newly identified with high blood pressure. Among those previously diagnosed, 75% had poorly controlled hypertension. Significant correlations were observed between hypertension and factors such as age, religion, family history, BMI, and central obesity. The study recommended expanding opportunistic screening across all healthcare levels, particularly through platforms like village health nutrition days, providing free treatment, and enhancing awareness and counselling on lifestyle modifications. (Ghosh et al., 2019)

Ramani and Suresh conducted a study aimed at screening and diagnosing hypertension and diabetes among individuals aged over 30 years in urban slums of Bangalore. The study, carried out in 2010 as part of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), involved collaboration with the Ministry of Health and Family Welfare, health services, and medical colleges in Bangalore. The survey revealed a prevalence of 21.5% for hypertension, 13.8% for diabetes, and 30.4% for the coexistence of both conditions. Tobacco use was reported by 5.1% of participants, while 32.4% were overweight and 20.0% were obese. A lack of awareness about the program was identified as the primary reason for the underutilization of services, affecting 18.96% of the population. The study concluded that the NPCDCS should address social determinants influencing healthcare access and incorporate initiatives to promote behavioral change, thereby enhancing the effectiveness of the program. (Ramani & Suresh, 2020)

OBJECTIVES OF THE STUDY

1. PRIMARY OBJECTIVE

To analyse the trends among the footfall, diagnosis and patient-initiated for treatment by Opportunistic Screening of Hypertension and Diabetes Mellitus.

2. SECONDARY OBJECTIVES

- To compare the number of patients with Hypertension and Diabetes diagnosed and initiated for treatment attending health facilities in Punjab
- To assess the temporal trends among the screened patients yearly.

MATERIALS AND METHODS

- **STUDY DESIGN**

  Secondary data analysis from Punjab state report from govt health facilities in Punjab for 2021-2024.

- **STUDY SETTING**

  Punjab has a population of 31,623,274 people which is divided into 23 administrative districts. This data has been collected from District hospitals with their respective districts.

- **STUDY DURATION**

  The study is planned to be completed in 2 months.

- **STUDY POPULATION**

  Individuals visiting or referred to district hospitals of Punjab.

- **STUDY SAMPLE:**

  Data of patients for Opportunistic Screening visited/attended different health facilities (23 District Hospitals, 41 Sub-District Hospitals, 162 Community Health Centres and 522 Public Health Centres) in Punjab, has been compiled at district hospitals and included in this study.

SELECTION CRITERIA

- **INCLUSION CRITERIA**

  - Patient data from 23 districts of Punjab was collected using a reporting format (Form 5A). After the ethical clearance from the Directorate Health Services, Punjab, the data is included in the study.
  - Opportunistic Screening data was included.

- **EXCLUSION CRITERIA**

  - Except for Diabetes Mellitus and Hypertension, no other diseases of the NP-NCD Programme were included.
  - Population-based screening data was excluded.

- **METHOD OF SAMPLING**

  We have used the Stratified Sampling method to select our sample.

- **STUDY VARIABLES**

  We have 2 study variables:

  1. Whether the person has Diabetes Mellitus

  Variables: Screened individuals, diagnosed individuals and individuals put on treatment.

  2. Whether the person has Hypertension

  Variables: Screened individuals, diagnosed individuals and individuals put on treatment.

DATA COLLECTION TOOL

The data was sourced for the Opportunistic Screening as per the data received from Districts in the monthly reporting format for the opportunistic screening conducted at District Hospital/ Sub District Hospitals (DH/SDH), Primary Health Centres (PHCs) and Community Health Centres (CHCs) of Punjab for the duration, April-March 2021 to April-March 2024 in a structured spreadsheet (available as Extended data).

METHOD OF DATA COLLECTION

We sourced our data for the Opportunistic Screening from the spreadsheet shared by district NCD cells of the state of Punjab for the duration of April-March 2021 to April-March 2024 in a structured spreadsheet (available as Extended data).

DATA MANAGEMENT PLAN

- DATA COMPILATION - All the data that has been obtained from district hospitals has compiled and entered in Excel.
- DATA CLEANING - The data was cleaned by eliminating incorrect, corrupted, improperly formatted, duplicate, or incomplete entries.
- The clean data was then analysed using Excel functions and percentage change was determined for each objective.
- Our result has been expressed in the form of frequencies and percentages.

