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Study among vulnerable populations in selected UPHCs of Greater Bengaluru Authority (Formerly BBMP) to assess the effectiveness of an intervention on the reach of diabetes and hypertension screening services, lifestyle behaviours and treatment adherence among individuals diagnosed with diabetes and hypertension: Baseline Study Report

Introduction

Urban India is experiencing a rising tide of Non-Communicable Diseases (NCDs) such as diabetes, hypertension, and cardiovascular diseases. These are driven by lifestyle transitions and environmental stressors. In Bangalore, the situation is acute—NFHS-5 data shows over 33% of the urban population has elevated blood pressure and 21% has high blood sugar levels, with an even higher prevalence among low-income women (hypertension: 53.7%, diabetes: 20.2%)[1].

Studies reveal that one in four people with diabetes is undiagnosed[2] and similarly, a study found that about 45% of individuals with hypertension were undiagnosed[3] . Even among those who start treatment, adherence is poor—30–40% of individuals with diabetes and 20% of those with hypertension discontinue prescribed medications.

These gaps highlight the urgent need for targeted interventions to improve community awareness and health-seeking behaviour, promote timely screening for NCDs, ensure early initiation of treatment, and strengthen adherence to long-term medication and lifestyle modifications, particularly among vulnerable urban populations.

The proposed intervention of 18 months, to be implemented in a selected Urban Primary Health Centre (UPHC) within the Greater Bengaluru Authority area, aims to establish a scalable and community-anchored model for the prevention and management of diabetes mellitus (DM) and hypertension (HTN), with a particular focus on marginalised urban and peri-urban populations (As per the Government of India guidelines, vulnerable populations are identified based on any one of the following three categories: Residential vulnerability, Social vulnerability, and Occupational vulnerability.).

Vulnerability in this project is categorised primarily along three dimensions and the following corresponding characteristics[4]:

1. **Residential Vulnerability**: This includes populations living in notified and non-notified slums, informal or substandard housing, including those residing on roadsides, under bridges, near railway tracks, or in temporary settlements. These groups often face issues like inadequate housing, poor sanitation, and limited access to clean water.
2. **Social Vulnerability**: Socially vulnerable groups include the elderly, women-headed households, widows, people with disabilities, sex workers, LGBTQ+, and migrant individuals suffering from debilitating illnesses. These groups often face isolation, discrimination, or limited access to social support, making them more susceptible to economic and health-related shocks.
3. **Occupational Vulnerability**: Many residents of Slum/non-slum urban areas work in the informal sector, engaging in hazardous (pollution, heat stress, contaminated substances, etc.) or low-paying jobs such as rag-picking, vegetable/fruit vendors, Drivers, gig workers, security guards, construction work, and daily wage labour. These

[1] International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-5), 2019-21: India. Mumbai: IIPS; 2021.
[2] Sahadevan P, Kamal VK, Sasidharan A, Bagepally BS, Kumari D, Pal A. Prevalence and risk factors associated with undiagnosed diabetes in India: Insights from NFHS-5 national survey. J Glob Health 2023;13:04135.
[3] Hiremath J, Wander G, Dasbiswas A, *et al.* Optimizing Screening Strategies for Hypertension in India: A Consensus Statement. J Assoc Physicians India 2025;73(4):e40-e46.
[4] https://nhm.gov.in/images/pdf/NUHM/Training-Module/Mahila_Arogya_Samiti.pdf

occupations expose individuals to physical risks, economic insecurity, and poor health outcomes.

The intervention is designed around three interlinked strategies: (i) peer-led social and behaviour change communication (SBCC), (ii) community-structure–anchored engagement, and (iii) health-system strengthening at the UPHC level.

To achieve this goal, the intervention is built around three interlinked strategies aimed at strengthening the continuum of care and moving services beyond clinics:

1. Peer-led Social and Behaviour Change Communication (SBCC): This strategy focuses on mobilizing beneficiaries for awareness, promoting early screening, and encouraging timely care-seeking through peer facilitators and comprehensive campaigns. Outreach uses street-level engagement, community events, and digital channels (like WhatsApp) to reach mobile and working groups with culturally resonant messages on risk factors and healthy lifestyles.
2. Community-structure-anchored engagement: This involves leveraging existing local platforms such as Mahila Arogya Samitis (MAS- National Health Mission supported womens collectives in slums meant to drive community action), Urban, Health, Sanitation and Nutrition committees (UHSNCs), Self-Help Groups (SHGs), and Community-Based Organizations (CBOs) to facilitate inclusive, community-based screening drives for diabetes and hypertension.. Screenings, conducted in vulnerable clusters and workplaces, include blood glucose, blood pressure, and anthropometric assessments. Special attention is given to reaching hard-to-reach populations like transgender persons and migrants.

   The project also supports monthly Peer Support Group (PSG) sessions at the community level for mutual sharing of best practices to facilitate long-term self-management.

3. Health-system strengthening (System-Anchored Strategy): This involves supporting public primary healthcare teams to deliver standardized, respectful, and person-centered DM-HTN services as per the national and state government specified guidelines. Key activities include establishing a comprehensive digital line-listing and follow-up system using an AI-enabled platform to track cases and manage follow-ups via



home visits and community check-ins. Significant capacity building will be provided to facility staff, frontline workers (FLWs), and community facilitators (CFs) on the existing Government of Karnataka protocol-based management and respectful, gender-sensitive care.

The expected outcomes of the intervention include increased uptake of screening and early diagnosis of DM and HTN, improved treatment adherence and metabolic control resulting in reduced risk of complications, and enhanced inclusion of vulnerable populations in DM–HTN prevention and management services. The programme will be implemented across seven vulnerable catchment areas of the selected UPHC, covering a total population of approximately 82,000, of whom an estimated 26,000 belong to vulnerable groups.

Evaluation study & Objectives

To assess the effect of the intervention, an evaluation study is proposed. The study will assess for change in the status of screening for diabetes and hypertension, and for change in treatment and medication adherence among individuals diagnosed with DM and HTN in the intervention geography. The study will also assess the influence of the intervention in bringing about changes in lifestyle behaviour related to diet, physical activity, tobacco and alcohol use, and on treatment adherence protocols. Further, the study will explore the processes of "how " and "why" of the behavioural changes will be assessed in the context of individual, family, community and health systems level factors. The specific objectives of the household survey are as follows:

1. To assess the intervention's effect on improving the coverage of the population level screening for Diabetes and Hypertension
2. To measure the changes in the level of treatment adherence and metabolic control among individuals in the study population diagnosed with diabetes and hypertension.
3. To explore the challenges and possible strategies to improve lifestyle and adherence among individuals with diabetes and hypertension
4. To understand the influence of the intervention in overcoming challenges in the engagement of community structures for Prevention and Control of Non-Communicable Diseases (NP-NCD), with a specific focus on diabetes and hypertension.
5. To explore the effect of the intervention on the capacity of frontline workers and institutional staff in the prevention, screening, and management of diabetes and hypertension through the lens of respectful, gender-sensitive care.

Study methodology

We applied mixed methods approach with pre-post cross-sectional household surveys and qualitative studies. The cross-sectional studies will address objectives 1 and 2 among the target groups. Objectives 3, 4 and 5 are explored through qualitative methods. Objective 3 is specifically for informing the implementation design and will only be applicable for the baseline. In-depth interviews with stakeholders of the community structure and focus group discussions with frontline health workers and allied health staff of the facility. The sample would be recruited from the vulnerable population residing in the study geography.

Study Geography

The study was conducted in Roopena Agrahara and Kodichikkanahalli UPHC coverage areas, in Greater Bengaluru Authority (Formerly BBMP) area.

Within this jurisdiction, seven areas with vulnerable populations have been identified, including one notified slum (population approximately 5,148) and six areas-with slum like structures, or concentration of households with social or occupational vulnerability, taking the combined estimated population to approximately 21,321. Together, these areas account for nearly 32% of the ward's total population, with a large majority, around 81%, residing in non-slum yet high-risk, low-income settlements.

Profile of seven areas with vulnerable population

In accordance with the Government of India guidelines, vulnerable populations are identified based on any one of the following three categories: Residential vulnerability, social vulnerability, and Occupational vulnerability. The seven identified areas together comprise approximately 7,000 households with an estimated population of 26,469. The smallest area consists of around 700 households (population of approximately 2,600), while the largest comprises approximately 1,300 households (approximate population of 5,000).

Occupational patterns vary across the areas: domestic work is the most common livelihood, followed by construction work and employment in garment factories. Additionally, two areas have a significant proportion of migrant workers.

Study Population

There are two population groups for the household survey. The qualitative exploration covered health care staff concerned with the intervention area and community participants residing in the intervention area.

Group 1- Person without Diabetes and Hypertension: The study participants are individuals residing in the intervention area and who are aged 30+ years and are not diabetic or hypertensive.

Group 2- Persons with Diabetes or Hypertension: The study participants are individuals residing in the vulnerable area and who are aged 30+ years and are diabetic or hypertensive.

Qualitative: Qualitative exploration was conducted with the frontline workers (ASHA and PHCO), health facility staff (Staff Nurse and Medical Officer), community structures, and individuals with diabetes and hypertension.

Sample Size and Sampling

Cross-sectional sample for baseline and endline were calculated for each of the survey groups. The qualitative sample was estimated based on feasibility and experience of data saturation. The sample size calculation and the sampling process for the study groups and the qualitative sample are described below:

Group 1- Persons without Diabetes and Hypertension: To estimate the sample size, the assumption was based on a study conducted by the Public Health Foundation of India in 2019 in Mysuru and Raichur districts of Karnataka, which found that 70% of the adult population had been screened for diabetes and hypertension. Assuming that the intervention would lead to a

15% point improvement in screening, the estimated sample required is around 95. This calculation is based on a one-sided 95% confidence level and 80% power. Applying a Design Effect of 1.5 to adjust for clustering during sample selection and an additional 10% inflation factor to account for potential non-response, the final sample is 160. So, in the baseline and endline, 160 will be the sample.

Group 2-Person with Diabetes and Hypertension: Previous studies conducted in India have reported non-adherence rates ranging from 40% to 75% among individuals with diabetes. Considering that over time, with the knowledge gained through interventions from the UPHC or other sources, approximately 60% of individuals are expected to adhere to treatment and medication in the intervention area. Assuming the intervention leads to a 10% point improvement in adherence rates among diabetics, the required sample size is estimated to be around 281 individuals. This calculation was based on a one-sided 95% confidence level and 80% power. The final sample is 465 with a design effect (DE) of 1.5, and an additional 20% inflation factor to account for potential non-response. So, in each baseline and endline, 465 will be the sample.

For calculating the required sample size for hypertensive individuals, evidence from studies conducted in India indicates a wide range of treatment adherence, varying from 19% to 92%. In the absence of a precise and consistent estimate, a conservative baseline adherence of 50% is assumed. The sample size is calculated to detect a 15% point increase in treatment adherence among individuals with hypertension over an 18-month programmatic intervention period. Assuming a baseline adherence of 50%, an expected endline adherence of 65%, a one-sided 95% confidence level, and 80% power, the required sample size is estimated at 169 individuals per survey round. After adjusting for a 10% non-response rate and applying a design effect of 1.5, the final adjusted sample size is 300 individuals each in baseline and endline.

Qualitative Sample**:** A total of 23 interviews were conducted, including 16 in-depth interviews with persons with hypertension and/or diabetes (PwNCD) and seven key informant interviews with healthcare providers, including Primary Health Care Officers (PHCOs), staff nurses and medical officers. Three focus group discussions were conducted with Accredited Social Health Activists (ASHA) and Mahila Arogya Samiti (MAS) members. In total, there were 18 participants. Purposive sampling was used to include participants who were Persons with Diabetes or Hypertension (PwNCD) with diverse demographic and social characteristics. Sampling line lists were prepared with support from the field/programme team.

Selection of respondents:

The selection of the respondents was from each of these 7 vulnerable areas for equal representation. The Field Investigators (FIs) met the ASHA worker in each of the vulnerable areas and made a map of the area with major roads and infrastructure. Then they began approaching households in each vulnerable area from one particular corner of the area, following the left-hand rule; a household was approached till the required sample was achieved. In a household, if there were more than one eligible individual, priority was given to the individual available at the time of the survey. If more than one eligible person is available, then the KISH grid was used to select the eligible respondent. If none of the eligible respondents was available at the time of the survey, then 3 attempts were made to contact the individual. For the group 2 samples, 465 diabetics and 300 hypertensives were divided across the 7 ASHA areas for equal representation. The required sample from each ASHA area was around 66 for

diabetic and 43 for hypertensive. Individuals with both conditions were sampled under diabetic because of lower prevalence, and we did not want to drop the sample, as otherwise we would have had to spend more time on data collection. Therefore, in the total sample of 765, there would be individuals with diabetes, hypertension, and persons with both diabetes and hypertension.

The sample for qualitative exploration was selected randomly from the sample of diabetic and hypertensive persons and based on availability. The seven key informant health care providers were approached based on their designation.

The inclusion criteria of the community sample were that they should be of age 30 years and above and that they do not have any severe morbidity or disability.

Data Collection: questionnaire, guides and training

For the Household survey, structured questionnaires were developed, which were translated into Hindi and Kannada languages. The tool covered basic demographic details, physical activity, food habits, tobacco and alcohol use, knowledge of symptoms of diabetes and hypertension, and screening status for diabetes/hypertension of all members in the household who are aged 30 years or more. For the group 2 participants with diabetes or hypertension, apart from the screening status, were also assessed on the history of the disease, health care seeking practices, out of pocket expenditure (OOPE), treatment adherence, reported metabolic control verified with prescription, anthropometric measures of height and weight, satisfaction levels with health facility services,, self-perceived health status, perceived illness and PHQ-4 to measure the levels of anxiety and depression. The questionnaires were digitised using the freely accessible and widely used Survey Solutions platform *[https://mysurvey.solutions/en/]* developed by the World Bank, with all the necessary data protection measures. The application also works in off-line mode and the FIs used their mobile phones to collect the data. Once data is synced to the server, no data is retained in the mobile phone.

The qualitative guides were developed to cover a common frame of questions spanning route to diagnosis, perceived causes, treatment-seeking pathways, treatment adherence, health-system experiences and suggestions for improving care among persons with hypertension and/or diabetes.

A four day training was conducted for the household survey FIs from 15th to 18th April 2026 before the commencement of data collection, including a day of field practice. The data collection team consisted of 14 FIs with experience of community based interventions. The FIs needed to know how to speak and read Kannada, and a few of them knew how to read and speak in Hindi. The training aimed to equip investigators with a thorough understanding of the study objectives, methodology, sampling procedures, respondent selection process, informed consent procedures, and ethical considerations. Detailed orientation was provided on the survey tool, including a question-by-question review, use of digital data collection platforms, interview techniques, and study protocol for ensuring data quality and confidentiality. Special emphasis was placed on engaging with vulnerable populations respectfully and sensitively, in line with the study's focus on diabetes and hypertension prevention and management. Practical exercises, mock interviews, and field simulations were conducted to strengthen investigators' skills and ensure standardization in data collection. The training also included sessions on troubleshooting field challenges, maintaining data accuracy, and adhering to study timelines.

The qualitative data collection was undertaken by one female research assistant trained in Social Work. Before the fieldwork, the assistant received training for three days, including field practice, on qualitative research methods, study objectives, research ethics and tools. Interview guides were used flexibly rather than as fixed scripts, allowing interviewers to rephrase, probe, reorder or omit questions where appropriate to the participant and interview context. The interviews lasted between 30 to 50 minutes. Interviews were conducted in Kannada.

Apart from validations in the data entry software, onsite monitoring of the survey was undertaken to assess the quality of inclusion of participants as per survey protocol and administration of the survey tool. Regularly the data quality checks on a real time basis to clarify doubts and provide feedback was conducted. Data cleaning processes to ensure completeness and accuracy.

Ethics

Ethics approval for this study was obtained from the Department of Health research recognised ACE Institutional Ethics Committee, Bangalore, on 18th March 2026. Participants were informed about the purpose of the study, their participation and how the information collected would be used. Written informed consent, including consent for audio recording, was obtained before participation. Confidentiality was maintained throughout data collection and analysis. For each qualitative interview, pseudonyms were given so that any kind of identifying information was not used in the analysis or presentation of findings in this report.

Data analysis

The survey data was analysed using Stata version 17.0 . Appropriate bivariate and multivariable analyses will be conducted to study the association and adjusted effects of the intervention. The qualitative data were audio recorded and were translated into English. An analysis matrix was developed based on the domains in the interview tool, with codes developed inductively from the data. The data were then systematically sorted into the matrix for analysis. The data collection was conducted during April, 2026, to June, 2026.

Outcome Variables

The outcome indicators measured in the household survey are as follows:

Screening: As per the National NCD program, all adults aged 30+ years above are subject to undergo screening for NCD once a year; this is the primary responsibility of the public facility to conduct the population based screening exercise through the health worker.

Treatment adherence: Adherence with respect to the treatment, where individuals with Diabetes or Hypertension undergo regular follow-up testing once every 3 months to check metabolic control.

Metabolic control (Clinical Improvement): For person with Diabetes as per the American Diabetic Association (ADA) guidelines the Glycaemic control should be <7% for <65 years aged adults and <7.5% for >=65 years. Which is equivalent to <126 mg/dl in Fasting blood sugar and <140 mg/dl in Post prandial blood sugar.

For a person with hypertension, as per the Joint National Commission (JNC)-8 guidelines, for a person <60 years Systolic and diastolic blood pressure should be less than 140/90 mm hg and for >=60 years, less than 150/90 mm hg.

All the mentioned outcome variables will be measured using self-reported method. The scope of health screening and clinical testing is not within the scope of the intervention. The outcome variables will be measured using the data that is available with the respondent at the time of interview, which is self-reported or available in the records with the respondent.

Results

The household survey results are divided into findings from the respondents who are not diabetic or hypertensive (Group 1) and respondents who ae diabetic or hypertensive (Group 2). The narrative will focus on major findings from the different sections the survey and the tables in the annexures will have more details. The qualitative findings are presented along with the group 2, as the participants are those with diabetes or hypertension, and the health care providers also interacted mostly regarding persons with diabetes or hypertension.

Group1: Persons without diabetes or hypertension

Socio-economic and demographic characteristics of respondents

The sample of respondents without diabetes or hypertension was(171 persons aged 30 years and above. The distribution of males and females was 51.5% and 48.5%.52.6% of them were in the age group of 30–44 years, and 15.2% were 60 years or older. About 40% had 10+ years of schooling, and about 6% were not working (Table 1). Households reported a median income of INR 24,000 per month, and 50% reported income above INR 20,000 per month. About 63% of the respondents lived in a “Pucca” household, i.e. with all of the roof, walls, and the floor made of concrete or fabricated tiles. About 38% of respondents reported no ration cards (the food security scheme). Only about 28% reported health insurance coverage for the household members (Table 2).