ANALYSIS AND RESULTS

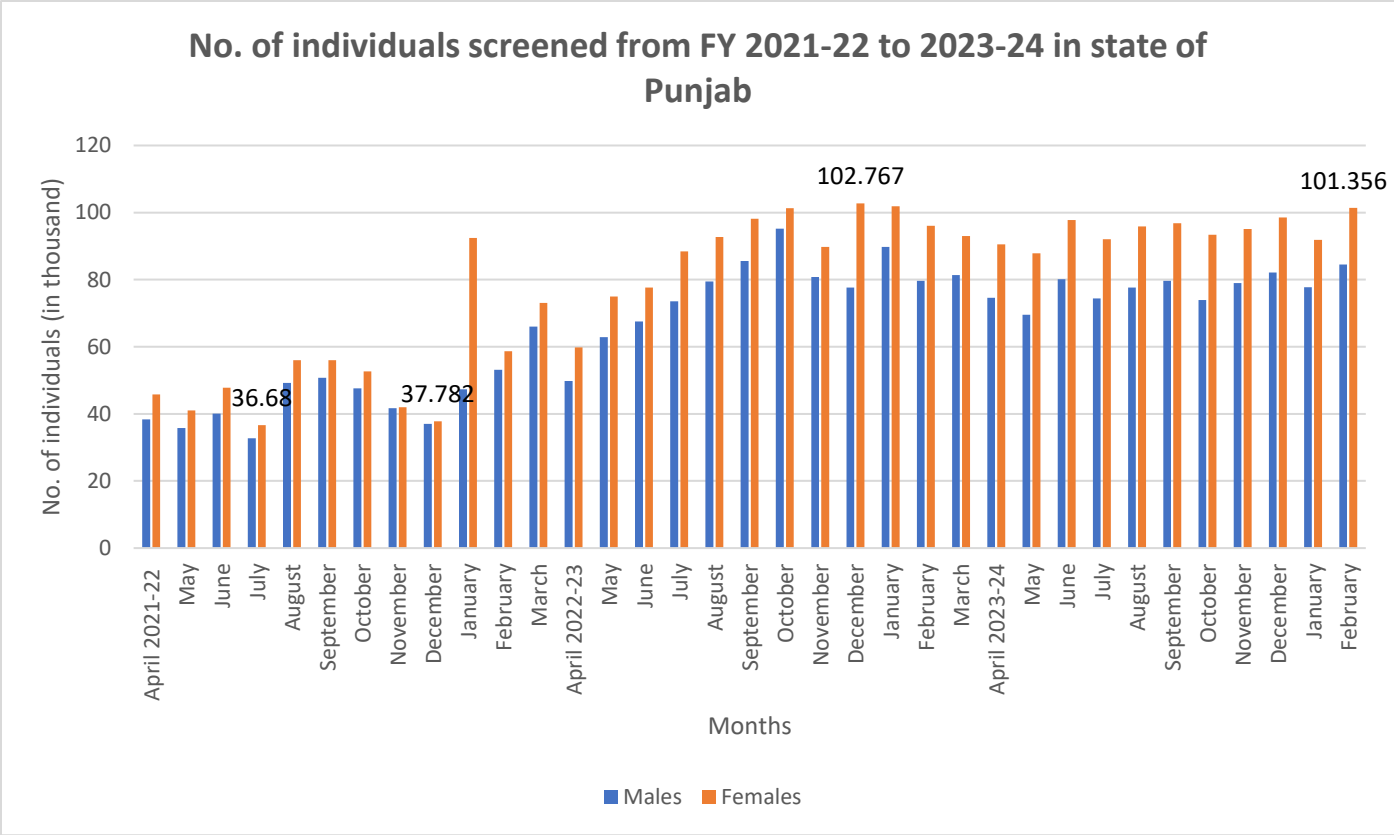
To analyse the trends among the footfall, diagnosis and patient initiated for treatment by Opportunistic Screening of Hypertension and Diabetes Mellitus.

1. **To assess the temporal trends among the screened patients yearly.**

Table 1

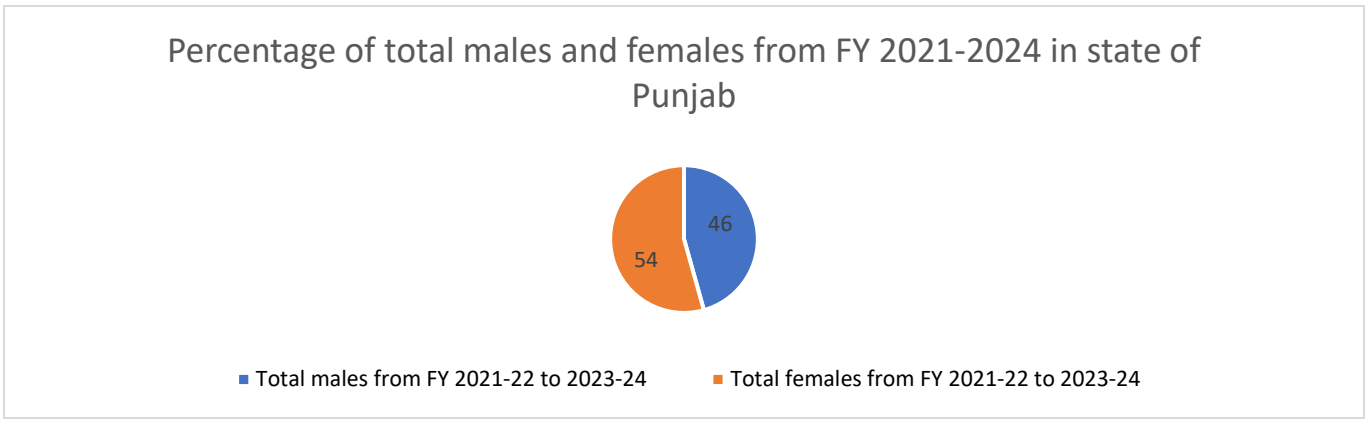
	Total no. of individuals attended NCD Clinics (New and Follow Up)					
	Males			**Females**		
Month	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
April	38391	49757	74611	45753	59786	90507
May	35803	62915	69519	40982	75012	87854
June	40116	67563	80171	47756	77639	97761
July	32720	73584	74452	36680	88444	92023
August	49274	79475	77687	55996	92759	95866
September	50775	85611	79691	55959	98125	96781
October	47577	95198	73920	52643	101314	93347
November	41671	80763	78944	41940	89797	95067
December	37036	77699	82146	37782	102767	98561
January	47367	89791	77743	92396	101905	91868
February	53122	79685	84566	58635	96082	101356
March	66034	81367		73110	92962	