Knowledge of symptoms of diabetes and hypertension

When enquired about symptoms of diabetes, about 57% reported extreme fatigue, about 35%-40% frequent urge to urinate, blurry vision, and increased thirst. Classic symptoms reported were fewer- unexplained weight loss 18.7%, tingling/numbness in hands or feet 11.1%, increased hunger 25.7%. On hypertension, severe headache was reported by 57%, and around two-fifths reported difficulty in breathing and vision problems as other symptoms. About 19% said they cannot tell of any symptoms of diabetes or hypertension (Table 3).

Screening of diabetes and hypertension

The respondents were asked whether the members of their household, including themselves, aged 30 years and above, had been screened for diabetes or hypertension in the last year. Among the respondents, 33%, and among all members, 31% (N=276), got screened for hypertension or diabetes in the last 12 months. Screening is delivered almost entirely through the public system, where ~60% at a PHC, 15.0% via an ASHA home visit, and about 15% through camps by the public health system or walk-in at other government health facilities. The cascade then collapses, as less than 2% of the people screened went for confirmatory testing. The

barrier appears to be overwhelmingly attitudinal rather than access-related — about three-fifths of the unscreened said they "did not feel it was necessary," against 17% who did not know where to test and only about 1% cited cost (0% cited transport) (Table 4).

Community engagement

Contact with the frontline health system is limited. Only 30.4% report a health-worker home visit (all delivered by ASHAs, none by ANM/PHCOs), and a quarter are aware of any community health group, and among this minority, only 28.6% specifically knew of the Mahila Arogya Samiti (MAS) (Table 5).

Group2: persons with diabetes or hypertension

This population group has data from both the survey and the qualitative explorations. In the survey group of persons with diabetes and hypertension, persons who had both diabetes and hypertension were considered for the sample of diabetics. Hence, in the patient survey population, the diabetic sample of 485 includes 227 persons with both diabetes and hypertension, and the hypertensive sample of 329 persons who reported only hypertension, for a total of 556 hypertensives in the baseline survey. For this report, we have focused on the diabetic sample of 485 and the hypertensive sample of 329 for the analyses, as per the sample calculation to address the study objectives, except that we have added analyses on 556 hypertensives in some cases and have mentioned in the report wherever the analyses were based on the sample of 556. The findings from the qualitative data have been included within relevant sections and may have been repeated across sections to align with the section topic to provide either context or variations or additional aspects emerging from the different methods.

Socio-economic and demographic characteristics of respondents

The gender distribution was relatively balanced, with females accounting for 50.9% of diabetic respondents, and 53.2% of hypertensive respondents. About one-sixth of diabetic and hypertensive respondents belonged to the age group of 30–44 years. About two-fifths belonged to the age group of 45-49 years. Older adults aged 60 years and above constituted 45% of diabetic respondents and 40% of hypertensive respondents. About 75% of the respondents in both groups were married, and about a quarter were divorced or separated. Among diabetic respondents, 35% and 32% belonged to scheduled backward castes or tribes (SC/STs) and other backward castes (OBCs), respectively; among hypertensive respondents, 38% and 29% belonged to SC/STs and OBCs, respectively. About 25% in both the groups reported working as daily wage labourers, and 20% and 15% reported not working or being unemployed in the DM and HTN groups, respectively. About 25% had 10+ years of schooling, but about 40% reported no formal schooling (Table 1). Households reported a median income of approximately INR 23,000 per month, and about 40% reported income above INR 20,000 per month. About 75% of the respondents lived in a “Pucca” household, i.e. with all the roof, walls, and the floor made of concrete. About 36% of respondents reported no ration cards (the food security scheme). Only about 33% reported health insurance coverage (Table 2a).

For the qualitative sample, the selected participants with diabetes or hypertension were in the age group of 36 to 80 years, with most being older adults. The group included eight women

and eight men. Health conditions included diabetes mellitus (DM-3, all female), hypertension (HTN-7, 5 male and 2 female), or both (DM+HTN-6, 3 male and 3 female). Employment varied: seven participants were not currently working (4 female and 3 male), while others were engaged in domestic work, teaching, agriculture, hotel work, cooking, marketing, or business/real estate. Most participants were married, while five were widowed (1 male and 4 female), and one woman was separated.

The qualitative analysis also examined vulnerability as it appeared in participants' own accounts, across six dimensions: financial, adherence support, caregiving, residential, social and occupational. A participant was flagged on a dimension only where their own account explicitly supported it; marital status, age or occupation alone were not treated as evidence. Financial vulnerability was the most common dimension. Three participants (Gayatri, Kavitha and Mahalingappa) carried the highest burden, with three flags each, but through different combinations. Gayatri's vulnerability was financial, caregiving and social: she carried sole responsibility for an unwell daughter and a disabled husband and described a declining support network ("earlier everyone used to support, now no one cares"). Kavitha's was financial, residential and occupational: she lived in rented housing, and her employer's refusal to grant leave ("they scold, they don't give leave") kept her from seeking care, independent of cost or family circumstance. Three participants showed no explicit evidence on any dimension, which reflects what they volunteered rather than a confirmed absence of vulnerability. Vulnerability elicited in the narratives was not much about age, gender or widowhood.

Disease duration and recognition of symptoms

When enquired about the duration of diagnosis with the disease, about 2% could not report. Among the diabetics in the sample, the median duration since diagnosis was 52 months (n=476) and among all hypertensive persons in the survey, it was 48 months (n=544). In both these groups, the median duration reported by females was 12 months more than that of men (60 vs 48 months for females among diabetic and 48 vs 36 months for females among HTN (Table 2b). Based on this, the median age at which disease was diagnosed was 51 for both diabetes (n=476) and hypertension (n=544), with a median age around 51 months among both males and females for diabetes and 50 among males and 51 among females for hypertension (Table 2c).

The survey did not explore the process to disease discovery. In the qualitative exploration, we found a mix of the usual symptom triggered self-recognition as well as incidental. Symptoms like frequent urination, excessive thirst, hunger, dizziness, and vomiting prompted a checkup. For two respondents (Females), it was a neighbour who first named these as possible "sugar symptoms" and urged them to get tested, rather than the person recognising them independently. Two respondents (Males) said that both were checked for BP/sugar while being treated for a fever or cold, and one said his BP was discovered during a visit to the government health centre for an injection for knee pain. Two older men who had never been checked before were taken for their first checkup by their building owner/employer. Two others (Males) explicitly stated they had no symptoms at all before diagnosis, and one (female) described normalising years of headaches before eventually seeking care, both patterns suggesting that symptom absence or normalisation, not lack of access, can itself delay diagnosis. One person even narrated a gruelling experience of 2 years of health issues, with roughly Rs 1–1.5 lakh spent across multiple private hospitals and scans, before getting diagnosed with HTN.

"I used to have headache; I suffered a lot because of it... it took 2 years to find out it is BP. I got MRI scan three times... he found, he did ECG and all. He said you have to take BP tablets lifelong." Male, 52 years, HTN.

Dietary Practices and Beliefs

Table 6 shows dietary practices and awareness among diabetic and hypertensive. Diets among both DM and HTN were low in fruit, while adding salt at the table and eating processed food were common, including among people with hypertension. Fruit was eaten irregularly. Only 7.4% of respondents with diabetes and 4.6% with hypertension ate fruit every day. The most common pattern was 1–3 days a week (43.9% and 49.5%), and 14.2% and 11.3% never ate fruit. Among those who did eat fruit (n = 416 and n=292), about nine in ten took 1–3 servings a day (91.8% and 88.4%); only 3.9% and 5.1% took more than three. Women ate fruit slightly more often than men. Daily fruit intake was 8.1% among women and 6.7% among men with diabetes, and 6.3% and 2.6% among those with hypertension. Among people with diabetes who ate fruit, 6.7% of women took more than three servings a day, compared with 1.0% of men.

Vegetables were eaten more regularly. About six in ten respondents ate them on 4–6 days a week (61.9% and 62.3%), 15.5% and 12.2% every day, and 5.6% and 5.8% never. Among vegetable eaters (n = 458 and n=310), 90.4% and 86.8% took 1–3 servings a day. Daily vegetable intake was higher among women than men with diabetes (18.2% vs 12.6%), but similar in the hypertension group (12.0% vs 12.3%).

Around 50% never ate meals outside the home (54.6% with diabetes, 49.9% with hypertension). About a third did so on 1–3 days a week (35.3% and 35.9%), and very few more often (2.7% and 3.0%). Eating out was mainly a male pattern. About half of men ate outside the home on 1–3 days a week (47.9% with diabetes, 50.6% with hypertension), compared with under a quarter of women (23.1% and 22.9%). Around two-thirds of women never ate out (66.0% and 61.7%), against 42.9% and 36.4% of men.

Processed food was eaten always or sometimes by 42.5% of respondents with diabetes (15.7% always, 26.8% sometimes) and 37.1% of those with hypertension (13.4% always, 23.7% sometimes). Only 30.1% and 24.6% never ate processed food. Men were more likely than women to eat processed food always: 18.9% vs 12.6% with diabetes, and 14.9% vs 12.0% with hypertension. Counting always and sometimes together, the gap was narrower (44.5% vs 40.5%, and 39.6% vs 34.9%).

More than a third added salt to food at the table always or sometimes: 35.5% of respondents with diabetes (12.8% always, 22.7% sometimes) and 39.2% of those with hypertension (10.9% always, 28.3% sometimes). Only 32.8% and 28.0% never did so. Among respondents with diabetes, men added salt at the table more often than women: 40.0% always or sometimes, against 31.1%. Similarly, 37.2% of women never added salt, against 28.2% of men. In the hypertension group, the shares were almost the same (39.6% of men, 38.8% of women). Among respondents with hypertension, 62.3% named foods with excessive salt as the main food to avoid. Far fewer named oily or fried food (29.2%), red meat (4.3%) or bakery products (4.3%).

People with diabetes have more restrictions on food intake. Hence, only people with diabetes were asked about frequency of meal intake and knowledge of foods to avoid. In the month before the survey, 42.1% of respondents with diabetes had skipped at least one meal (40.2% sometimes, 1.9% often), while 53.2% never had. Irregular meals are a particular risk for people taking glucose-lowering medicines. Meal skipping was similar among men and women with diabetes (40.3% and 43.7% skipped at least one meal).

Among respondents with diabetes, 63.7% said a person with diabetes should eat three meals a day, 24.7% four or more, 5.6% two or fewer, and 6.0% did not know. Views on snacking between meals were evenly split (45.4% yes, 47.2% no, 7.4% unsure). Knowledge of meal frequency did not differ by sex (three meals a day: 64.7% of men, 62.8% of women). Men were somewhat more likely to say people with diabetes should not snack between meals (51.3% vs 43.3%).

From the qualitative data, discussion on food was elicited more in terms of causation of disease conditions. Narratives like excess rice and too few vegetables (Gayatri, Kavitha, Kadayya); spicy or heavily salted food (Muthyalamma, Kadayya); sweets and bakery/junk food (Savitramma, Mahalingappa); irregular meal timing driven by work (Ganghadhar, Muthyalamma); chemically grown or refrigerated food perceived as less nutritious than fresh or naturally grown food (Sathish); and, in one strikingly self-contained account, excess tea consumption named as the sole cause.

"I used to drink around 7 or 8 or up to 10 cups of tea daily. I have got this because of that. I have not eaten any bakery products till now...I have got it only because of drinking tea." Male, 70 years, DM + HTN

"Now the entire generation has a problem because of the quality of food...Chemical food is the main reason. Those who are in the villages are healthier than us...it is manure. We should bring and eat fresh." Male, 70 years, HTN + DM

Irregular meals, which the survey captured as meal skipping among people with diabetes, appeared in the interviews mainly in connection with work. Two participants (Ganghadhar and Muthyalamma) linked irregular meal timing to their work, and Ganghadhar described working alone under a fixed target, skipping meals and getting no rest. Another participant (Sathish) described having to eat at work rather than at home, and working odd hours, as constraints that information alone could not address.

References to gender in the interviews were few. Three women participants said that women manage diet and treatment better than men, generally attributing this to family responsibility rather than to differences in health knowledge or access to care. One male participant said that men neglect their own health more than women.

"Ladies manage better... they think lets finish whatever is left so they eat, so they can prepare fresh food in the evening. So, they don't have control [before diagnosis] ... but once diagnosed, women follow diet better because they are more at home. They get because they feel should not waste food and to finish and not waste, they eat and wash the dishes, so it happens like

this. they think lets finish whatever is left so they eat, so they can prepare fresh food in the evening. so, they don't have control". Female, 36 years, DM

About half of the respondents (48.3%, n = 234) had ever been counselled on an appropriate diet. Among those counselled (multiple responses), private doctors were the main source (58.5%), followed by government doctors (26.1%) and family, relatives or friends (20.9%). Government health workers (8.5%) and the doctor at Roopena Agrahara UPHC (6.8%) played a smaller role. Nurses, counsellors and NGO workers each accounted for under 3%, and no one reported IVRS messages or patient peer groups. Women with diabetes were more likely than men to have been counselled on diet (52.2% vs 44.1%). Among those counselled, men relied more on private doctors (62.9% vs 55.0%). Women more often named government doctors (28.7% vs 22.9%) and the UPHC doctor (9.3% vs 3.8%). Family and friends were a source for about one in five of both (22.9% of men, 19.4% of women).

We collected information on the type of food consumption in a typical week. While staples like rice, pulses, and grains are very frequent, we are showing in the report the consumption of high fat or sugary food items, which the programme would need to know, as the practice may be modifiable. While chicken and fish may not fall under the category of high fat, the ingredients (oil, spices and salt) used to cook may be harmful. Chicken was the most commonly consumed food item 1–2 days per week across all three groups (79.1%, 80.9%, and 80.2%), followed by red meat among participants with diabetes (60.9%) and hypertension (62.3%), and fish among those with both conditions (61.2%). Egg consumption on 3 or more days per week was reported by 45.0% of participants with diabetes, 41.0% with hypertension, and 38.3% with both conditions. Consumption of fried/oily food on 3 or more days per week was also high among the listed food items, reported by 10.9% of participants with diabetes, 7.0% with hypertension, and 11.0% with both conditions. This was followed by sugary sweets among participants with hypertension (5.2%) and those with both conditions (4.8%), while red meat consumption at this frequency was 3.5%, 2.4%, and 4.0%, respectively. Frequent consumption of other food items, including chicken, fish, butter, and aerated drinks, was generally low across the three groups. Overall, most participants reported consuming the listed food items either never or 1–2 days per week, while consumption on 3 or more days per week was relatively uncommon, except for eggs and fried/oily foods (Figures 1–3).

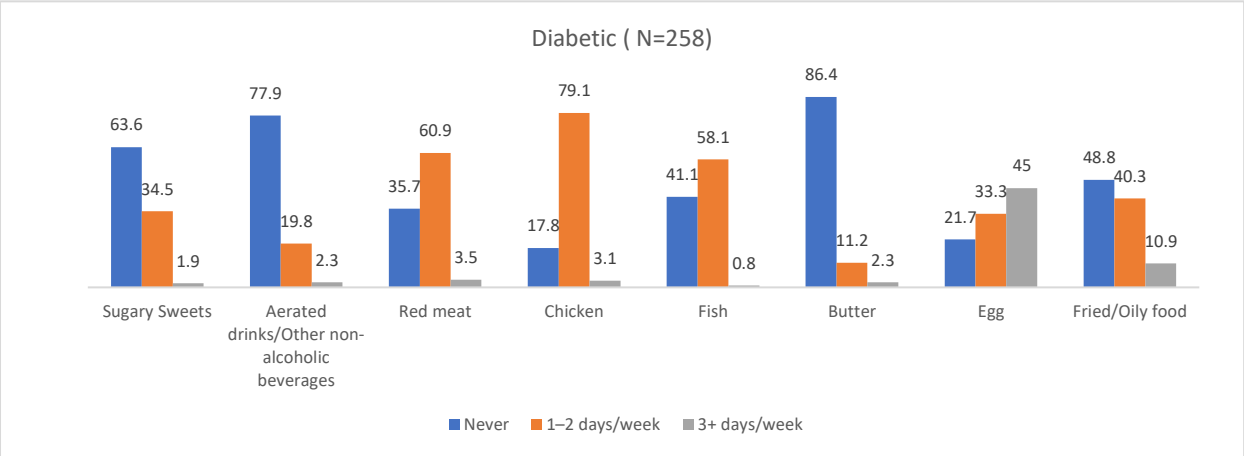


Figure: 1

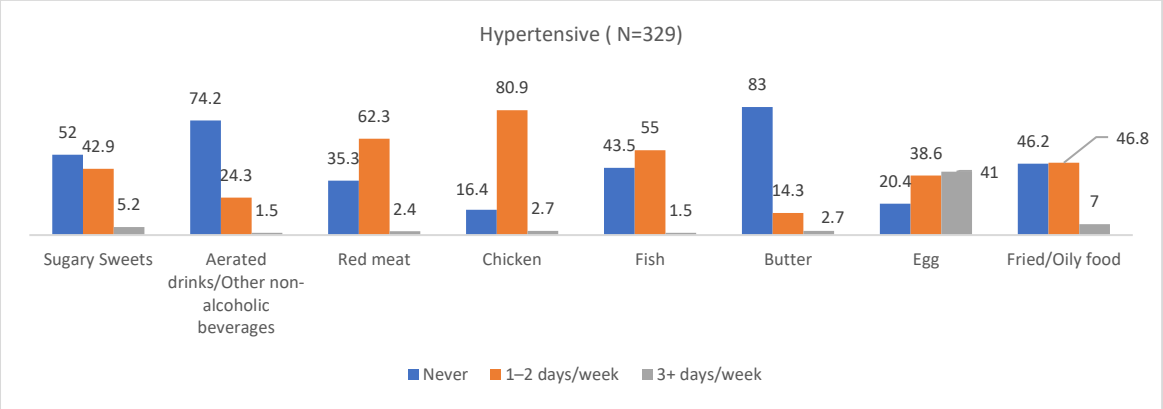


Figure: 2

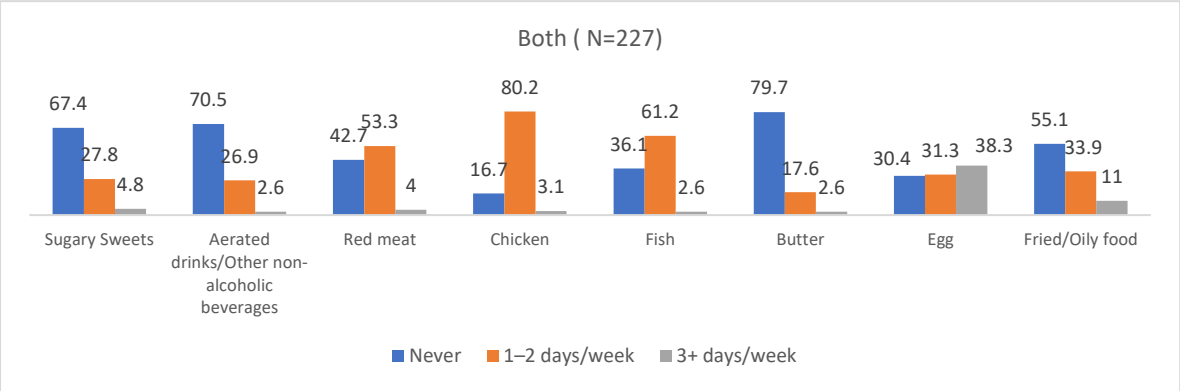


Figure: 3

The qualitative data show dietary practices being modified due to fear. Several participants described becoming "cautious" after seeing videos or hearing stories about limbs being amputated or kidneys failing, and subsequently tightening their diet: *"if sugar becomes more the person will die… that mindset became fixed."* Dietary restriction was itself a source of distress for one participant: "After I got this, I am sad. I cannot eat whatever I like, and I cannot eat food with proper salt and spice and oil. Everything that I eat is tasteless. I have that fear also." *Kallamma, Female, 60 years, DM + HTN.* While PwNCDs said there is little discussion with providers on diet apart from the medicines to be consumed, the providers mentioned diet is listed on discharge slips.