Figure 1



There is sharp increase in screening in the month of January in 2021-22. Also, July has screened minimum number of individuals in 2021-22. Highest number of individuals have been reported in the month of December in 2022-23 and among all three financial years from 2021-24. Females individuals are increasing over 3 years for screening than males individuals.

Figure 2

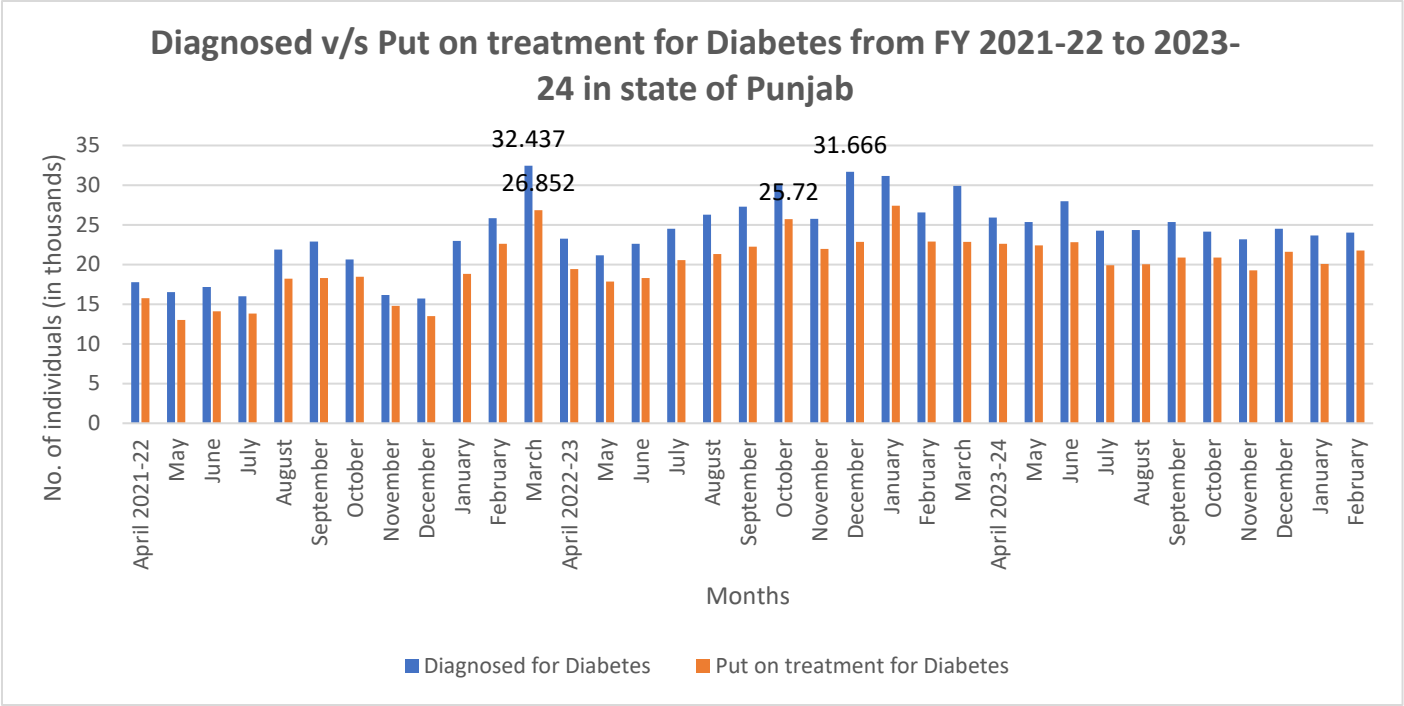


Thereis overall increase in the number of individuals screened over three years.Among males and females, 54% females and 46% males were oppoprtunistically screened in the state of Punjab, India between financial years 2021-24.

Table 2

	Total individuals diagnosed with Diabetes Mellitus			**Total individuals put on treatment for Diabetes Mellitus**		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
April	17781	23253	25907	15777	19433	22595
May	16513	21168	25343	12998	17852	22414
June	17184	22598	27993	14084	18313	22795
July	16000	24506	24273	13836	20570	19895
August	21885	26285	24332	18223	21335	20034
September	22884	27296	25352	18284	22260	20869
October	20652	30097	24160	18463	25720	20894
November	16150	25759	23178	14809	21956	19254
December	15729	31666	24520	13493	22849	21608
January	22973	31157	23655	18819	27390	20079
February	25850	26556	24014	22599	22893	21778
March	32437	29908		26852	22868	

Figure 3



Highest number of individuals were diagnosed and initiated for treatment for Diabetes mellitus in the month of March among all the three Financial Years from 2021-2024. Followed by March, there is sharp increase in the diagnosis and treatment initiation for Diabetes Mellitus during the months from December to January in 2022.

Figure 4

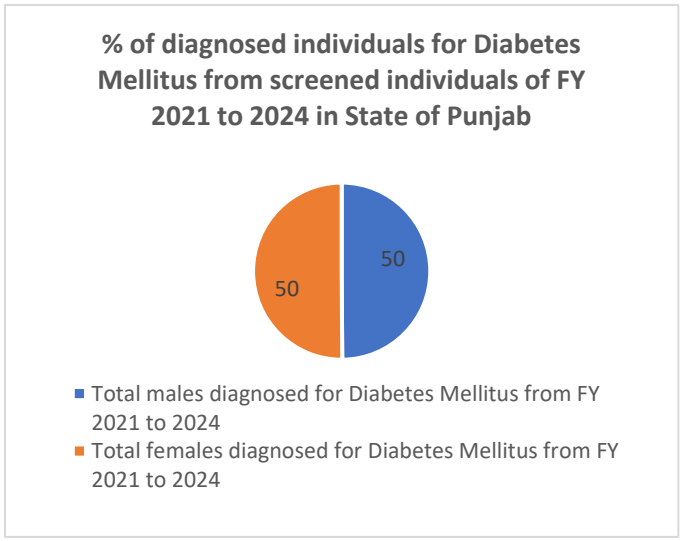
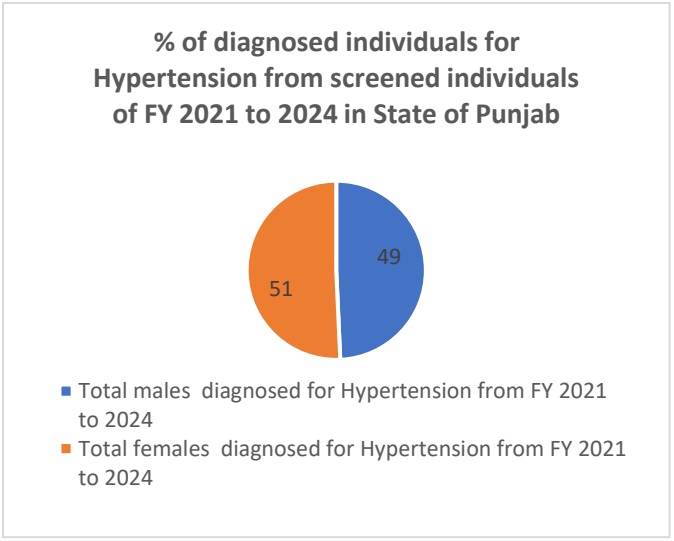


Figure 5



Out of 54% screened females, 50% females were diagnosed for Diabetes Mellitus and 51% females were Diagnosed for Hypertension from screened individuals.

Out of 46% screened males, 50% males were diagnosed for Diabetes Mellitus and 49% males were diagnosed for Hypertension from screened individuals.

Figure 6

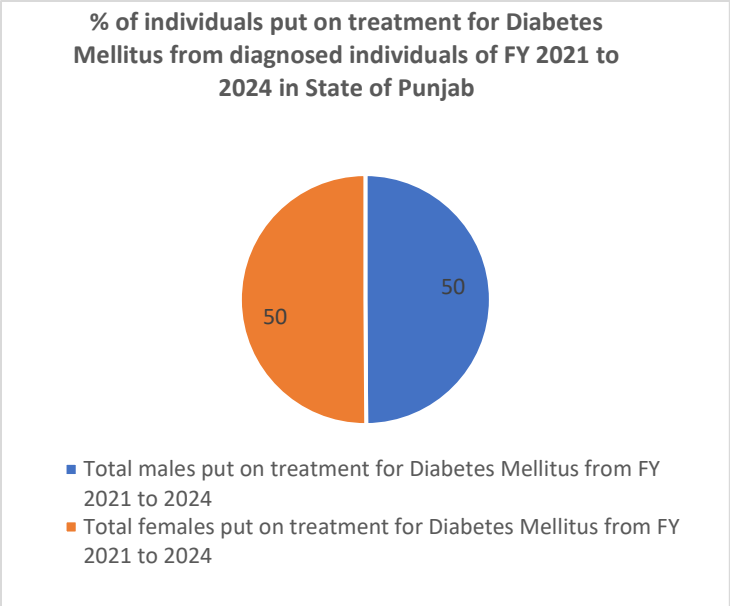
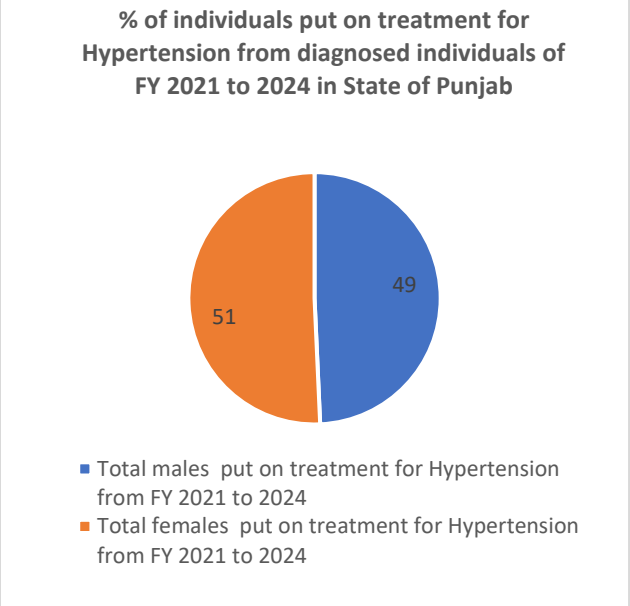