Physical activity

Findings from practices on physical activity are reported in Table 7. We enquired about physical activity based on the WHO STEPS guidelines and defined any physical activity of equal or more than 150 minutes per week as appropriate physical work. Physical activity was defined by two types- 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Most respondents knew that a person with diabetes or hypertension needs at least 30 minutes of exercise a day: 30.5% of those with diabetes and 37.7% with hypertension said 30 minutes,

34.0% and 29.2% said 60 minutes, and 10.1% and 9.7% said more than 60 minutes. However, 20.2% and 16.4% believed no exercise was required, and 5.2% and 7.0% did not know. Among people with diabetes, the belief that no exercise is needed rose with age (13.4% at 30–44, 19.3% at 45–59 and 23.1% at 60 and above).

About four in ten respondents did no physical activity in a typical week (40.8% with diabetes, 38.0% with hypertension). Most of those who were active did moderate activity only (52.4% and 57.1%); vigorous activity alone (4.7% and 3.3%) or both kinds (2.1% and 1.5%) were rare. Women were more often inactive than men (44.5% vs 37.0% with diabetes; 41.7% vs 33.8% with hypertension). Among people with diabetes, inactivity rose with age, from 32.8% at 30–44 and 35.6% at 45–59 to 48.1% at 60 and above.

Only 38.8% of respondents with diabetes and 41.3% with hypertension did at least 150 minutes of physical activity a week, leaving 61.2% and 58.7% below this level. Men reached the level more often than women (42.9% vs 34.8% with diabetes; 48.7% vs 34.9% with hypertension). Among people with diabetes, the share was highest at 30–44 years (43.3%) and similar in the older groups (38.1% and 38.0%). Among people with hypertension, it was highest at 45–59 years (46.2%) and lowest at 30–44 (33.3%). The mean was 241 minutes a week for people with diabetes and 272 minutes for those with hypertension. Mean minutes were higher among men than women (259 vs 223 with diabetes; 341 vs 212 with hypertension). Among people with diabetes, the mean was highest at 30–44 years (311 minutes). Since most respondents fell below 150 minutes, these means suggest that activity is concentrated among a minority who are very active.

However, when work was excluded, only 7.4% of respondents with diabetes and 7.3% with hypertension reached 150 minutes a week. The mean was just 31 and 26 minutes a week. Activity outside work was highest among the youngest group (13.4% with diabetes and 13.0% with hypertension at 30–44 years). Among people with hypertension, men reached the level more often than women (9.7% vs 5.1%), and their mean was higher (38.5 vs 15.5 minutes).

Only a small number of respondents reported moderate-intensity leisure activity (the base is not stated in the table), so these breakdowns are indicative only. Brisk walking (87.5% with diabetes, 84.0% with hypertension) and climbing steps (78.1% and 72.0%) were by far the most common, followed by running or jogging (37.5% and 36.0%). Yoga (9.4% and 16.0%), cycling (6.3% and 8.0%) and badminton (6.3%, diabetes only) were rare. Among people with diabetes, men more often ran or jogged (50.0% vs 27.8% of women), while women more often climbed steps (83.3% vs 71.4%). Everyone aged 60 and above who did leisure activity reported brisk walking, and yoga was most common in this age group (22.2% with diabetes, 18.2% with hypertension).

When enquired about source of motivation, doctors were almost the only source of information or motivation for exercise: government doctors (51.2% with diabetes, 43.8% with hypertension) and private doctors (51.2% and 46.9%). The UPHC doctor (4.7% and 3.1%), health workers, counsellors and family were each named by very few. Among people with diabetes, women more often named private doctors (59.1% vs 42.9% of men). Among people

with hypertension, those aged 60 and above relied mainly on government doctors (72.7%) and those aged 30–44 on private doctors (75.0%), although these groups are very small.

Physical activity was not a specific domain of the qualitative interview guide, but it came up in participants' accounts in three ways. Three participants (Sathish, Mahalingappa and Chandramma) attributed their condition partly to inactivity, being indoors or in air-conditioning, and urban living, which they contrasted unfavourably with village life. Long working hours limited activity outside work:

> *"You won't get time to walk when you are working from 8 to night 12, I will be in the shop when will I walk? That is the problem. Money is important now." Male, 52 years, HTN*

On the other hand, participants who had become "cautious" after seeing videos or hearing stories about amputation or kidney failure described walking daily, alongside tightening their diet and continuing their tablets.

Tobacco and Alcohol use

Tobacco and alcohol use are almost entirely a male pattern in both groups. Current smoking among diabetics is about 16%, with 32.4% among DM men vs. 0.8% among DM women, and about 19% among hypertensive, with 37.7% among HTN men vs. 2.3% among HTN women; any current tobacco use (smoke or smokeless) among DM was 20% and 23% among HTN and follows the same split (34.0% vs. 7.3% for DM men and women, 39.6% vs. 9.1% for HTN men and women). Only about 10% in both groups said that they have been counselled about the ill effects of tobacco.

Ever use of alcohol was 19% and 14% among DM and HTN, respectively, and shows the same pattern — 37.8% of DM men vs. 1.2% of DM women have ever consumed alcohol (27.9% vs. 1.1% for HTN men and women, respectively). 79.6% of those who ever consumed alcohol among DM (n=93) and 82% among HTN (n=45) said they consumed alcohol in the last 12 months. Further, of them, 86.5% among DM (n=74) and 89.2% among HTN (n=37) consumed alcohol in the last 30 days. To estimate current alcohol use, we defined it as those who consumed alcohol in the last 30 days: 13.2% among DM and 10% among HTN consumed alcohol currently. In contrast to tobacco users, around 72% of the current alcohol users reported that they were counselled about the effects of alcohol use.

Narratives from the qualitative exploration found a respondent attributing his diagnosis to his own drinking and smoking habits; however, another respondent believed that these habits are the reasons why people in general get these conditions rather than as self-attribution.

Exposure to outreach services and awareness

29.1% of respondents reported that a frontline health worker had visited their household during the three months preceding the survey. Household visits were reported by 27.8% of respondents with diabetes and 31.0% of respondents with hypertension. Exposure to awareness messages on diabetes and hypertension was 66% among diabetic respondents and

67% among hypertensive respondents reporting that they had received health-related information from at least one source (Figure 4).

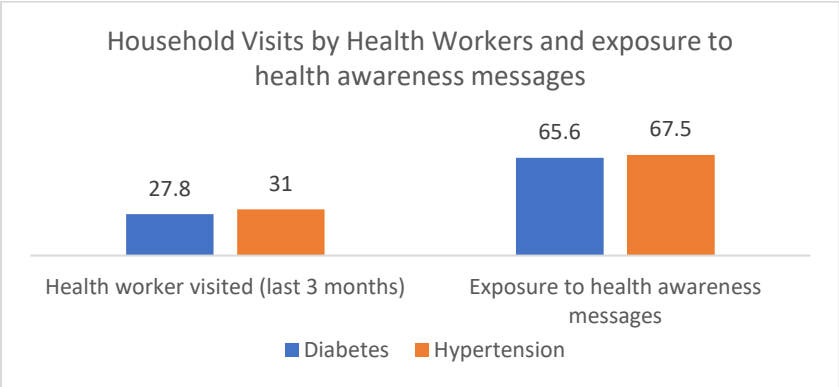


Figure:4

Government health workers and television/radio were the most commonly reported sources of information (Figure 5)

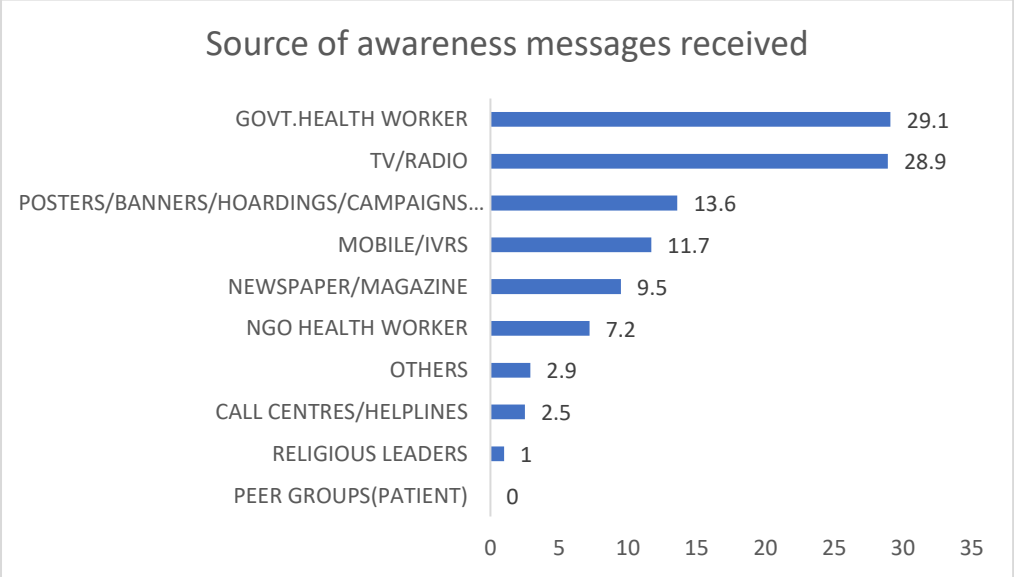


Figure:5

Provider and ASHA/MAS accounts added context on outreach. Providers in the Kodichikkanahalli catchment area, which has a Hindi-speaking migrant population working in garment factories, described being unable to send ASHAs alone for house visits or screening because local ASHAs do not speak Hindi, so a PHCO had to accompany them. None of the 16 PwNCD interviewed were migrant workers, so this could not be examined from the patient side. One ASHA described that after COVID, roughly half of the households in her area stopped trusting sample collection for testing and preferred private testing, while still returning to her for free government tablets; this rests on a single account. ASHA participants also described slum residents being unable to physically locate Namma Clinics for lack of route maps or signage, a gap distinct from awareness of health content.

Participants on both sides also commented on the limits of information. A MAS participant observed: *"there are lot of variations (in readings). But people don't understand no matter how much we tell them."* One PwNCD (Sathish) said that information is of limited use against constraints such as having to eat at work and working odd hours, while clarifying that he did not consider awareness-building useless.

Among diabetic respondents, 40.4% reported a family history of diabetes and 40.2% reported a family history of hypertension. Similarly, among respondents only with hypertension, 27.1% reported a family history of diabetes and 32.5% reported a family history of hypertension. Overall, among all respondents (N=814), 35% reported a family history of either diabetes or hypertension.

In the qualitative interviews, heredity was raised by only one participant, and only to rule it out: Kallamma checked her condition against her family history and concluded that diet, not genetics, was responsible.

> *"None of my relatives have sugar. It is not there in my family history at all." Female, 60 years, DM + HTN*

Care-seeking and consultation

We asked the PwNCDs about consultations in the last 3 months, the type of place of consultation, and the reason for not going to a government health facility if they went to a private provider. Here we have also analysed the total HTN in the sample (N=556). These are shown in Table 9.

In the last three months, 53.4% of respondents with diabetes and 43.8% with hypertension had sought a consultation (45.7% of all respondents with hypertension). The share was similar for men and women (diabetes: 52.9% and 53.9%; hypertension: 42.2% and 45.1%) and across age groups. Among those who consulted, most did so one or two times (78.0% with diabetes, 79.2% with hypertension), and about one in five three or more times (22.0% and 20.8%). Among all with hypertension who consulted (N=556), 77.6% did so one or two times and 22.4% three or more times. Women more often consulted three or more times than men (25.4% vs 18.8%).

The main reasons reported for not going for consultation were that a consultation did not feel necessary (54.4% with diabetes, 55.7% with hypertension) and that respondents were already taking medicine regularly (35.0% and 32.4%). Lack of time (7.1% and 3.8%), not knowing where to go (0.9% and 3.2%) and cost (0.9% and 1.1%) were rarely given.

Private hospitals or clinics were the most common place for the last consultation (57.9% with diabetes, 46.8% with hypertension, 52.7% of all with hypertension), followed by government hospitals (27.6%, 35.9% and 31.8%). The Roopena Agrahara UPHC was used by 9.3%, 11.8% and 10.1%, and private pharmacies by 4.1%, 5.2% and 4.9%. Among people with diabetes, facility use differed by sex: men used private facilities more (63.5% vs 52.6% of women), and women used government hospitals more (32.8% vs 22.3%). Use of private facilities was lower among people with diabetes aged 60 and above (50.9%) than in the younger groups (64.2% and 63.4%). Among people with both diabetes and hypertension, 72.2% consulted the same doctor for both conditions and 27.8% saw different doctors.

Reasons for not using government facilities among people with diabetes were that health personnel were often absent (37.3%), medicine was not available (35.0%), and timings were

inconvenient (32.7%), followed by long waiting times (26.1%). Among people with hypertension, inconvenient timings led (44.2%), followed by long waiting times (32.6%), absent personnel (28.5%) and unavailable medicine (27.3%). Poor quality of care was named by 13.1% and 9.9%. Among all with hypertension (N=556), the leading reasons were inconvenient timings (39.3%), absent personnel (31.0%), long waiting times (29.7%) and unavailable medicine (28.2%). Poor quality of care was named by 14.6%, more than in either the diabetes or hypertension-only group. Men cited unavailable medicine more often than women (31.9% vs 24.5%).

The qualitative interviews showed movement between government and private care as the dominant pathway: 8 of 16 PwNCD described switching provider type at least once during their treatment history, five maintained government care as a stable primary source, and two relied on private care throughout. The most common driver of switching that participants described was not cost but a perception that government medicine was slower or less effective. Five PwNCD independently used near-identical language ("slow", "doesn't suit") to describe government-provided medicines. Whether this reflects an actual difference in formulation or effect, or a perception, cannot be determined from the present study.

> *"Govt tablets and all… it will not suit me. I take those [private] tablets only." Female, 65 years, HTN*

The same belief was reported independently by providers and by ASHA/MAS participants. Providers described PwNCD discontinuing government-supplied tablets in favour of private prescriptions or home remedies (bitter gourd juice, methhi (fenugreek) seeds water, "amrit noni") because they believed government medicine was slower-acting or carried side effects such as kidney damage. Some ASHA and MAS participants described having argued against this belief themselves. Because it surfaced across all three sources in similar language, it appears to be a commonly held belief in the community rather than an isolated patient perception.

Positive perceptions of public facilities were common among PwNCD, but general trust in the government system was not always the same as a positive experience of NCD care. Three PwNCD (Savitramma, Mahalingappa and Ajaykumar) described strong loyalty to government hospitals rooted in unrelated past experiences, such as emergency treatment, childbirth or family illness, and two of them had not sought BP care there at all. Three others (Kavitha, Manjamma and Kallamma) described positive experiences specifically for BP or sugar management: free tablets and check-ups, and, for Kallamma, a book-based follow-up system in which the same doctor reviewed her records at every visit.

> *"Our government hospital is like a parent for orphans." Female, 63 years, DM + HTN*

When PwNCD criticised the facilities they used, the criticism was mostly about communication rather than the availability of resources. Rushed care with little or no counselling was the most frequently cited system-level issue: PwNCD across different facilities described medicine dispensed with no explanation of cause, no discussion of side effects and no guidance on timing relative to food. Structural complaints were raised less often: overcrowding (2 PwNCD), provider unavailability (1), limited on-site laboratory facilities (1) and perceived favouritism

towards patients known to staff (1). Two PwNCD explicitly stated that they felt excluded from treatment decisions; most did not raise decision-making at all.

> *"They only decide and give. They don't ask us anything. They don't feel the need in (describing treatment decisions)." Female, 75 years, HTN*
> *"But if we go to govt we don't get that kind of respect. They just give what they want. It won't suit us. We have to buy outside. What to do for our sake…" Male, 64 years, HTN*

The emphasis differs between the two methods. In the survey, the reasons most often given for not using government facilities related to availability and access (absent personnel, unavailable medicine, inconvenient timings and long waiting times), and poor quality of care was named by 13.1% of respondents with diabetes and 9.9% with hypertension. In the interviews, the most frequent criticism concerned the content of the consultation itself.

Providers' accounts of counselling differed from those of PwNCD. Several providers described giving verbal explanations, discharge slips listing dietary advice, or checking that patients understood their prescription before starting treatment. The data cannot determine which account is more accurate, and both may hold at the same time. Providers reported managing 50 to 90 PwNCD per month per facility alongside maternal and child health and other programme duties, and several named time pressure as a barrier to more in-depth counselling.

One PwNCD (Ningaraju) described harm at a private facility: the loss of a toe, which he attributed to unnecessary escalation of a minor wound. He then moved to a different private provider for routine care, but used the government hospital for the amputation and wound treatment, which he described positively.