Figure 7



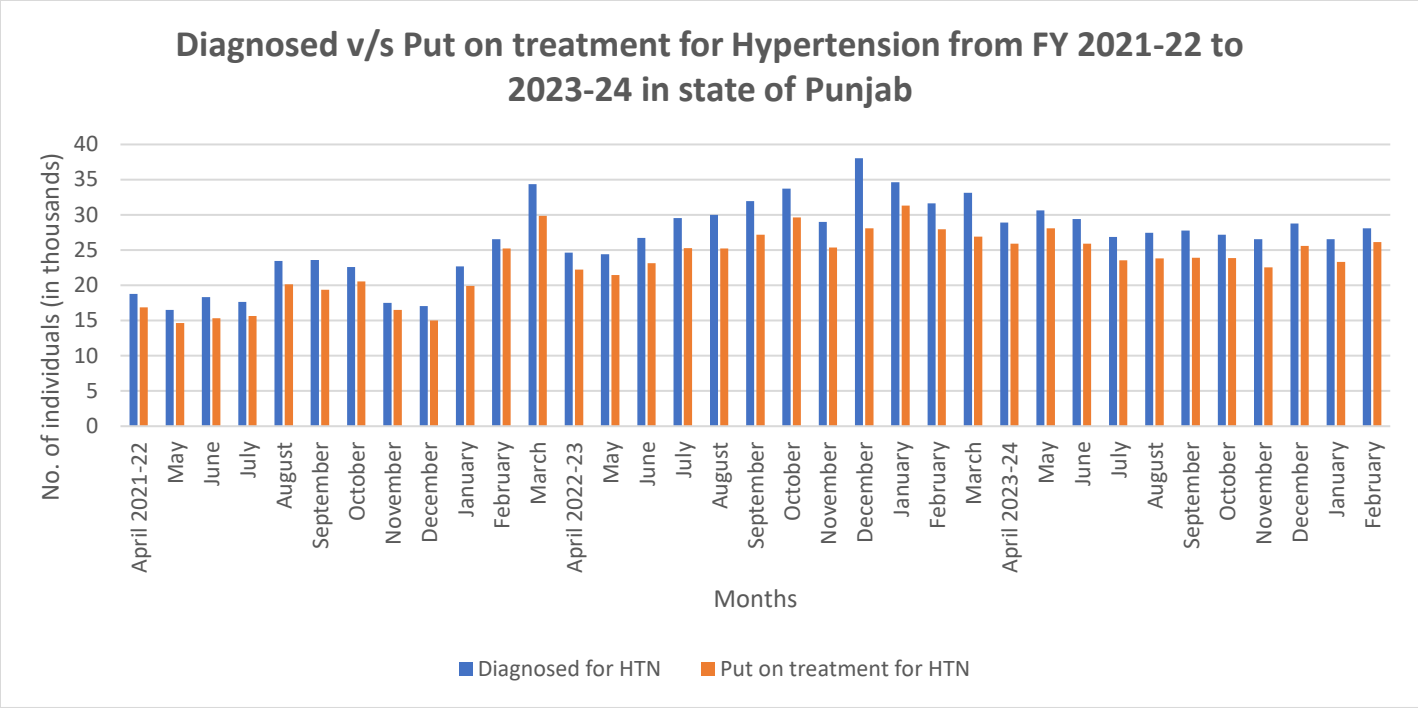
Out of 54% screened females, 50% females were initiated for treatment against Diabetes Mellitus and 51% females were initiated for treatment against Hypertension from screened individuals.

Out of 46% screened males, 50% males were initiated for treatment against Diabetes Mellitus and 51% females were initiated for treatment against Hypertension from screened individuals.

Table 3

	Total individuals diagnosed with HTN			**Total individuals put on treatment with HTN**		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
April	18771	24631	28895	16873	22249	25928
May	16516	24436	30626	14670	21448	28090
June	18318	26752	29421	15327	23135	25897
July	17637	29563	26868	15629	25255	23539
August	23441	30016	27462	20151	25248	23802
September	23606	31933	27770	19367	27200	23908
October	22588	33747	27171	20572	29655	23879
November	17498	29001	26554	16518	25350	22532
December	17045	38042	28764	14990	28097	25595
January	22699	34640	26555	19900	31319	23308
February	26548	31645	28104	25244	27958	26162
March	34350	33140		29855	26925	

Figure 8



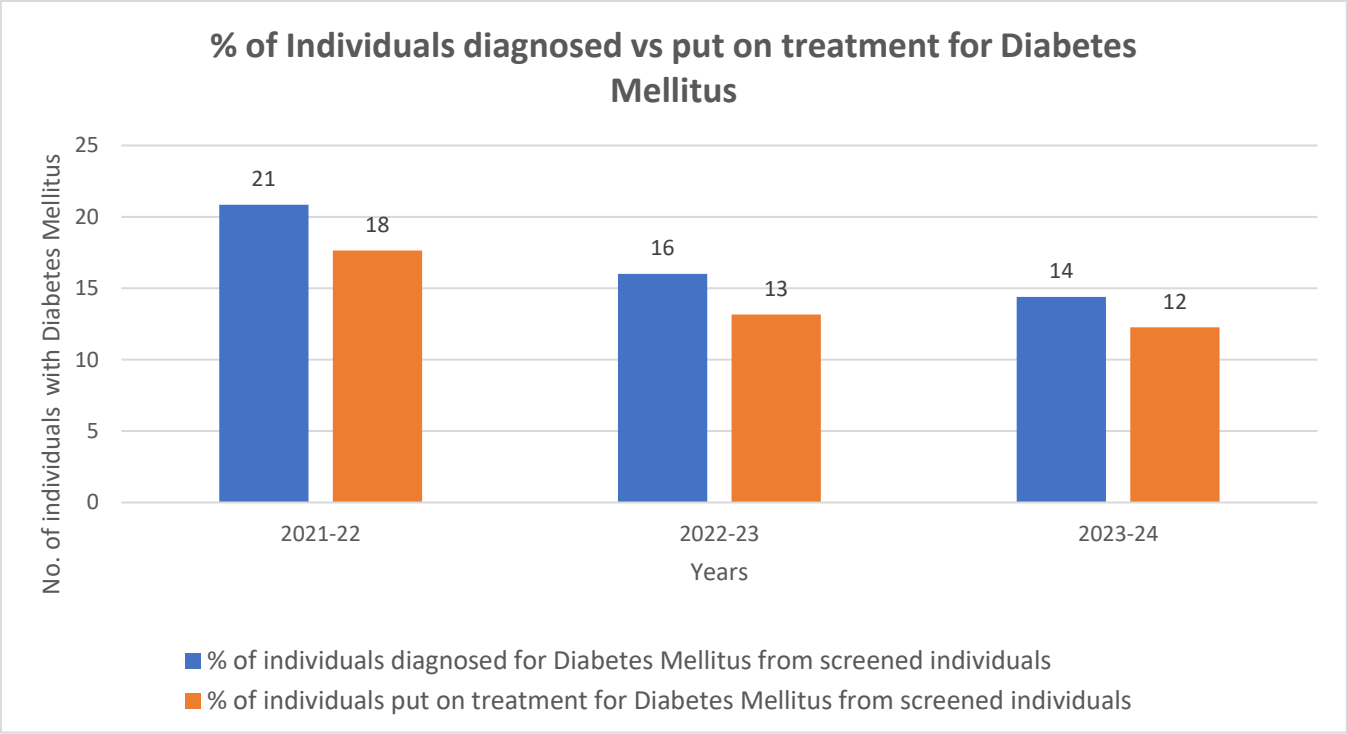
The highest number of individuals were diagnosed and initiated for treatment for Hypertension in December among all the three Financial Years from 2021-2024. Following December, there is a sharp increase in the diagnosis and treatment initiation for Hypertension during March 2022.

2. To compare the number of patients with Hypertension and Diabetes diagnosed and initiated for treatment attending health facilities in Punjab

Table 4

FY	Total individuals screened	Diagnosed with Diabetes Mellitus	% of individuals diagnosed with Diabetes Mellitus from screened individuals	Initiated for Diabetes Mellitus treatment	% of individuals put on treatment for Diabetes Mellitus from screened individuals
2021-22	1179518	246038	21	208237	18
2022-23	2000000	367546	16	263439	13
2023-24	1894441	272727	14	232215	12