Screening for complications in the last year: Few respondents had been tested for complications. Among people with diabetes, 29.1% had an ECG, 26.6% an eye check, 24.1% a kidney function test and 17.3% a lipid profile. Among people with hypertension, the figures were 16.7%, 13.4%, 13.4% and 12.8%. Women with diabetes more often had an eye check than men (30.0% vs 23.1%). Among all with hypertension (N=556), 23.2% had an ECG, 19.1% an eye check, 17.8% a kidney function test and 14.4% a lipid profile in the last year. Men more often had an ECG than women (26.7% vs 20.3%).

Treatment adherence and monitoring

The PwNCDs were asked about the frequency of oral medicine intake, missed doses, frequency of testing, and place of testing, to estimate the levels of adherence to medicine and testing. Also, to understand the preference for the type of provider for testing. The values are presented in Table 10.

19.4% of respondents with diabetes and 13.4% with hypertension were not currently taking oral medicine (15.1% of all with hypertension). Among those who were, prescriptions were shown to the interviewer by 42.7% and 46.2%, and reported but not shown by 37.9% and 40.4%.

In the last month, 31.7% of respondents with diabetes and 39.0% with hypertension had missed their medicine. Doses were missed one or two times by 27.1% and 32.6%, and three or more times by 4.6% and 6.3%. Among all with hypertension (N=556), missed doses differed by age (p

= 0.006): only 54.0% of those aged 30–44 never missed a dose, compared with 67.7% at 45–59 and 62.1% at 60 and above, and 46.0% of the youngest group missed one or two doses. Among people with hypertension, 9.7% of men missed doses three or more times, compared with 3.3% of women. Among all with hypertension (n=556), 63.4% never missed a dose in the last month, 30.5% missed one or two times, and 6.1% missed three or more times. Men more often missed doses three or more times than women (8.7% vs 3.9%).

When enquired about the reasons for missed doses, being unable to travel to the facility was the most common reason (33.0% with diabetes, 45.5% with hypertension, 36.9% of all with hypertension). Medicine not being available at the facility or shop mattered more for people with diabetes (18.1%) than hypertension (4.5%), while side effects mattered more for people with hypertension (18.2% vs 11.7%). Cost (8.5% and 9.1%) and taking multiple pills (8.5% with diabetes) were less common.

About testing in the last three months, 78.8% of respondents with diabetes had their blood sugar or blood pressure tested, compared with only 52.6% of those with hypertension (57.7% of all with hypertension). Among people with hypertension, men were tested more often than women (59.7% vs 46.3%). Most people with diabetes were tested once (46.3%) or twice (23.3%), and 16.2% three or more times; among people with hypertension, the figures were 41.0%, 20.2% and 9.2%. Among all with hypertension (N=556), men were tested more often than women (61.2% vs 54.8%), and testing was similar across age groups (55.8%, 56.5% and 59.5%).

As with consultations, private hospitals or clinics were the most common place of the last test (58.8% with diabetes, 48.9% with hypertension), followed by government hospitals (27.4% and 34.0%) and the UPHC (8.2% and 13.1%). Testing at private pharmacies (4.3% and 3.0%) or at home (1.0% and 0.6%) was uncommon. Among all with hypertension (N=556), 53.6% were last tested at a private facility, 30.9% at a government hospital and 10.4% at the UPHC. Men used private facilities more than women (58.0% vs 49.8%), while women used the UPHC more (12.6% vs 7.8%).

Those not tested mostly felt it was unnecessary (45.6% with diabetes, 44.9% with hypertension) or said they were already taking medicine regularly (41.8% and 37.8%). Reasons for not testing at government facilities were inconvenient timings (41.3% and 42.5%), absent health personnel (39.4% and 37.9%), long waiting times (35.9% and 37.4%) and poor quality of care (25.0% and 17.2%). Among people with diabetes, women cited long waiting times more often than men (46.3% vs 26.7%). Among all with hypertension (N=556), the reasons for not testing at government facilities were inconvenient timings (39.4%), long waiting times (38.2%), absent personnel (36.1%) and poor quality of care (21.4%). Men cited inconvenient timings more often than women (43.2% vs 35.8%). Absent personnel were cited most by those aged 45–59 years (44.7%), against 23.9% at 30–44 and 32.2% at 60 and above.

The interviews and FGDs gave context to these reasons. Three PwNCD described work schedules conflicting with facility hours. For one working participant (Kadayya), the government hospital opening at 10:30–11 am, after he had already eaten breakfast, made a fasting blood sugar test difficult to obtain. ASHA/MAS participants independently described government facility hours (opening after 10 am, or closing by early evening in some accounts) conflicting with working hours. Some PwNCD delayed or skipped re-testing because they worried the readings would be higher and they would “start fearing”, preferring to stay with a

known number (e.g., 250) rather than risk hearing 300. Several providers and an ASHA participant also reported that facility-level BP and glucose devices sometimes gave inconsistent readings, which led providers themselves to advise PwNCD to verify a diagnosis privately before starting treatment.

PwNCDs were asked about their practice of taking medicines with a set of questions. In this regard, about 21% mentioned that they forget to take medicines sometimes. Although about 28% of diabetics who also have hypertension mentioned that they feel hassled about sticking to their hypertension medicine, only about 14% of those with only hypertension said so. These are depicted in the following Figure 6:

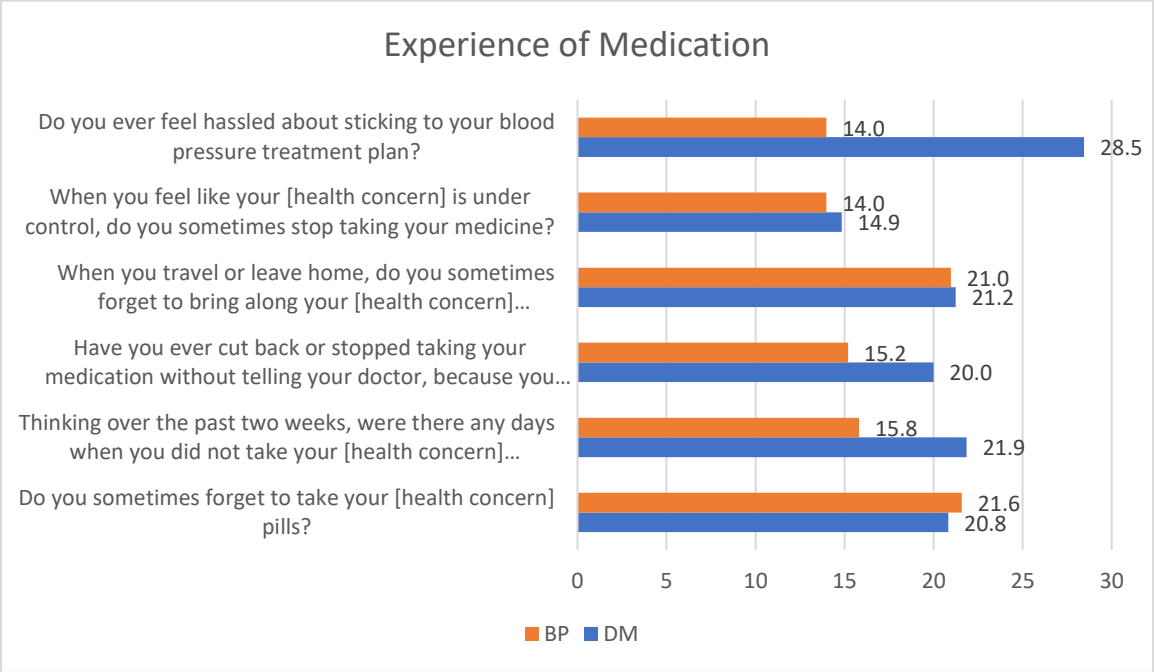


Figure 6

The qualitative exploration also provides probable enablers and barriers to adherence. Where adherence was sustained, family involvement was clearly the leading facilitator, cited by 6 participants more than any other single factor, including fear of complications or self-monitoring.

Family support and reminders (6 participants): spouses collecting medicine, grandchildren checking blood pressure at home, and in Mahalingappa's case, a wife who actively scolds and monitors him to keep him adherent.

Fear of complications (3 participants): motivation driven by witnessing or hearing about amputation, stroke, or death, including one participant (Kadayya) who described being influenced more by YouTube videos showing amputation than by anything his own doctor had told him. Such fears were echoed by other participants also.

"It is okay if I die but what if I am neither here nor there? If something happens to me, my son is a daily wage worker. He works in a JCB company. So, looking at his situation and everything, I control it with the food that I eat." Female, 60 years, DM + HTN

"When a person sees the video where they show what happens to a person having sugar and they amputate his hands and legs... I became cautious after realising this." Male, 70 years, DM

Fear at times acted as an enabler and at times as a barrier. Several participants described becoming "cautious" after seeing videos or hearing stories about limbs being amputated or kidneys failing, and subsequently tightening diet, walking daily, and continuing tablets. In these accounts, fear functioned as a deterrent against neglect: "*if sugar becomes more the person will die… that mindset became fixed.*" Some explicitly delayed or skipped re-testing because they worried readings will be "more" and they will "start fearing", preferring to stay with a known number (e.g., 250) rather than risk hearing 300. While in Gundappa's case, fear of private-sector over-treatment – "*private doctors scare us saying you have to take these… always*" coexists with confidence in a homemade 35-ingredient powder, producing deliberate tapering of prescribed tablets.

A positive relationship with a specific provider or facility (2 participants) and home self-monitoring with a personal BP machine or glucometer (1 participant) were present but far less common.

Sense of individual responsibility (4 participants): participants such as Ganavi and Kallamma explicitly framed adherence as their own duty, independent of reminders from others.

"Yes, we ourselves are responsible for it. Can that be blamed on others? No. If something happens to people like us who work on daily wage, we will not have money suddenly. We have to pledge our jewellery and manage. Looking at all that, I control it with the food I eat". Female, 60 years, DM + HTN

On the other side, narratives on barriers to adherence were also found. Self-discontinuation or irregular intake of medication once a patient feels better was the most common barrier identified, affecting 7 of 16 in the dataset. This pattern recurred regardless of gender, disease type, or whether the patient's primary source of care was public or private.

"I don't take BP tablets continuously. I don't take them if I am in the village... I take it 4 days in a week and don't take on other days." Male, 70 years, HTN

"I don't take if I am feeling fine. Sometimes, I don't take the tablets for 4-5 days. Nothing happens to me at that time. Then later I start getting headache. Then I will take the BP tablets". Male 80 years, HTN

Self-discontinuation (7 participants), ranging from context-dependent lapses (only adhering while in the city, as with Gundappa and Sathish) to stopping outright once symptoms subsided (Sathish, Muthyalamma).

In the survey, the most common reason for missed doses was being unable to travel to the facility (33.0% with diabetes, 45.5% with hypertension), and the main reasons for not consulting or not testing were that it did not feel necessary or that respondents were already taking medicine regularly. In the interviews, stopping or skipping medicine when feeling well was the most common pattern.

Work-schedule conflicts (3 participants): facility hours, especially fasting-test requirements, clash directly with jobs that offer little flexibility (Kadayya) government hospital opens at 10:30–11am, well after I have already eaten breakfast, making a genuinely fasting blood sugar test structurally difficult for him to obtain.

"You won't get time to walk when you are working from 8 to night 12, I will be in the shop when will I walk? That is the problem. Money is important now". Male, 52 years, HTN

"I did not get fasting checked as, the doctor was not available, timings were not convenient, I was busy with my work. Anybody with BP and sugar should first get the check-up done in the morning. You will be sure only if you get it checked like that. I will go to private (hospital) and get checked one day. I have that wish. I do not have any problem. I want to get it cleared if I have sugar or not. There is a private (clinic/hospital) nearby. I have enquired there". Male, 70 years, DM and HTN

Follow-up inconsistency (4 participants). Data shows that follow-up visits, particularly when they were feeling well or had no immediate concerns was not considered a priority.

"I don't get check up done and take tablets, I show the old prescription and get medicines". Female, 65 years, HTN + DM

Among the reasons mentioned for lack of regular follow ups included, avoidance of checkups altogether out of fear of a bad result (Kavitha). Financial and familial constraints (Gayatri), dependence on family members for treatment (Manjamma, *"We get from health center, my husband brings the strip from the hospital they give 30 tablets a month"*).

There also appeared to be limited emphasis on regular follow-up. Among those who reported some form of follow-up, this included checking blood pressure and blood sugar at home (Chandramma, *"I have that BP machine. I check it every week and since it is normal, there has been no need to change the medicine. I show the prescription and buy medicines"*) or visiting a private hospital once every three to four months. In some cases, family members collected medicines on behalf of the participant based on an earlier prescription (Manjamma, Mahalingappa). Five participants reported using an earlier prescription to obtain their medicines, including one participant whose BP prescription was nearly a decade old (Mahalingappa). One participant who sought care at a private hospital reported obtaining medicines directly from the hospital pharmacy based on the existing prescription, without describing a recent consultation (Gangadhar).

The provider interviews likewise gave little indication of active follow-up or of mechanisms to support continuity of care between visits, although providers described counselling and prescription-related communication.

Less frequent but notable barriers: fear of side effects, particularly kidney damage (Manjamma); medicine stock-outs even for basic supplies (Amit); the cost of sustaining private treatment (Kallamma); and struggle with self-control, as in case of Gayatri. Though the nurse scolds me if my sugar increases, I cannot control when I see sweets. What to do? I am old now and I cannot control and I will eat. (female 60 DM/HTN); not remembering due to age, doubts about the condition, self-perception about the condition and the physical manifestation of symptoms. As Kallamma shares from her experience about other people she has seen, they feel why should I simply take medicines when I am fine…like they are self-doctors. They themselves think that I am cured, why should I take medicines.

While most cases of poor control in this sample align with material or structural constraints, a small subset including Gundappa (70, male, coconut seller hypertension + diabetes), a patient with resources, hints at a different pathway. Here, adherence appears undermined not by inability to access care, but by a shift in what counts as trustworthy treatment. He has grown

distrustful of private doctors, whom he sees as “scaring” PwNCD into procedures. After a hospitalization, he began a 35-ingredient herbal powder on a relative’s advice, reports sugars falling to 120, and is now tapering off prescribed tablets against medical advice. Unlike the “stopped once I felt better” pattern seen elsewhere in the data, his non-adherence is active substitution with an alternative regimen he trusts more.

Out-of-pocket cost burden

We asked the PwNCDs about costs incurred in recent consultations and tests for metabolic levels. Also, diabetics were asked about insulin use. These are shown in Table 11. People with diabetes faced higher out-of-pocket costs than people with hypertension, especially for medicines, and most bought their medicines from private pharmacies.

Consultations were free for 34.2% of respondents with diabetes and 48.0% with hypertension. The most common paid range was Rs 101–500 (38.4% and 31.0%), and 11.1% of people with diabetes paid more than Rs 500, against 2.7% with hypertension. Few paid up to Rs 100 (4.5% and 8.8%), and 11.8% and 9.4% did not know the cost. The mean consultation cost was Rs 192 (SD 214) for diabetes and Rs 140 (SD 188) for hypertension; the medians were Rs 100 and Rs 0.

Tests were free for 34.6% of respondents with diabetes and 48.9% with hypertension. Most of those who paid spent Rs 101–500 (37.3% and 34.0%), while 11.8% and 4.3% paid up to Rs 100, and 3.3% and 2.4% more than Rs 500. The mean testing cost was Rs 247 (SD 251) for diabetes and Rs 134 (SD 187) for hypertension; the medians were Rs 200 and Rs 0.

Monthly medicine costs of oral medicines were free for 30.1% of respondents with diabetes and 42.9% with hypertension. Most of the rest spent up to Rs 1,000 a month (41.4% and 41.6%), while 23.3% of people with diabetes spent Rs 1,001–2,000, against 13.1% with hypertension, and 4.7% and 2.3% spent more than Rs 2,000. The mean monthly spend was Rs 849 (SD 848) for diabetes and Rs 512 (SD 844) for hypertension. The medians were Rs 998 and Rs 180; the much lower median for hypertension suggests that a small group of high spenders raises the mean.

People with diabetes most often took oral medicine twice a day (54.4%; once a day 43.3%, three times 2.3%), while most people with hypertension took it once a day (71.4%; twice 27.1%, three times 1.5%). Private pharmacies were the main source of medicines (62.5% of people with diabetes), followed by government hospital pharmacies (22.3%), the UPHC (9.3%) and Jan Aushadhi Kendras (5.4%). The same order held for people with hypertension (private pharmacies 178 respondents, government hospital pharmacies 101, UPHC 42, Jan Aushadhi Kendras 7); their percentages need updating in the table (see the final section). The reasons given for not using Jan Aushadhi Kendras were that medicines were often not available (42.8% with diabetes, 45.7% with hypertension), doubts about efficacy (36.2% and 35.1%) and doctors asking patients to buy elsewhere (31.5% and 25.8%).

Few people with diabetes used insulin (3.5% showed a prescription and 1.4% reported it without showing one). Most bought it from private pharmacies (70.8%), followed by government hospital pharmacies (16.7%); the UPHC and Jan Aushadhi Kendras were each used by 4.2%. The median monthly expenditure on insulin was Rs 1,099.

13.4% of people with diabetes and 15.2% with hypertension were taking non-allopathic medicine. Many users did not know its cost (52.3% and 40.0%), and some received it free

(26.2% and 34.0%). The mean monthly cost was Rs 590 (SD 455) and Rs 491 (SD 457), with medians of Rs 998 and Rs 375.

In the qualitative interviews, cost emerged as the clearest influence on where and how PwNCD sought care. Participants across age, gender and occupation described cost as the reason they could not access or sustain private treatment. Gayatri could not spare Rs 2,000 for private care given her children's school fees, and Ganavi could not afford a Rs 1,000 cholesterol prescription and returned to government care. Savitramma described abandoning a Rs 1,000 private treatment she could not afford. Three participants (two men and one woman) described children or a spouse paying directly for treatment, which allowed them to use private care despite the cost. Ajaykumar reported spending more than a lakh of rupees across multiple private providers and scans before his hypertension was diagnosed.

> *"How can people like us who are poor, go to private hospital or clinic? If something happens to me, my son is a daily wage worker, he works in a JCB company so, looking at his situation and everything, I control it with the food that I eat." Female, 60 years, DM + HTN*

The belief that government medicines are slower or less effective (see Care-seeking and consultation) also led some PwNCD to buy medicines outside the government system. In the survey, doubts about efficacy were the second most common reason for not using Jan Aushadhi Kendras (36.2% with diabetes, 35.1% with hypertension). On non-allopathic medicine, providers described PwNCD substituting government tablets with home remedies, and one PwNCD (Gundappa) had begun a 35-ingredient herbal powder on a relative's advice and was tapering his prescribed tablets (see Treatment adherence and monitoring).