Figure 7

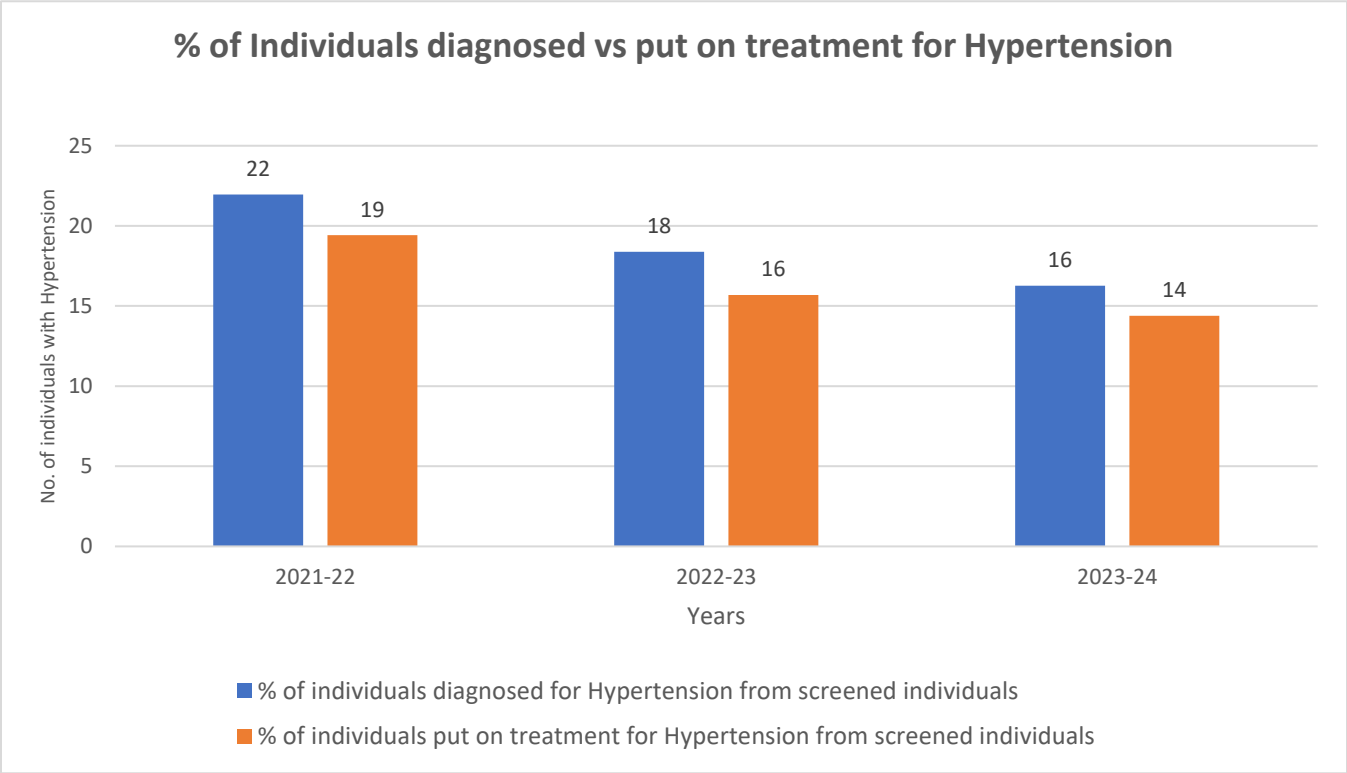


There is not much gap between the diagnosis and treatment initiation for Diabetes Mellitus throughout all three financial years from 2021 to 2024. Also, there is a decline from 2021-2024 in the percentage of individuals diagnosed (21%- 14%) and initiated with treatment (18%-12%).

Table 5

FY	Total individuals screened	Diagnosed for Hypertension	% of individuals diagnosed for Hypertension from screened individuals	Initiated for Hypertension treatment	% of individuals put on treatment for Hypertension from screened individuals
2021-22	1179518	259017	22	229096	19
2022-23	2000000	320249	18	313839	16
2023-24	1894441	308190	16	272640	14

Figure 1



There is not much gap between the diagnosis and treatment initiation for Hypertension throughout all three financial years from 2021 to 2024. Also, there is a decline from 2021-2024 in the percentage of individuals diagnosed (22%-16%) and initiated with treatment (19%-14%)

DISCUSSION

The findings of this study illustrate significant trends in the diagnosis and initiation of treatment for both Diabetes Mellitus and Hypertension through Opportunistic Screening in Punjab over the three financial years from 2021 to 2024.

Out of total screened individuals, only 16.5% were diagnosed for Diabetes Mellitus and only 13.8% were initiated for treatment from total screened patients for Diabetes Mellitus.

Similarly, out of total screened individuals, only 18.2% were diagnosed for Hypertension and only 16% were initiated for treatment from total screened patients for Hypertension.

The data indicates a consistent decline in the percentage from the year 2021-22 to 2023-24 among individuals diagnosed {(21%- 14% for Diabetes Mellitus) (22% -16% for Hypertension)} and a subsequent decrease in initiated for treatment {(18%-12% for Diabetes Mellitus) (19%-14% for Hypertension). Despite the overall increase in the total number of individuals screened, the percentage of those diagnosed and treated decreased in all three years.

One possible explanation for this trend is an improvement in public health awareness and preventive measures, resulting in a lower incidence rate of these conditions. Another factor could be the saturation of high-risk populations, where initial years saw a higher yield from opportunistic screenings, but subsequent years had a comparatively lower yield as those at risk had already been identified and treated(Raghuveer et al., 2020).

The gender distribution of the screened individuals showed that 19% more females were screened than males, yet the diagnosis and treatment initiation rates were almost equal between genders. This suggests an unbiased screening process and consistent healthcare delivery across genders (Sharma et al., 2023; Mokha et al., 2010).

However, the monthly trends show variability in diagnosis and treatment initiation, with peaks in certain months. The highest numbers for Diabetes Mellitus diagnosis and treatment initiation were observed in March, whereas for Hypertension, December showed the highest numbers. For instance, the FY 2023-24 has experienced a constant number of individuals with a slight increase of 20,804 individuals from April to February. These peaks could be influenced by underlying health problems, seasonal factors, healthcare campaigns, or other socio-cultural events impacting healthcare access and seeking behaviour (Naseri et al., 2022; Karinja et al., 2019)

CONCLUSION	RECOMMENDATIONS
The study effectively illustrates the trends observed in opportunistic screening for Diabetes Mellitus and Hypertension in Punjab. Key conclusions drawn include: • Individuals with Hypertension were found to be slightly more than Diabetes Mellitus (by almost ~2%) • Monthly variability in diagnosis and treatment initiation peaks, suggesting external influences on healthcare-seeking behaviour. • An almost equal diagnosis and treatment initiation rate among males (50%) and females (50%) have been observed. • A declining trend in the percentage of diagnosed and treated individuals despite increased screening efforts. These insights emphasize the need for continuous monitoring and tailored public health interventions to maintain and enhance the effectiveness of opportunistic screenings.	Based on the findings, the following recommendations are proposed: • Strengthen Preventive Measures: Enhance community education and preventive strategies to further reduce the incidence rates of Diabetes Mellitus and Hypertension. • Monthly Campaigns: Conduct specific healthcare campaigns during months with historically lower screening and treatment initiation to balance the healthcare load throughout the year. • Data Collection Enhancement: Incorporate additional variables such as demographic data, lifestyle factors, and comprehensive clinical parameters to enable more detailed analysis and understanding of trends. • Conduct a study to find out the reason of the • downfall in screening over the years • Find out the external factors that influence low screening rates • Target High-Risk Populations: Focus on high-risk groups through targeted screening and intervention programs to ensure early detection and treatment. • Longitudinal Studies: Implement longitudinal studies to monitor the long-term outcomes of individuals identified and treated through opportunistic screening. To evaluate the effectiveness and impact of these interventions.

LIMITATIONS

The conclusions drawn from our study should be interpreted with caution due to the limited number of variables considered. These findings may not apply to different settings or geographical regions. While there were some gaps, such as missing demographic data, opportunistic screening was conducted for individuals aged 30 and above. There could be more comprehensive research if more variables/data were there like demographic data, blood pressure and sugar (fasting or post-prandial). Therefore, there is vast scope to support the findings of this research.

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ANNEXURE I

National Programme on Prevention & Control of Cancer, Diabetes, CVDs & Stroke (NPCDCS)

Reporting performa for District NCD Cell

District:- All State: Punjab

Month: Form 5A

Indicator		During the Reporting Month			Cumulative since April during current Financial year		
		Male	Female	Total	Male	Female	Total
I. Common NCDS under NPCDCS							
1. No. of persons attended NCD Clinics (New and follow up)							
2. No. newly diagnosed with	A. Diabetes Only						
	B.Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F.Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
3. Number of persons suspected (Confirmatory Diagnosis not available/ Pending)	A. CVDs						
	B. Stroke						
	C.Cancers						
4. No. of newly diagnosed patients put on Treatment	A. Diabetes Only						
	B.Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F.Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
5. No. of persons on treatment follow up	A. Diabetes Only						
	B.Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F.Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
6. No.of person referred to Tertiary hospital/TCCC	A. Diabetes (Complications)						
	B. Hypertension (Complications)						
	C. CVDs						
	D. Stroke						
	E. Oral Cancers						
	F. Breast Cancer						
	G. Cervical Cancer						
	H. Other Cancers						
7. No. of Patients treated at CCU	A. CVDs						
	B. Stroke						
8. No of cancer patients treated in Day Care facility							
9. No. of persons counselled for health promotion & prevention of NCDs							
10. No. of patients underwent Physiotherapy							
II. Co-morbidities							
1. Among all confirmed Diabetic patients **[New (2A+2C) & Follow up (5A+5C)]**	A. No. of known TB cases on ATT						
	B. No. screened for TB Symptoms						
	C. No. suspected for TB & refered to DMC/ PI						

ATTENDANCE CERTIFICATE

TO WHOM IT MAY CONCERN

It is to certify that Dt. Priya Bansal D/o Bhagwat Dayal Bansal, a student of IIHMR, Delhi has attended NP-NCD Programme under NHM at office of Director Health Services, Punjab, Chandigarh from date April 29th, 2024 to June 28th, 2024.

Date: June 28th, 2024.

Organization Mentor

Name: Dr Sandeep Singh Gill

Designation:

Assistant Director
O/o Director Health Services, Punjab
Sector 34-A, Chandigarh

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