Metabolic control and Family or Social support

We enquired about disease control based on any reports the PwNCDs would have had. We found 159, i.e., one-third of 485 persons with DM and 106, i.e. only one-fifth of all those with HTN, had their metabolic values recorded in the latest prescription or the most recent test report. As per the definition of the American Diabetes Association, metabolic control among DM was defined as FBS up to 130 mg/dl and PPBS-<180 mg/dl or HbA1c <7%. For metabolic control of BP, we followed the JNC 8 definition: if Systolic is <= 150 and diastolic <=90 for age >= 60 years and if Systolic is <140 and diastolic <90 for age < 60 years. These are represented in Table 12.

Among respondents with hypertension who had their reports, 32.1% had good control and 67.9% poor control (30.9% and 69.2% among all with hypertension). Control was poorer among men (29.6% good) than women (34.6%), and poorer among those under 60 (27.9%) than those aged 60 and above (37.8%). Among all with hypertension, only 22.5% of those under 60 had good control, against 41.1% of those aged 60 and above. The mean systolic blood pressure was 140.9 mmHg (SD 24.1).

Blood sugar control. Based on fasting and post-meal blood sugar, 54.7% of people with diabetes with reports had good control and 45.3% poor control, with little difference between men (55.7% good) and women (53.8%). The mean fasting blood sugar was 140.2 mg/dl (SD 82.0). On HbA1c, however, only 3.1% had good control and 96.9% poor control, with a mean HbA1c of 11.7% (SD 6.6).

Family and social support

Spouses were the main people who reminded respondents to take their medicines (52.8% with diabetes, 54.4% with hypertension), followed by sons or daughters (39.4% and 34.7%). About one in seven had no one to remind them (13.4% and 14.3%). The pattern differed sharply by sex and age. Among people with diabetes, 70.2% of men were reminded by their wives, while women relied more on their children (51.8%) than on their husbands (36.0%). Reminders from a spouse fell with age (71.6% at 30–44, 56.9% at 45–59 and 43.1% at 60 and above), while reminders from children rose (11.9%, 35.6% and 51.4%) (Table 13).

The qualitative data indicate family involvement as the leading facilitator of adherence support, cited by 6 participants more than any other single factor, including fear of complications or self-monitoring. Spouses collecting medicine, grandchildren checking blood pressure at home, and, in Mahalingappa's case, a wife who actively scolds and monitors him to keep him adherent.

"Whenever I feel ok, I don't take medicine. They (wife) scold me at home saying don't stop taking BP tablets, and sometimes, she beats me on hand. But now also I don't take sometimes because I feel fine. They scold me if I tell them. So, I tell them that I have taken it. They will keep a count of it but I keep here somewhere and tell them I have taken it." (Male, 80 years, HTN)

"My husband is there all the time to support me; he says you take care of your health, eat whatever doctor said, you do walking and take medicine on time. He only takes the slip and bring my medicine." (Female, 36 years, DM)

2 years back, the building owner took me to a hospital to get checked. He supports me in buying tablets and everything. (Male, 70 years, HTN)

Providers and ASHA/MAS participants raised the same point independently and without prompting: elderly or single-living PwNCD struggle to reach facilities or maintain routines without someone at home to assist. In the survey, about one in seven respondents (13.4% with diabetes, 14.3% with hypertension) had no one to remind them to take their medicines.

Family support did not always mean that the person's needs were visible to the family. Muthyalamma's husband collected her monthly BP tablets from the government hospital without fail, yet she deliberately hid how she was feeling from her family (*"if I can't work, lie down, my daughter asks, I say nothing… we should not give trouble to others"*). She had not had her BP checked in about a year and dismissed two weeks of dizziness rather than seek care, reasoning that *"we should not keep thinking about the disease… anyway you will die."*

Psychosocial burden

Psychological distress was assessed using the four-item Patient Health Questionnaire (PHQ-4), comprising two anxiety items (GAD-2) and two depression items (PHQ-2). The responses to all four items were summed to obtain a total score ranging from 0 to 12. Participants were

categorised as having normal (0–2), mild (3–5), moderate (6–8), or severe (9–12) psychological distress[5]. The results are shown in Table 14.

Fewer than half of respondents had a normal PHQ-4 score, and women, particularly women with diabetes, reported more symptoms than men. On the PHQ-4, 39.8% of respondents with diabetes and 42.0% with hypertension scored in the normal range. Mild symptoms were reported by 40.0% and 42.2%, moderate symptoms by 18.6% and 15.2%, and severe symptoms by 1.6% and 0.6%.

Among people with diabetes, men more often scored in the normal range than women (44.1% vs 35.6%), while women more often had mild (42.5% vs 37.4%) or moderate symptoms (20.7% vs 16.4%). Among people with hypertension, 44.8% of men and 39.4% of women were in the normal range. Women more often had mild symptoms (46.3% vs 37.7%), while men slightly more often had moderate symptoms (16.9% vs 13.7%). Severe symptoms were rare in all groups (2.1% or less).

The qualitative interviews were not designed to assess mental health, but six PwNCD volunteered explicit emotional distress (sadness, crying, worry, difficulty regulating anger) in response to a question on personal challenges. In five of the six, the distress was rooted in affordability, family and social relationships, or occupational history rather than in living with diabetes or hypertension itself: abandoning a private treatment that could not be afforded, fear of depending on children for money, eroding family and social support, children's housing and job insecurity, and long-standing occupational and financial strain. In only one case (Kallamma) was the distress directly about the condition, arising from dietary restriction and fear of complications (quoted under Dietary practices and beliefs).

> *"When I go somewhere I feel very upset, family is not alright, daughter like this… people tease me, they will tease me because they are rich. (crying)… earlier everyone used to support, now no one cares." Female, 36 years, DM*

> *"Sometimes I remember the time when I resigned even though I was having money at that time and feel sad. I start feeling I did a wrong thing by resigning. If something happens tomorrow, then how do I ask my children for money?" Male, 80 years, HTN*
> *"I am worried about my children, they all work outside, they don't have house or anything, they live in rented house… tension. Nothing else." Female, 60 years, HTN*

Perceived illness threat and self-efficacy

Perceived illness threat was assessed using items 1–8 of the Brief Illness Perception Questionnaire (B-IPQ; Broadbent et al., 2006)[6]. Each item was scored 0–10, with items 3, 4 and 7 reverse-scored, giving a total score of 0–80; higher scores indicate a more threatening perception of illness. In the absence of established cut-offs, study-defined scores were classified into low (0–26), moderate (27–53) and high (54–80) illness threat by dividing the possible range into three equal intervals. The findings are shown in Table 15.

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[5] Kroenke K, Spitzer RL, Williams JBW, Löwe B. An ultra-brief screening scale for anxiety and depression: the PHQ-4. *Psychosomatics*. 2009;50(6):613–621. PMID: 19996233.
[6] Broadbent E, Wilkes C, Koschwanez H, Weinman J, Norton S, Petrie KJ. *Psychology & Health* 2015;30(11):1361–1385. doi:10.1080/08870446.2015.1070851.

Respondents were spread fairly evenly across low, moderate and high perceived illness threat, with women and older people with hypertension more likely to see their illness as a high threat. Among people with diabetes, 36.1% perceived a low illness threat, 30.5% moderate and 33.4% high. Among people with hypertension, the figures were 38.9%, 34.0% and 27.1%. Women more often perceived a high threat than men: 36.0% vs 30.7% with diabetes, and 29.1% vs 24.7% with hypertension. Among people with hypertension, perceived threat rose with age: 18.5% of those aged 30–44 perceived a high threat, against 22.1% at 45–59 and 36.2% at 60 and above. Among people with diabetes, the share perceiving a high threat was similar across age groups (37.3%, 32.7% and 32.9%), and the youngest group was least likely to perceive a low threat (29.9%, against 35.6% and 38.4%). The scale showed acceptable reliability as Cronbach's alpha was >0.75.

The qualitative interviews explored how PwNCD made sense of their condition. Explanations were usually multiple rather than single, with most participants offering two or three causes in combination, and centred on diet and stress. Food was named by 8 of 16 participants (see Dietary practices and beliefs). Worry, tension and stress were named by six participants, in distinct forms: a specific conflict such as a family land dispute, chronic worry over family and household matters, and occupational or financial pressure. One participant traced an economic pathway, from insufficient income to family friction over spending, and from there to tension.

> *"Family tension and income. If income is less and if the family members/wife ask to buy this and that, and if the person is not able to buy it, then he will definitely get tension… It starts from there itself, isn't it?" Male, 59 years, HTN*

Others named inactivity and urban living (three participants), alcohol and smoking (two participants each), and age, usually as a secondary factor ("after a certain age BP sugar comes"). A couple of participants framed their condition through fate or destiny rather than a proximate cause, and in these accounts this framing tended to coexist with lower engagement in active self-management. Two participants (Gundappa and Sathish) said they had no idea why they had developed the condition.

> *"We don't bring the diseases in our hands. It is according to what and when He gives us. Health depends on the person's luck." Male, 70 years, DM+HTN*

General self-efficacy to assess confidence in managing challenges was estimated using the 10 item scale psychological self-report measure developed by Ralf Schwarzer and Matthias Jerusalem in 1995 to assess an individual's optimistic self-belief in their ability to handle difficult demands, cope with daily hassles, and adapt to stressful life events[7]. The findings are in Table 16. The responses were summed to obtain a total self-efficacy score for each participant. Based on the scoring criteria used in the analysis, participants were classified into low (10–20), moderate (21–30), and high (31–40) self-efficacy categories.

[7] Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, England: NFER-NELSON. (no DOI): https://www.testable.org/scale/gse-generalized-self-efficacy-scale

About half of respondents had low self-efficacy and only about one in eight had high self-efficacy, with women and older people with diabetes faring worst. On the General Self-Efficacy Scale, 50.7% of respondents with diabetes and 52.0% with hypertension had low self-efficacy. Moderate self-efficacy was found in 35.7% and 34.6%, and high self-efficacy in 13.6% and 13.4%. The scale showed very high reliability (Cronbach's alpha 0.945 to 0.951).

Men more often had high self-efficacy than women (16.0% vs 11.3% with diabetes; 16.9% vs 10.3% with hypertension). Women more often had low self-efficacy (53.9% vs 47.5% with diabetes; 54.9% vs 48.7% with hypertension). Among people with diabetes, high self-efficacy fell steadily with age, from 23.9% at 30–44 to 14.9% at 45–59 and 9.3% at 60 and above, while low self-efficacy rose from 47.8% and 48.0% to 54.2%. Among people with hypertension, high self-efficacy was highest at 45–59 years (16.6%), against 13.0% at 30–44 and 10.0% at 60 and above. The updated table reports no statistical tests.

In the interviews, four participants (including Ganavi and Kallamma) explicitly framed managing their condition as their own responsibility, independent of reminders from others (see Treatment adherence and monitoring). Others described difficulty with self-control, particularly around food, and one participant described how people she knew stop their medicines once they feel well.

> *“Though the nurse scolds me if my sugar increases, I cannot control when I see sweets. What to do? I am old now and I cannot control and I will eat.” Female, 60 years, DM + HTN*
>
> *“They feel why should I simply take medicines when I am fine… like they are self-doctors. They themselves think that I am cured, why should I take medicines.” Female, 60 years, DM*

Discussion

This baseline study combined a household survey of persons with and without diabetes or hypertension with in-depth interviews with PwNCD, key informant interviews with providers, and group discussions with ASHA and MAS members in the Roopena Agrahara and Kodichikkanahalli UPHC areas. The two methods present a consistent picture. Facilities, staff and medicines are largely in place, but the continuum of care breaks at several points: at screening and confirmation, at follow-up, in the content of the clinical encounter, and in the trust people place in what the public system provides. The sections below discuss these findings in relation to the study objectives and published evidence.

Screening reaches few, and the route to diagnosis is largely informal

Only a third of respondents without diabetes or hypertension reported being screened in the last 12 months, and fewer than 2% of those screened went on for confirmatory testing. Under the national programme, all adults aged 30 years and above are to be screened, with ASHAs completing the community-based risk assessment, registering families and following up in the community[8]. Against this expectation, only 30.4% of respondents reported a health worker home visit, and only a quarter were aware of any community health group. Where screening did happen, it was delivered almost entirely through the public system, which indicates that the platform exists but that its reach is limited. The main reason for not being screened was that it did not feel necessary, rather than cost or access. This was also the reason most often given by PwNCD for not consulting or not testing, so low perceived need appears to be a common thread across both groups.

National studies show a similar pattern. The largest loss in the diabetes care cascade in India occurs at the stage of awareness[9], and among adults aged 45 years and above with hypertension, just over half had been diagnosed[10]. In a resettlement colony and slum in Delhi, most people found to have hypertension during screening had not previously been diagnosed[11]. The qualitative narratives show how diagnosis happened in this population: through symptoms recognised by the person or a neighbour, incidentally while seeking care for another illness, or because an employer or building owner took the person for a check-up. Self, community or informal work relations, rather than the health system or family, initiated care. Some participants had no symptoms before diagnosis, one had normalised years of headaches,

[8] Ministry of Health and Family Welfare, Government of India. National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD): Operational Guidelines 2023–2030. New Delhi: MoHFW; 2023. Available from: https://www.mohfw.gov.in/sites/default/files/NP-NCD%20Operational%20Guidelines_0.pdf

[9] Prenissl J, Jaacks LM, Mohan V, Manne-Goehler J, Davies JI, Awasthi A, et al. Variation in health system performance for managing diabetes among states in India: a cross-sectional study of individuals aged 15 to 49 years. BMC Med. 2019;17:92. doi:10.1186/s12916-019-1325-6.

[10] Lee J, Wilkens J, Meijer E, Sekher TV, Bloom DE, Hu P. Hypertension awareness, treatment, and control and their association with healthcare access in the middle-aged and older Indian population: a nationwide cohort study. PLoS Med. 2022;19(1):e1003855. doi:10.1371/journal.pmed.1003855.

[11] Singh MM, Basu S, Lalwani H, Rao S, Maheshwari V, Garg S, et al. Hypertension care cascade in an urban resettlement colony and slum in Delhi, India: a cross-sectional survey. BMC Public Health. 2023;23. doi:10.1186/s12889-023-17021-8.

and one went through a prolonged and costly diagnostic journey across several private providers.

Continuity of care rests on refills rather than review

In the last month, about a third of the respondents with diabetes and two-fifths with hypertension had missed their medicine, and testing in the last three months was much less common among people with hypertension (52.6%) than among those with diabetes (78.8%). Metabolic values were recorded in the latest prescription or test report for only about one-third of people with diabetes and one-fifth of those with hypertension, and among people with hypertension who had reports, 67.9% had poor control. The two methods emphasise different reasons. In the survey, missed doses were most often attributed to being unable to travel to the facility, while not consulting or not testing was mostly explained by it not feeling necessary or by already taking medicine regularly. In the interviews, the most commonly described pattern was stopping or skipping medicines when feeling well, together with obtaining medicines on old prescriptions, through family members or pharmacies, without a fresh review. The findings are compatible rather than contradictory: the survey question captured recent, practical lapses, whereas the interviews captured longer-term patterns and the belief that a person who feels well, or who already has medicines, does not need review.

Studies from Mumbai reported similar findings. Stopping medicines when feeling well was the second most common reason for non-compliance among people with hypertension in a tertiary hospital[12], and in urban slums of Navi Mumbai every previously diagnosed patient had stopped medication for a significant period at some point, most often for lack of money[13]. The provider interviews gave little indication of active recall or follow-up between visits, and some PwNCD avoided re-testing for fear that the result would be worse. Continuity of care in this population therefore appears to depend on refilling prescriptions rather than on periodic clinical review, which allows poor control to go undetected.

Trust in public medicines, movement between sectors and the cost of care

Private hospitals and clinics were the most common place of the last consultation and the last test, and private pharmacies were the main source of medicines. People with diabetes faced higher out-of-pocket costs than people with hypertension, especially for medicines. Nationally, medicines are the largest component of household out-of-pocket spending on health[14], and outpatient diabetes care costs considerably more in private than in public facilities[15].

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[12] Shah AJ, Singh V, Patil SP, Gadkari MR, Ramchandani V, Doshi KJ. Factors affecting compliance to antihypertensive treatment among adults in a tertiary care hospital in Mumbai. Indian J Community Med. 2018;43(1):53–5.

[13] Kotian SP, Waingankar P, Mahadik VJ. Assessment of compliance to treatment of hypertension and diabetes among previously diagnosed patients in urban slums of Belapur, Navi Mumbai, India. Indian J Public Health. 2019;63(4):348–52. doi:10.4103/ijph.IJPH_422_18.

[14] Selvaraj S, Farooqui HH, Karan A. Quantifying the financial burden of households' out-of-pocket payments on medicines in India: a repeated cross-sectional analysis of National Sample Survey data, 1994–2014. BMJ Open. 2018;8(5):e018020. https://bmjopen.bmj.com/content/8/5/e018020

[15] Nanda M, Sharma R. Financial burden of seeking diabetes mellitus care in India: evidence from a nationally representative sample survey. Health Care Sci. 2023;2(5):291–305. doi:10.1002/hcs2.65.

The qualitative data help to explain why many people use private care despite its cost. Survey respondents named absent personnel, unavailable medicines, inconvenient timings and long waiting times as reasons for not using government facilities. In addition, PwNCD, providers and ASHA/MAS participants independently described a belief that government medicines are "slow" or "do not suit", which led to switching between sectors, buying medicines privately or substituting home remedies. Doubts about efficacy were also the second most common reason in the survey for not using Jan Aushadhi Kendras. In Tumkur district of Karnataka, generic and branded diabetes and hypertension medicines were found to be of comparable quality, yet patients and health workers still preferred branded drugs and described government medicines as giving partial or no relief[16]. The belief therefore need not reflect real differences between medicines, and it is open to change through communication by trusted providers. It has consequences: it moves purchases to the private sector, interrupts continuity when people switch, and, as one participant's account showed, can lead to prescribed treatment being replaced with an alternative regimen even when resources are not the constraint. Only about a third reported any health insurance coverage, leading most to OOPE. For poorer participants, however, cost remained the clearest limit on private care, and some returned to government care because they could not afford private treatment.

What happens in the consultation

When PwNCD criticised the facilities they used, they spoke mostly about the consultation itself: medicines dispensed without explanation of the cause, side effects or timing in relation to food, and little involvement in decisions about treatment. Providers described the opposite, citing verbal explanations, discharge slips with dietary advice and checks that patients had understood. Both accounts may be true. Providers reported caring for 50 to 90 PwNCD per month per facility alongside maternal and child health and other programme duties, and named time pressure as a barrier to counselling. Very short consultations are common in primary care in South Asia, with average consultation times as short as 48 seconds reported from Bangladesh[17]. What providers believe they convey and what patients take away may therefore differ, and only observation of consultations can show which is the case.

The survey supports the patients' account in specific areas. Only about half of people with diabetes (48.3%) had ever been counselled on diet, mostly by private doctors, and only about 10% of respondents had been counselled about the ill effects of tobacco, even though about one-fifth of PwNCD used tobacco. Advice to quit tobacco is uncommon nationally as well:

[16] Aivalli PK, Elias MA, Pati MK, Bhanuprakash S, Munegowda C, Shroff ZC, et al. Perceptions of the quality of generic medicines: implications for trust in public services within the local health system in Tumkur, India. BMJ Glob Health. 2017;2(Suppl 3):e000644. https://gh.bmj.com/content/2/Suppl_3/e000644

[17] Irving G, Neves AL, Dambha-Miller H, Oishi A, Tagashira H, Verho A, et al. International variations in primary care physician consultation time: a systematic review of 67 countries. BMJ Open. 2017;7(10):e017902. doi:10.1136/bmjopen-2017-017902.

among daily tobacco users in the second Global Adult Tobacco Survey[18], only about one in five had been advised to quit by a health care provider[19].

Where lifestyle advice does reach people, it is not fully translating into practice. Among people with hypertension, 62.3% named salty food as the main food to avoid, yet 39.2% still added salt at the table. Few people ate fruit every day, and few appear to meet the WHO recommendation of five servings of fruit and vegetables a day. People with diabetes had no consistent understanding of the recommended meal pattern, and 42.1% had skipped at least one meal in the last month. The National NCD Monitoring Survey[20] similarly found that more than half of Indian adults knew that reducing salt was important, but fewer than half practised salt control[21]. The interviews show why awareness alone is unlikely to change diet: eating leftovers to avoid waste, work-related meal timings and the need to eat at the workplace shape what people actually eat.

Lay explanations, fear and self-responsibility

Participants explained their condition mainly through diet and stress, where stress arose from family conflict, chronic worry, work pressure or insufficient income, and a few through fate. Heredity was raised only to be ruled out, although 35% of survey respondents reported a family history of diabetes or hypertension. Similar explanations have been reported among urban Indians with diabetes, for whom stress rooted in finances, children's futures and family dynamics was a common explanation[22], and among migrants in Delhi, who attributed hypertension to city life, stress and adulterated food[23]. These explanations offer a starting point for counselling that begins from the patient's own understanding rather than from a purely biomedical account.

Fear of complications worked in both directions. For some participants, videos and stories of amputation or kidney failure led to a stricter diet, daily walking and continued medication. For others, fear of a bad test result led to avoiding re-testing, and warnings from providers fuelled distrust or the rationing of medicines. The evidence on fear appeals points the same way:

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[18] Tata Institute of Social Sciences (TISS), Mumbai and Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey GATS 2 India 2016-17: https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf

[19] Ramanadhan S, Xuan Z, Choi J, Mahtani SL, Minsky S, Gupte H, et al. Associations between sociodemographic factors and receiving "ask and advise" services from healthcare providers in India: analysis of the national GATS-2 dataset. BMC Public Health. 2022;22. doi:10.1186/s12889-022-14538-2.

[20] Indian Council of Medical Research - National Centre for Disease Informatics and Research, Ministry of Health and Family Welfare, Government of India. National Noncommunicable Disease Monitoring Survey (NNMS) 2017–18: https://ncdirindia.org/nnms/resources/Initial_Content.pdf

[21] Mathur P, Kulothungan V, Nath A, Vinay Urs KS, Ramakrishnan L, et al. Awareness, behavior, and determinants of dietary salt intake in adults: results from the National NCD Monitoring Survey, India. Sci Rep. 2023;13:15890. doi:10.1038/s41598-023-42694-x.

[22] Mendenhall E, Shivashankar R, Tandon N, Ali MK, Narayan KMV, Prabhakaran D. Stress and diabetes in socioeconomic context: a qualitative study of urban Indians. Soc Sci Med. 2012;75(12):2522–9. doi:10.1016/j.socscimed.2012.09.040.

[23] Kusuma YS. Perceptions on hypertension among migrants in Delhi, India: a qualitative study. BMC Public Health. 2009;9:267. doi:10.1186/1471-2458-9-267.

messages that raise fear are most effective when they are accompanied by a clear sense that the recommended action is feasible and will work[24], and strong fear without such efficacy is most likely to produce defensive responses such as avoidance[25].

Several participants described managing their condition as their own responsibility, covering food, salt and sugar, exercise, medicines, routines and stress. This sense of responsibility is an asset that the intervention can build on. However, about half of survey respondents had low general self-efficacy, and women and older people with diabetes more so, which suggests that a sense of responsibility does not always come with confidence in being able to act on it.

Physical activity comes almost entirely from work

About two-fifths of PwNCD reached 150 minutes of physical activity a week, but when work was excluded, only about 7% did so. Almost all the activity recorded in this population therefore comes from work, and women and older people were more often inactive. Nationally, the ICMR-INDIAB study found that more than half of Indian adults were inactive[26]. Long working hours leave little time for walking, as one participant described, and activity that depends on work is not under the person's control when health or employment changes. Since doctors were almost the only source of motivation for exercise, the peer and community channels planned in the intervention could fill a gap.

Family as the main support for adherence

Family involvement was the leading facilitator of adherence in the interviews, and in the survey spouses and children were the main sources of reminders to take medicines. The source of support differed by sex and age: men with diabetes relied mostly on their wives, women more on their children, and reliance on children increased with age. About one in seven respondents had no one to remind them, and providers and ASHA/MAS participants independently noted that elderly or single-living PwNCD struggle without someone at home. Adherence in this population is therefore sustained more by relational support at home than by engagement generated within the health system. This leaves those without such support particularly exposed. Even where family support exists, it does not guarantee that needs are met: family members collected medicines on old prescriptions without a fresh review, one participant hid her symptoms so as not to trouble her family and had not had her BP checked in about a year, and another hid missed doses from a family that was monitoring him. A qualitative study among

[24] Tannenbaum MB, Hepler J, Zimmerman RS, Saul L, Jacobs S, Wilson K, et al. Appealing to fear: a meta-analysis of fear appeal effectiveness and theories. Psychol Bull. 2015;141(6):1178–204. doi:10.1037/a0039729.
[25] Witte K, Allen M. A meta-analysis of fear appeals: implications for effective public health campaigns. Health Educ Behav. 2000;27(5):591–615. doi:10.1177/109019810002700506.
[26] Anjana RM, Pradeepa R, Das AK, Deepa M, Bhansali A, Joshi SR, et al. Physical activity and inactivity patterns in India – results from the ICMR-INDIAB study (Phase-1) [ICMR-INDIAB-5]. Int J Behav Nutr Phys Act. 2014;11:26. doi:10.1186/1479-5868-11-26.

the urban poor in Bengaluru similarly found that nuclear families, conflict between generations and gendered roles limited support for diabetes care, especially for older adults and women[27].

Psychosocial burden and vulnerability

Fewer than half of respondents had a normal PHQ-4 score, and women, particularly women with diabetes, reported more symptoms than men. The qualitative data suggest that much of this distress is rooted in the circumstances around the disease, such as affordability, family relationships, children's insecurity and occupational strain, rather than in the disease itself; only one participant's distress was about living with the condition. Among urban Indians with diabetes, depression has likewise been found to be most common in the lowest-income group, with financial and family stressors central to people's accounts[28]. Support for psychological wellbeing may therefore need to address social and financial circumstances, and not only provide counselling about the disease.

The qualitative analysis also showed that vulnerability did not align neatly with demographic categories such as age, gender or widowhood: the participants carrying the greatest burden experienced it through different combinations of financial, caregiving, social, residential and occupational pressures. Migrant workers, whom providers identified as hard to reach because of language, were not represented among the PwNCD interviewed.

Limitations

The survey is cross-sectional, and the baseline describes the situation before the intervention; the associations reported cannot be interpreted as causal. Most outcomes, including screening, adherence and costs, were self-reported. Metabolic control could be assessed only for respondents whose values were recorded in a prescription or recent report, about one-third of people with diabetes and one-fifth of those with hypertension, and they may not be representative of all PwNCD. The HbA1c results differ sharply from the fasting and post-meal blood sugar results and need to be verified before they are interpreted. People with both diabetes and hypertension were sampled within the diabetes group, so findings for hypertension refer to people with hypertension only unless the combined group (N=556) is stated. The B-IPQ and General Self-Efficacy categories used study-defined cut-offs and are not directly comparable with other studies. The qualitative sample was small, with generalisability an inherent limitation, was drawn from two UPHC areas and interviewed by a single researcher, and the frequencies reported indicate how often a view was raised rather than how common it is. No migrant workers were among the PwNCD interviewed, and the differing patient and provider accounts of counselling could not be resolved without observing consultations.

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[27] Bhojani U, Mishra A, Amruthavalli S, Devadasan N, Kolsteren P, De Henauw S, et al. Constraints faced by urban poor in managing diabetes care: patients' perspectives from South India. Glob Health Action. 2013;6:22258. doi:10.3402/gha.v6i0.22258.

[28] Mendenhall E, Shivashankar R, Tandon N, Ali MK, Narayan KMV, Prabhakaran D. Stress and diabetes in socioeconomic context: a qualitative study of urban Indians. Soc Sci Med. 2012;75(12):2522–9. doi:10.1016/j.socscimed.2012.09.040.

Recommendations

The recommendations are organised around the three strategies of the intervention, followed by recommendations for the endline evaluation. They draw on the survey and qualitative findings, the suggestions made by participants themselves, and the evidence discussed above.

Peer-led social and behaviour change communication

1. **Challenge the belief that care is unnecessary when one feels well.** This was the main reason for not being screened, not consulting and not testing, and the most common pattern behind stopping medicines. Messages should explain that diabetes and hypertension can be present without symptoms, and that feeling well does not mean the condition is controlled.
2. **Address the belief that government medicines are "slow" or "do not suit".** Peer facilitators, ASHAs and providers can explain that medicines supplied by the government and Jan Aushadhi Kendras contain the same active ingredients as branded ones, and can draw on the experience of local patients who are well controlled on them.
3. **Make dietary guidance practical.** Focus on reducing salt added while eating and in cooking, increasing fruit and vegetables within household budgets, regular meals for people taking glucose-lowering medicines, and the habit of finishing leftovers. Lists of food to avoid or cooking demonstrations with PwNCD may help, and orientation or refresher sessions for frontline and community workers will help to carry these messages to a wider population.
4. **Promote physical activity,** such as brisk walking, climbing stairs and short sessions, with particular attention to women and older adults, who were least active.
5. **Pair any message about complications with clear, feasible actions** and reassurance about how to monitor safely, so that fear prompts action rather than avoidance of testing.
6. **Use trusted messengers and channels suited to each audience.** Providers and MAS members suggested local leaders, sangha women and teachers as trusted messengers; camps and peer groups for users of public services; mass media or mobile messaging to reach users of private care; more frequent follow-up for people whose attendance is irregular.
7. **Include tobacco and alcohol use in peer-led messaging,** particularly for men, with links to support to stop tobacco or alcohol use.

Community structures

1. **Increase the visibility and role of the Mahila Arogya Samiti.** Only a quarter of respondents without diabetes or hypertension knew of any community health group, and fewer still knew of the MAS.
2. **Build adherence support that does not depend on family.** Peer Support Groups, ASHA home check-ins and phone or SMS reminders should prioritise PwNCD who are elderly, live alone or have no one to remind them. ASHA-led community groups for hypertension are feasible

in rural India[29], and peer support has improved diabetes outcomes in several low- and middle-income settings[30].

3. Consider community or home delivery of medicines for elderly and less mobile PwNCD, as participants suggested.
4. Help residents find services. ASHAs reported that slum residents could not locate Namma Clinics; more campaigns and proper signage of the clinic may help.
5. Engage Hindi-speaking community facilitators or volunteers in migrant clusters, so that ASHAs can carry out screening and follow-up without depending on a PHCO.
6. Involve family members in Peer Support Group sessions and counselling, while recognising the limits of family support. In the interviews, family members commonly collected medicines and reminded patients, but this did not ensure regular review: medicines were collected on old prescriptions, symptoms were sometimes concealed so as not to burden the family, and in one case monitoring by family led to missed doses being hidden. Counselling should cover symptoms and follow-up as well as medicine collection, and give PwNCD a chance to raise concerns outside the family.
7. Help households enrol in health insurance and social protection schemes. Only about a third of PwNCD (and about 28% of respondents without diabetes or hypertension) reported health insurance coverage for the household, and about 36% of PwNCD had no ration card. MAS members, ASHAs and peer facilitators can help eligible households check their eligibility, gather documents and enrol, with priority to those who are elderly, widowed or in informal work. Because publicly funded insurance mainly protects against hospitalisation costs, enrolment should go alongside the use of free medicines and tests at public facilities to reduce the routine outpatient costs of diabetes and hypertension.

Health-system strengthening at the UPHC

1. Introduce brief, structured counselling at diagnosis and at each refill. It should cover why the medicine is needed even when one feels well, correct timing in relation to food, which side effects are and are not expected, and why the medicine supplied by the government is effective. Ending each consultation by inviting questions would address patients' sense of exclusion from decisions without adding much time. The workload of PHCOs and staff nurses should be reviewed so that time for counselling is protected. Counselling should also address fear directly. Fear of complications motivated some participants to adhere, but fear of side effects led others to stop medicines, and fear of a bad result led some to avoid re-testing. Providers should explain complications together with what the person can do to prevent them, reassure patients about kidney safety and other side-effect concerns, and present regular testing as a way to stay in control rather than as a source of bad news.

[29] Riddell MA, Mini GK, Joshi R, Thrift AG, Guggilla RK, Evans RG, et al. ASHA-led community-based groups to support control of hypertension in rural India are feasible and potentially scalable. Front Med. 2021;8:771822. doi:10.3389/fmed.2021.771822.

[30] Fisher EB, Boothroyd RI, Coufal MM, Baumann LC, Mbanya JC, Rotheram-Borus MJ, et al. Peer support for self-management of diabetes improved outcomes in international settings. Health Aff (Millwood). 2012;31:130–9. doi:10.1377/hlthaff.2011.0914.

2. **Use the planned digital line-list to move from refills to review.** Flag patients refilling on old prescriptions, schedule recall for blood pressure and blood sugar testing every three months, and follow up those who miss reviews through home visits.
3. A**n early-morning NCD Day slot, even once a week,** for fasting blood sugar tests and consultations for working PwNCD, and provide on-site testing where possible.
4. **Check and calibrate blood pressure monitors and glucometers regularly,** so that providers do not need to send patients to private facilities to confirm a diagnosis.
5. **Improve the availability of NCD medicines** at the UPHC and at Jan Aushadhi Kendras, since unavailable medicine was among the main reasons for not using government facilities and for missed doses among people with diabetes.
6. **Give brief tobacco cessation advice in every NCD consultation** and link users to cessation services.
7. **Expand screening for complications** (ECG, eye examination, kidney function and lipid profile), which few PwNCD had received in the last year, through clear referral pathways.
8. **Identify and respond to psychological distress.** Use the PHQ-4 in routine care to identify those with moderate or severe distress and link them to counselling and to health insurance, since much of the distress reported was linked to financial and family circumstances. Training in respectful, gender-sensitive care should recognise that women reported more distress and lower self-efficacy.

Conclusion

This baseline shows that the main gaps in diabetes and hypertension care in these vulnerable urban areas lie not in the absence of facilities or medicines, which are largely available, but in what happens around them. Screening reaches about a third of adults and is rarely followed by confirmatory testing. Among people already diagnosed, care is sustained mostly by refills on old prescriptions, reminders from family and the person's own sense of responsibility, rather than by periodic review within the health system. Many see no need to consult or test when they feel well, and a widely shared belief that government medicines are "slow" pushes people towards private care and higher out-of-pocket costs. Consultations are experienced as brief and lacking explanation, lifestyle advice is not translating into practice, and fear, distress and low self-efficacy shape how people manage their conditions.

These findings support the intervention's three strategies and sharpen their focus. Peer-led communication needs to address the beliefs that drive disengagement, namely that feeling well means care is not needed and that government medicines are inferior, and to pair any warnings with feasible actions. Community structures can provide the support that families currently carry, particularly for people who are elderly, live alone or are migrants. The health system needs to strengthen review, through structured counselling, active follow-up, and convenient testing times. The endline survey and qualitative study will show whether these changes reach the most vulnerable and lead to better adherence and control.

Annexure

Table 1: Socio-Demographic Characteristics

		Persons without diabetes or hypertension (Group 1)		Persons with Diabetes		Persons with only Hypertension	
Indicator	**Category**	**N**	**%**	**N**	**%**	**N**	**%**
Total N		171		485		329	
Gender	Male	88	51.5	238	49.1	154	46.8
	Female	83	48.5	247	50.9	175	53.2
Age	30–44	90	52.6	67	13.8	54	16.4
	45–59	55	32.2	202	41.7	145	44.1
	60+	26	15.2	216	44.5	130	39.5
Education	No schooling	36	21.1	187	38.6	126	38.3
	1 to 4 Yrs	21	12.3	44	9.1	30	9.1
	5 to 9 Yrs	46	26.9	129	26.6	85	25.8
	10+ Yrs	68	39.8	125	25.8	88	26.8
Marital Status	CURRENTLY MARRIED	133	77.8	356	73.4	254	77.2
	WIDOWED/WIDOWER	29	17.0	122	25.2	75	22.8
	DIVORCED/SEPARATED/ DESERTED	4	2.3	3	0.6	0	0.0
	NEVER MARRIED	5	2.9	4	0.8	0	0.0
Religion	HINDU	139	81.3	388	80.0	254	77.2
	MUSLIM	27	15.8	77	15.9	57	17.3
	CHRISTIAN	4	2.3	18	3.7	11	3.3
	OTHER	0	0.0	1	0.2	4	1.2
	NO SPECIFIC RELIGION /CAN NOT SAY	1	0.6	1	0.2	3	0.9
Caste	SCHEDULED CASTE	47	27.5	104	21.4	83	25.2
	SCHEDULED TRIBE	28	16.4	65	13.4	43	13.1

		Persons without diabetes or hypertension (Group 1)		Persons with Diabetes		Persons with only Hypertension	
Indicator	**Category**	**N**	**%**	**N**	**%**	**N**	**%**
	OTHER BACKWARD CASTE	48	28.1	157	32.4	96	29.2
	GENERAL CASTE	40	23.4	142	29.3	89	27.1
	NO SPECIFIC CASTE/CANNOT SAY	8	4.7	17	3.5	18	5.5
Occupation	Daily-wage laborers	56	32.8	115	23.7	82	24.9
	Domestic workers	21	12.3	50	10.3	36	10.9
	Small retail shop owners	7	4.1	27	5.6	16	4.9
	Workers in small scale industries	7	4.1	19	3.9	16	4.9
	Drivers	10	5.9	23	4.7	7	2.1
	Salaried govt	4	2.3	4	0.8	6	1.8
	Salaried private	22	12.9	42	8.7	35	10.6
	Not working / unemployed	10	5.9	98	20.2	51	15.5
	Home maker	33	19.3	102	21.0	78	23.7
	Refused to report	1	0.6	5	1.0	2	0.6

Table 2a: Household Charecteristics

		Persons without diabetes or hypertension		Persons with Diabetes		Persons with only Hypertension	
Indicator	**Category**	**N**	**%**	**N**	**%**	**N**	**%**
Total N		171		485		329	
House Type	Pucca	108	63.2	369	76.1	244	74.2
	Semi-pucca	63	36.8	116	23.9	85	25.8
House hold Size	Single	19	11.1	59	12.2	47	14.3
	2 Members	57	33.3	121	24.9	96	29.2
	3 Members	32	18.7	86	17.7	59	17.9
	4 Members	42	24.6	125	25.8	62	18.8
	5 or more Members	21	12.3	94	19.4	65	19.8
		Median = 3	Mean= 3	Median = 3	Mean= 3	Median = 3	Mean= 3
Toilet Availability	Yes	169	98.8	478	98.6	324	98.5
	No	2	1.2	7	1.4	5	1.5
Monthly Income	Upto Rs 20000	86	50.3	278	57.3	198	60.2
	Between 20000 to 30000	59	34.5	112	23.1	71	21.6
	Above 30000	26	15.2	95	19.6	60	18.2
		Mean = 23999	Median = 20000	Median = 20000	Mean= 23478	Median = 20000	Mean= 22973
Ration Card	Yes	104	60.8	309	63.7	208	63.2
	No	64	37.4	174	35.9	121	36.8
	Don’t know	3	1.8	2	0.4	0	0.0
Insurance Coverage	NONE	124	72.5	330	68.0	215	65.3
	Any of the insurance being covered	47	27.5	155	32.0	114	34.6
Type of Insurance	ESI	14	8.2	30	6.2	28	8.5
	CGHS	0	0.0	6	1.2	4	1.2
	ABArK	26	15.2	93	19.2	61	18.5
	PROVIDED THROUGH EMPLOYER	8	4.7	11	2.3	21	6.4
	Self funded insurance	2	1.2	31	6.4	20	6.1
	OTHER	1	0.6	3	0.6	3	0.9

Table 2b: Duration of diagnosis of the disease

Disease diagnosis (Median Duration in months)	N (diabetic group)	Median (diabetic group)	N (hypertensive group)	Median (hypertensive group)	N (all hypertensive-including those in the diabetic group)	Median (all hypertensive-including those in the diabetic group)
Male	234	48	149	36	250	36
Female	242	60	175	48	294	48
Total	476	52	324	36	544	48

Table 2c: Age of diagnosis of the disease

Disease diagnosis (Median Age)	N (diabetic group)	Median (diabetic group)	N (hypertensive group)	Median (hypertensive group)	N (all hypertensive-including those in the diabetic group)	Median (all hypertensive-including those in the diabetic group)
Male	234	51	149	50	250	51
Female	242	50	175	50	294	50
Total	476	51	324	50	544	51

Table 3: Knowledge on Symptoms of DM and HTN (Persons without diabetes or hypertension)

Indicator	Category	N	%
Knowledge of diabetes symptoms	INCREASED THIRST	67	39.2
	FREQUENT URINATION	61	35.7
	BLURRY VISION	65	38
	EXTREME FATIGUE	97	56.7
	INCREASED HUNGER	44	25.7
	UNEXPLAINED WEIGHT LOSS	32	18.7
	TINGLING/NUMBNESS IN HANDS/FEET	19	11.1
	CAN'T SAY/DON'T KNOW	32	18.7
Knowledge of HTN symptoms	IRREGULAR HEARTBEAT	49	28.7
	DIFFICULTY BREATHING	74	43.3
	VISION PROBLEMS	71	41.5
	SEVERE HEADACHE	97	56.7
	FATIGUE OR CONFUSION	52	30.4
	OTHERS(Anger)	1	0.6
	CAN'T SAY/DON'T KNOW	32	18.7

Table 4: Screening of all House hold members (Persons without diabetes or hypertension)

Indicator	Category	N	%	N	%
Total Households members more than 30 Yrs.		276	All members	171	For only respondents
Screening coverage	Screened	86	31.2	58	33.9
	Not Screened	190	68.8	113	66.1
Facility-wise screening	Primary Health centre (PHC)	53	61.6	33	56.9
	ASHA at Home	12	14.0	9	15.5
	Health camp organised by Govt Hospital/HWC	3	3.5	3	5.2
	Health camp organised by Private organisations/NGOs	7	8.1	7	12.1
	Other Govt./hospital	8	9.3	6	10.3
	Local private general practitioner (Allopathy)	0	0.0	0	0.0
	Private Nursing homes/hospitals	7	8.1	3	5.2
	Others	1	1.2	0	0.0
Confirmatory testing	Yes	1	1.2	1	1.7
	No	85	98.8	57	98.3
Barriers to screening	Not aware of place for testing	28	16.6	20	17.7
	Do not have time due to other engagements	21	12.4	11	9.7
	Health Centre is far from home	8	4.7	5	4.4
	Transport not available	0	0.0	0	0.0
	Cost of screening is high	2	1.2	1	0.9
	Did not feel it is necessary	102	60.4	64	56.6
	Lack of support from other family members	1	0.6	1	0.9
	Did not know/No one said	14	8.3	7	6.2

Table 5: Community_Exposure (Persons without diabetes or hypertension)

Indicator	Category	N	%
Health Worker Visit	Yes	52	30.4
	No	113	66.1
	Not Sure	6	3.5
FLW exposure	ASHA	52	100.0
	ANM/PHCO	0	0.0
	MEDICAL OFFICER	0	0.0
	NGO worker	3	5.8
	Others	0	0.0
	Any FLW	52	30.4
Community Group Awareness	Yes	42	24.6
	No	129	75.4
Mahila Arogya Samiti awareness	Yes	12	28.6
	No	30	71.4
MAS Activities Known	NOT SURE	3	25.0
	AMBULANCE SUPPORT TO NEEDY	2	16.7
	AWARENESS ABOUT HEALTH SERVICES	8	66.7
	AWARENESS ABOUT HYGIENE	4	33.3
	FACILITATED LINKAGE TO SOCIAL SCHEMES/INSURANCE	3	25.0
	COUNSELLING FOR VARIOUS AILMENTS	1	8.3

Table 6: Dietary Behaviour (Group 2)

Indicator	Category	Diabetic						Hypertension					
		Total		Male		Female		Total		Male		Female	
		N	%	N	%	N	%	N	%	N	%	N	%
Days fruit consumed/week	Never	69	14.2	31	13	38	15.4	37	11.25	17	45.9	20	54.1
	1–3 days	213	43.9	111	46.6	102	41.3	163	49.54	83	50.9	80	49.1
	4–6 days	167	34.4	80	33.6	87	35.2	114	34.65	50	43.9	64	56.1
	All days	36	7.4	16	6.7	20	8.1	15	4.6	4	26.7	11	73.3
Servings of fruit/day	1–3 servings	382	91.8	198	95.7	184	88.0	258	88.4	119	46.1	139	53.9
	more than 3 servings	16	3.9	2	1.0	14	6.7	15	5.1	6	40.0	9	60.0
	Don't Know	18	4.3	7	3.4	11	5.3	19	6.5	12	63.2	7	36.8
Days vegetables/week	Never	27	5.6	13	5.5	14	5.7	19	5.8	8	42.1	11	57.9
	1–3 days	83	17.1	39	16.4	44	17.8	65	19.8	33	50.8	32	49.2
	4–6 days	300	61.9	156	65.5	144	58.3	205	62.3	94	45.9	111	54.1
	All days	75	15.5	30	12.6	45	18.2	40	12.2	19	47.5	21	52.5
Servings vegetables/day	1–3 servings	414	90.4	207	92.0	207	88.8	269	86.8	131	48.7	138	51.3
	more than 3 servings	21	4.6	9	4.0	12	5.2	17	5.5	4	23.5	13	76.5
	Don't Know	23	5.0	9	4.0	14	6.0	24	7.7	11	45.8	13	54.2
Meals outside home/week	Never	265	54.6	102	42.9	163	66.0	164	49.9	56	34.1	108	65.9
	1–3 days	171	35.3	114	47.9	57	23.1	118	35.9	78	66.1	40	33.9
	morethan 3 times	13	2.7	8	3.4	5	2.0	10	3.0	8	80.0	2	20.0
	Don't Know	36	7.4	14	5.9	22	8.9	37	11.2	12	32.4	25	67.6
How often do you add salt to your food before you eat it or as you are eating it?(High salt intake)	Always	62	12.8	33	13.9	29	11.7	36	10.9	19	52.8	17	47.2
	Sometimes	110	22.7	62	26.1	48	19.4	93	28.3	42	45.2	51	54.8
	Rarely	150	30.9	76	31.9	74	30.0	107	32.5	54	50.5	53	49.5
	Never	159	32.8	67	28.2	92	37.2	92	28.0	39	42.4	53	57.6
	Don’t know	4	0.8	0	0.0	4	1.6	1	0.3	0	0.0	1	100.0
Processed food consumption	Always	76	15.7	45	18.9	31	12.6	44	13.4	23	52.3	21	47.7
	Sometimes	130	26.8	61	25.6	69	27.9	78	23.7	38	48.7	40	51.3
	Rarely	133	27.4	64	26.9	69	27.9	126	38.3	57	45.2	69	54.8
	Never	146	30.1	68	28.6	78	31.6	81	24.6	36	44.4	45	55.6
any occasion in last month where you have skipped any of your meals?(Only for DM)	Yes,often	9	1.9	6	2.5	3	1.2						
	Yes, sometimes	195	40.2	90	37.8	105	42.5						
	Never	258	53.2	128	53.8	130	52.6						

Indicator	Category	Diabetic						Hypertension					
		Total		Male		Female		Total		Male		Female	
		N	%	N	%	N	%	N	%	N	%	N	%
	Don’t remember/DK	23	4.7	14	5.9	9	3.6						
anyone counsel you on an appropriate diet? (Only for DM)	Yes	234	48.2	105	44.1	129	52.2						
	No	251	51.8	133	55.9	118	47.8						
Who has counselled you? (Only for DM)	DOCTOR (GOVT.)	61	26.1	24	22.9	37	28.7						
	DOCTOR (PRIVATE)	137	58.5	66	62.9	71	55.0						
	DOCTOR ROOPENA AGRAHARA UPHC	16	6.8	4	3.8	12	9.3						
	NURSE (GOVT.)	2	0.9	1	1.0	1	0.8						
	NURSE (PRIVATE)	5	2.1	3	2.9	2	1.6						
	NURSE (ROOPENA AGRAHARA UPHC)	0	0.0	0	0.0	0	0.0						
	COUNSELLOR (GOVT.)	2	0.9	2	1.9	0	0.0						
	COUNSELLOR (PRIVATE)	1	0.4	1	1.0	0	0.0						
	COUNSELLOR (ROOPENA AGRAHARA UPHC)	0	0.0	0	0.0	0	0.0						
	GOVT.HEALTH WORKER	20	8.5	8	7.6	12	9.3						
	NGO HEALTH WORKER	3	1.3	2	1.9	1	0.8						
	IVRS MESSAGES	0	0.0	0	0.0	0	0.0						
	Peer group (Patient)	0	0.0	0	0.0	0	0.0						
	Family/Relative/Friends	49	20.9	24	22.9	25	19.4						
	OTHERS	0	0.0	0	0.0	0	0.0						
	From Any one	234	48.2	105	44.1	129	52.2						
how many meals in a day a diabetic person should have?	≤2 meals/day	27	5.6	12	5.0	15	6.1						
	3 meals/day	309	63.7	154	64.7	155	62.8						
	4+ meals/day	120	24.7	60	25.2	60	24.3						
	Don't Know	29	6.0	12	5.0	17	6.9						
	Yes	220	45.4	102	42.9	118	47.8						
	No	229	47.2	122	51.3	107	43.3						

Indicator	Category	Diabetic						Hypertension					
		Total		Male		Female		Total		Male		Female	
		N	%	N	%	N	%	N	%	N	%	N	%
Do you think a diabetic person should also have snacks in between meals?	Don't Know/ Can't Say	36	7.4	14	5.9	22	8.9						
what kind of food to be avoided by a hypertensive person (Only for HTN)	FOOD WITH EXCCESIVE SALT							205	62.3				
	OILY/FRIED FOOD							96	29.2				
	Non Veg(REDMEAT)							14	4.3				
	BAKERY PRODUCTS							14	4.3				
	Don't Know/ Can't Say							0	0.0				

Table 7: Physical Activity (Group 2)

Indicator	Category	Diabetic												Hypertension											
		Total		Male		Female		30–44		45–59		60+		Total		Male		Female		30–44		45–59		60+	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
How much physical exercise is required for a person with diabetes, hypertension or both	NONE	98	20.21	48	20.2	50	20.2	9	13.4	39	19.3	50	23.1	54	16.41	27	17.5	27	15.4	7	13.0	22	15.2	25	19.2
	MINIMUM THIRTY MINUTES PER DAY	148	30.52	75	31.5	73	29.6	22	32.8	70	34.7	56	25.9	124	37.69	58	37.7	66	37.7	26	48.1	56	38.6	42	32.3
	SIXTY MINUTES PER DAY	165	34.0	86	36.1	79	32	27	40.3	70	34.7	68	31.5	96	29.18	45	29.2	51	29.1	12	22.2	44	30.3	40	30.8
	MORE THAN SIXTY MINUTES PER DAY	49	10.1	21	8.8	28	11.3	7	10.4	18	8.9	24	11.1	32	9.73	14	9.1	18	10.3	6	11.1	13	9.0	13	10.0
	DON'T KNOW/CAN'T SAY	25	5.15	8	3.4	17	6.9	2	3	5	2.5	18	8.3	23	6.99	10	6.5	13	7.4	3	5.6	10	6.9	10	7.7
Do you involve in any type of Physical activity in a typical week	Vigorous	23	4.7	16	6.7	7	2.8	7	10.4	11	5.4	5	2.3	11	3.3	8	5.2	3	1.7	5	9.3	5	3.5	1	0.8
	Moderate	254	52.4	128	53.8	126	51.0	37	55.2	111	55.0	106	49.1	188	57.1	92	59.7	96	54.9	27	50.0	86	59.3	75	57.7
	Both	10	2.1	6	2.5	4	1.6	1	1.5	8	4.0	1	0.5	5	1.5	2	1.3	3	1.7	0	0.0	2	1.4	3	2.3
	None	198	40.8	88	37.0	110	44.5	22	32.8	72	35.6	104	48.1	125	38.0	52	33.8	73	41.7	22	40.7	52	35.9	51	39.2
Appropriate Physical activity-physical activity including work (>=150 minutes per week	No	297	61.2	136	57.1	161	65.2	38	56.7	125	61.9	134	62.0	193	58.7	79	51.3	114	65.1	36	66.7	78	53.8	79	60.8
	Yes	188	38.8	102	42.9	86	34.8	29	43.3	77	38.1	82	38.0	136	41.3	75	48.7	61	34.9	18	33.3	67	46.2	51	39.2
	Mean minutes	241		259		223		311		230		229		272		341		212		270		282		261	
	Median minutes	50		85		10		105		71		0		45		120		30		35		60		40	
Appropriate Physical activity-physical activity other than work (>=150 minutes per week	No	449	92.6	220	92.4	229	92.7	58	86.57	186	92.08	205	94.91	305	92.7	139	90.3	166	94.9	47	87.04	138	95.17	120	92.31
	Yes	36	7.4	18	7.6	18	7.3	9	13.43	16	7.92	11	5.09	24	7.3	15	9.7	9	5.1	7	12.96	7	4.83	10	7.69
	Mean minutes	31				34				28				46				31				26			
	Median minutes	0				0				0				0				0				0			
Moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate	BRISK WALK	28	87.5	13	92.9	15	83.3	7	87.5	12	80	9	100	21	84.0	11	84.6	10	83.3	3	75	7	70	11	100
	CYCLING	2	6.3	2	14.3	0	0.0	1	12.5	1	6.7	0	0	2	8.0	2	15.4	0	0.0	0	0	0	0	2	18.2
	SWIMMING	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0	1	4.0	1	7.7	0	0.0	0	0	0	0	0	0
	BADMINTON	2	6.3	1	7.1	1	5.6	1	12.5	0	0	1	11.1	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0
	VOLLEYBALL	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0
	CLIMBING STEPS	25	78.1	10	71.4	15	83.3	5	62.5	12	80	8	88.9	18	72.0	9	69.2	9	75.0	4	100	7	70	7	63.6
	RUNNING/JOGGING	12	37.5	7	50.0	5	27.8	3	37.5	5	33.3	4	44.4	9	36.0	4	30.8	5	41.7	2	50	3	30	4	36.4
	YOGA	3	9.4	1	7.1	2	11.1	0	0	1	6.7	2	22.2	4	16.0	2	15.4	2	16.7	0	0	2	20	2	18.2
	OTHERS	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0
To do this moderate/vigorous-intensity sports, fitness activities from where did you get the information/counselling/motivation ?	DOCTOR (GOVT.)	22	51.2	11	52.4	11	50.0	6	54.5	10	47.6	6	54.5	14	43.8	9	50.0	5	35.7	2	25	4	30.8	8	72.7
	DOCTOR (PRIVATE)	22	51.2	9	42.9	13	59.1	5	45.5	12	57.1	5	45.5	15	46.9	8	44.4	7	50.0	6	75	6	46.2	3	27.3
	DOCTOR ROOPENA AGRAHARA UPHC	2	4.7	1	4.8	1	4.5	0	0	1	4.8	1	9.1	1	3.1	0	0.0	1	7.1	0	0	1	7.7	0	0
	COUNSELLOR (GOVT.)	1	2.3	1	2.3	0	0.0	0	0	0	0	0	0	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0
	GOVT.HEALTH WORKER	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0	1	3.1	1	5.6	0	0.0	0	0	1	7.7	0	0
	Family/Relative/Friends	1	2.3	0	0.0	1	4.5	0	0	1	4.8	0	0	2	6.3	1	5.6	1	7.1	1	12.5	1	7.7	0	0

Table 8: Behaviour Risk- Group 2

Indicator	Category	Diabetic						Hypertension					
		Male		Female		Total		Male		Female		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Current smoker	Yes	77	32.4	2	0.8	79	16.3	58	37.7	4	2.3	62	18.8
	No	161	67.7	245	99.2	406	83.7	96	62.3	171	97.7	267	81.2
Past smoker	Yes	24	14.9	0	0	24	5.9	15	15.6	0	0	15	5.6
	No	137	85.1	245	100.0	382	94.1	81	84.4	171	100.0	252	94.4
Ever smoked	Yes	101	42.4	2	0.8	103	21.2	73	47.4	4	2.3	77	23.4
	No	137	57.6	245	99.2	382	78.8	81	52.6	171	97.7	252	76.6
Current Smokeless tobacco user	Yes	15	6.3	17	6.9	32	6.6	18	11.7	15	8.6	33	10.0
	No	223	93.7	230	93.1	453	93.4	136	88.3	160	91.4	296	90.0
Past Smokeless tobacco user	Yes	5	2.2	3	1.3	8	1.8	3	2.2	0	0.0	3	1.0
	No	218	97.8	227	98.7	445	98.2	133	97.8	160	100.0	293	99.0
Ever smokeless user	Yes	20	8.4	20	8.1	40	8.2	21	13.6	15	8.6	36	10.9
	No	218	91.6	227	91.9	445	91.8	133	86.4	160	91.4	293	89.1
Any Tobacco Use Current user	Yes	81	34.0	18	7.3	99	20.4	61	39.6	16	9.1	77	23.4
	No	157	66.0	229	92.7	386	79.6	93	60.4	159	90.9	252	76.6
Exposure to second-hand smoke during the past 7 days	1–3 days	31	13.0	19	7.7	50	10.3	23	14.9	7	4.0	30	9.1
	4–6 days	1	0.4	3	1.2	4	0.8	2	1.3	1	0.6	3	0.9
	All Days	3	1.3	10	4.0	13	2.7	4	2.6	5	2.9	9	2.7
	Any day	35	14.7	32	13.0	67	13.8	29	18.8	13	7.4	42	12.8
	No exposure	203	85.3	215	87.0	418	86.2	125	81.2	162	92.6	287	87.2
Have you been counselled on the use of tobacco/smokeless tobacco products?	Yes	35	15.2	9	3.8	44	9.4	27	17.6	6	3.6	33	10.3
	No	196	84.8	228	96.2	424	90.6	126	82.3	161	96.4	287	89.7
who have counselled or informed you on the benefits of not using tobacco products?	DOCTOR (GOVT.)	12	34.3	4	44.4	16	36.4	10	37.0	1	16.7	11	33.3
	DOCTOR (PRIVATE)	17	48.6	4	44.4	21	47.7	12	44.4	1	16.7	13	39.4
	DOCTOR ROOPENA AGRAHARA UPHC	1	2.9	0	0.0	1	2.3	1	3.7	1	16.7	2	6.1
	COUNSELLOR (GOVT.)	0	0.0	0	0.0	0	0.0	1	3.7	1	16.7	2	6.1
	GOVT.HEALTH WORKER	1	2.9	2	22.2	3	6.8	0	0.0	1	16.7	1	3.0
	NGO HEALTH WORKER	1	2.9	0	0.0	1	2.3	0	0.0	0	0.0	0	0.0
	Family/Relative/Friends	9	25.7	2	22.2	11	25.0	5	18.5	1	16.7	6	18.2

Indicator	Category	Diabetic						Hypertension					
		Male		Female		Total		Male		Female		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
	From Any one	35	14.7	9	3.6	44	9.1	27	17.5	6	3.4	33	10.0
what kind of information did you receive on smoke and smokeless tobacco use	TO REDUCE THE USE OF TOBACCO PRODUCTS	17	48.6	4	44.4	21	47.7	14	51.9	2	33.3	16	48.5
	TO STOP USE OF TOBACCO PRODUCTS	14	40.0	4	44.4	18	40.9	11	40.7	4	66.7	15	45.5
	CAN'T SAY	4	11.4	1	11.1	5	11.4	2	7.4	0	0.0	2	6.1
Ever consumed alcohol	Yes	90	37.8	3	1.2	93	19.2	43	27.9	2	1.1	45	13.7
	No	148	62.2	244	98.8	392	80.8	111	72.1	173	98.9	284	86.3
Consumed in last 12 months	Yes	71	78.9	3	100.0	74	79.6	36	83.7	1	50.0	37	82.2
	No	19	21.1	0	0.0	19	20.4	7	16.3	1	50.0	8	17.8
Consumed in last 30 days	Yes	61	85.9	3	100.0	64	86.5	32	88.9	1	100.0	33	89.2
	No	10	14.1	0	0.0	10	13.5	4	11.1	0	0.0	4	10.8
Current alcohol use (consumed in last 30 days of ever consumed)	Yes	61	25.6	3	1.2	64	13.2	32	20.8	1	0.6	33	10.0
	No	177	74.4	244	98.8	421	86.8	122	79.2	174	99.4	296	90.0
Have you been counselled or provided information on the use of alcohol products?	Yes	44	72.1	3	100.0	47	73.4	23	71.9	1	100.0	24	72.7
	No	17	27.9	0	0.0	17	26.6	9	28.1	0	0.0	9	27.3
who have counselled or informed you on the benefits of not consuming alcohol?	DOCTOR (GOVT.)	18	40.9	2	66.7	20	42.6	11	47.8	1	100.0	12	50.0
	DOCTOR (PRIVATE)	20	45.5	1	33.3	21	44.7	8	34.8	0	0.0	8	33.3
	DOCTOR ROOPENA AGRAHARA UPHC	2	4.5	0	0.0	2	4.3	0	0.0	0	0.0	0	0.0
	NURSE (GOVT.)	1	2.3	0	0.0	1	2.1	1	4.3	0	0.0	1	4.2
	NURSE (PRIVATE)	1	2.3	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0
	NURSE (ROOPENA AGRAHARA UPHC)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	COUNSELLOR (GOVT.)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	COUNSELLOR (PRIVATE)	1	2.3	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0
	COUNSELLOR (ROOPENA AGRAHARA UPHC)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

		Diabetic						Hypertension					
Indicator	Category	Male		Female		Total		Male		Female		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
	GOVT.HEALTH WORKER	0	0.0	0	0.0	0	0.0	1	4.3	0	0.0	1	4.2
	NGO HEALTH WORKER	2	4.5	0	0.0	2	4.3	0	0.0	0	0.0	0	0.0
	IVRS MESSAGES	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Peer group (Patient)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Family/Relative/Friends	12	27.3	0	0.0	12	25.5	6	26.1	0	0.0	6	25.0
	OTHERS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	From Any one	44	18.5	3	1.2	47	9.7	23	14.9	1	0.6	24	7.3

Table 9: Clinical Service Utilization (Group 2)

Indicator	Category	Total				Diabetic				Hypertension				Diabetic						Hypertension						For all who are HTN in the sample-those who have DM+HTN and also those with only HTN (N=556)					
		Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44		45–59		60+		Male		Female		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Did you go for a consultation in the last 3 months?	Yes	259	53.4	144	43.8	126	52.9	133	53.9	65	42.2	79	45.1	34	50.8	113	55.9	112	51.9	21	38.9	62	42.8	61	46.9	112	43.9	142	47.2	254	45.7
	No	226	46.6	185	56.2	112	47.1	114	46.2	89	57.8	96	54.9	33	49.3	89	44.1	104	48.2	33	61.1	83	57.2	69	53.1	143	56.1	159	52.8	302	54.3
Recall how many times in the last 3 months you have consulted a doctor for diabetes or hypertension?	1 to 2 times	202	77.99	114	79.2	94	74.6	108	81.2	56	86.2	58	73.4	27	79.4	86	76.1	89	79.5	16	76.2	50	80.7	48	78.7	91	81.3	106	74.7	197	77.6
	3 or more times	57	22.01	30	20.8	32	25.4	25	18.8	9	13.9	21	26.6	7	20.6	27	23.9	23	20.5	5	23.8	12	19.4	13	21.3	21	18.8	36	25.4	57	22.4
main reason that you did not go for the consultation?	Did not feel necessary	123	54.42	103	55.7	60	53.6	63	55.3	49	55.1	54	56.3	16	48.5	48	53.9	59	56.7	19	57.6	45	54.2	39	56.5	77	53.9	88	55.4	165	54.6
	Regularly taking medicine	79	34.96	60	32.4	39	34.8	40	35.1	27	30.3	33	34.4	12	36.4	36	40.5	31	29.8	10	30.3	27	32.5	23	33.3	48	33.6	52	32.7	100	33.1
	Did not have time	16	7.08	7	3.8	8	7.1	8	7.0	5	5.6	2	2.1	2	6.1	5	5.6	9	8.7	2	6.1	3	3.6	2	2.9	7	4.9	9	5.7	16	5.3
	Do not want to take medicine	4	1.77	5	2.7	2	1.8	2	1.8	4	4.5	1	1.0	2	6.1	0	0.0	2	1.9	0	0.0	3	3.6	2	2.9	4	2.8	1	0.6	5	1.7
	Consultation Costly	2	0.88	2	1.1	2	1.8	0	0.0	1	1.1	1	1.0	1	3.0	0	0.0	1	1.0	1	3.0	0	0.0	1	1.5	3	2.1	2	1.3	5	1.7
	Want to change doctor	0	0	2	1.1	0	0.0	0	0.0	0	0.0	2	2.1	0	0.0	0	0.0	0	0.0	0	0.0	1	1.2	1	1.5	0	0.0	3	1.9	3	1.0
	Do not know where to go	2	0.88	6	3.2	1	0.9	1	0.9	3	3.4	3	3.1	0	0.0	0	0.0	2	1.9	1	3.0	4	4.8	1	1.5	4	2.8	4	2.5	8	2.7
Which facility did you go for the last consultation?	Govt hospital (DH/TH/ CHC/Other UPHC)	134	27.63	118	35.9	53	22.3	81	32.8	51	33.1	67	38.3	19	28.4	44	21.8	71	32.9	16	29.6	52	35.9	50	38.5	73	28.6	104	34.6	177	31.8
	UPHC (RoopenAgrahara)	45	9.28	39	11.9	19	8.0	26	10.5	15	9.7	24	13.7	3	4.5	19	9.4	23	10.7	4	7.4	21	14.5	14	10.8	22	8.6	34	11.3	56	10.1
	Pvt Hospital/Clinic	281	57.94	154	46.8	151	63.5	130	52.6	81	52.6	73	41.7	43	64.2	128	63.4	110	50.9	31	57.4	63	43.5	60	46.2	147	57.6	146	48.5	293	52.7
	NGO Hospital/Clinic	4	0.82	0	0.0	4	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Private Pharmacy	20	4.12	17	5.2	10	4.2	10	4.1	7	4.6	10	5.7	2	3.0	10	5.0	8	3.7	2	3.7	9	6.2	6	4.6	11	4.3	16	5.3	27	4.9
	Others	1	0.21	1	0.3	1	0.4	0	0.0	0	0.0	1	0.6	0	0.0	1	0.5	0	0.0	1	1.9	0	0.0	0	0.0	2	0.8	1	0.3	3	0.5
Reasons for not going to a government facility for the consultation?	Facility timing not convenient	100	32.7	76	44.2	54	32.5	46	32.9	41	46.6	35	41.7	17	37.8	50	36.0	33	27.0	12	35.3	33	45.8	31	47.0	65	40.6	62	38.0	127	39.3
	Health personnel often absent	114	37.3	49	28.5	68	41.0	46	32.9	28	31.8	21	25.0	18	40.0	51	36.7	45	36.9	6	17.6	24	33.3	19	28.8	53	33.1	47	28.8	100	31.0
	Medicine not available at facility	107	35	47	27.3	56	33.7	51	36.4	28	31.8	19	22.6	15	33.3	44	31.7	48	39.3	7	20.6	25	34.7	15	22.7	51	31.9	40	24.5	91	28.2
	Waiting time too long	80	26.1	56	32.6	42	25.3	38	27.1	25	28.4	31	36.9	11	24.4	29	20.9	40	32.8	11	32.4	23	31.9	22	33.3	42	26.3	54	33.1	96	29.7
	Poor quality of care	40	13.1	17	9.9	20	12.0	20	14.3	8	9.1	9	10.7	4	8.9	19	13.7	17	13.9	0	0.0	9	12.5	8	12.1	22	13.8	25	15.3	47	14.6
	OTHER	4	1.3	3	1.7	4	2.4	0	0.0	1	1.1	2	2.4	2	4.4	0	0.0	2	1.6	1	2.9	2	2.8	0	0.0	2	1.3	2	1.2	4	1.2
	No reason	22	7.2	9	5.2	13	7.8	9	6.4	5	5.7	4	4.8	6	13.3	10	7.2	6	4.9	4	11.8	3	4.2	2	3.0	14	8.8	9	5.5	23	7.1
Doctor you visited for consultation for diabetes and hypertension are same or different doctor (for having both Diabetes and Hypertension)	DIFFERENT DOCTOR	63	27.8			29	28.7	34	27.0					8	34.8	21	24.1	34	29.1												
	SAME DOCTOR	164	72.3			72	71.3	92	73.0					15	65.2	66	75.9	83	70.9												
In the last one year, did you undergo tests for checking? (Only Yes Added)	DYSLIPIDAEMIA(Lipid Profile)	84	17.3	42	12.8	41	17.2	43	17.4	23	14.9	19	10.9	15	22.4	37	18.3	32	14.8	9	16.7	14	9.7	19	14.6	39	15.3	41	13.6	80	14.4
	CHRONIC KIDNEY DISEASE(Kidney Funtion Test)	117	24.1	44	13.4	51	21.4	66	26.7	27	17.5	17	9.7	18	26.9	49	24.3	50	23.1	9	16.7	16	11.0	19	14.6	49	19.2	50	16.6	99	17.8
	CARDIO VASCULAR DISEASE(ECG)	141	29.1	55	16.7	68	28.6	73	29.6	34	22.1	21	12.0	21	31.3	57	28.2	63	29.2	11	20.4	19	13.1	25	19.2	68	26.7	61	20.3	129	23.2
	DIABETIC RETINOPATHY(EYE CHECKUP/SCAN)	129	26.6	44	13.4	55	23.1	74	30.0	27	17.5	17	9.7	16	23.9	51	25.2	62	28.7	5	9.3	18	12.4	21	16.1	53	20.8	53	17.6	106	19.1

Table 10: Treatment & Adherence (Group 2)

Indicator		Total				Diabetic				Hypertension				Diabetic						Hypertension						For all who are HTN which also includes those who are also DM									
	Category	Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44		45–59		60+		Total		Male		Female		30–44		45–59		60+	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Respondent currently taking oral medicine for BP/Diabetes	No	94	19.4	44	13.4	45	18.9	49	19.8	20	13.0	24	13.7	11	16.4	38	18.8	45	20.8	8	14.8	19	13.1	17	13.1	84	15.1	37	14.5	47	15.6	14	18.2	34	14.7	36	14.6
	Yes, Shown	207	42.7	152	46.2	98	41.2	109	44.1	69	44.8	83	47.4	28	41.8	92	45.5	87	40.3	27	50.0	60	41.4	65	50.0	263	47.3	119	46.7	144	47.8	37	48.1	108	46.6	118	47.8
	Yes, not shown	184	37.9	133	40.4	95	39.9	89	36.0	65	42.2	68	38.9	28	41.8	72	35.6	84	38.9	19	35.2	66	45.5	48	36.9	209	37.6	99	38.8	110	36.5	26	33.8	90	38.8	93	37.7
Number of times medicine was missed in last month	Never	267	68.3	174	61.1	134	69.4	133	67.2	79	59.0	95	62.9	34	60.7	114	69.5	119	69.6	26	56.5	80	63.5	68	60.2	299	63.4	137	62.8	162	63.8	34	54.0	134	67.7	131	62.1
	1 to 2 times	106	27.1	93	32.6	49	25.4	57	28.8	42	31.3	51	33.8	21	37.5	42	25.6	43	25.2	20	43.5	37	29.4	36	31.9	144	30.5	62	28.4	82	32.3	29	46.0	54	27.3	61	28.9
	3 or more times	18	4.6	18	6.3	10	5.2	8	4.0	13	9.7	5	3.3	1	1.8	8	4.9	9	5.3	0	0.0	9	7.1	9	8.0	29	6.1	19	8.7	10	3.9	0	0.0	10	5.1	19	9.0
Reasons for not taking medicines as directed	Could not travel to facility	31	33.0	20	45.5	15	33.3	16	32.7	11	55.0	9	37.5	4	36.4	16	42.1	11	24.4	4	50.0	7	36.8	9	52.9	31	36.9	54	44.6	60	40.0	14	45.2	41	38.7	59	44.0
	Medicine not available at facility/shop	17	18.1	2	4.5	9	20.0	8	16.3	1	5.0	1	4.2	1	9.1	8	21.1	8	17.8	1	12.5	0	0.0	1	5.9	6	7.1	23	19.0	15	10.0	5	16.1	13	12.3	20	14.9
	Costly	8	8.5	4	9.1	3	6.7	5	10.2	2	10.0	2	8.3	2	18.2	3	7.9	3	6.7	1	12.5	1	5.3	2	11.8	7	8.3	6	5.0	11	7.3	3	9.7	5	4.7	9	6.7
	Side effects of medicines	11	11.7	8	18.2	8	17.8	3	6.1	5	25.0	3	12.5	1	9.1	4	10.5	6	13.3	2	25.0	2	10.5	4	23.5	11	13.1	9	7.4	14	9.3	2	6.5	7	6.6	14	10.4
	Forgot to take medicines as per prescription	4	4.3	0	0.0	2	4.4	2	4.1	0	0.0	0	0.0	1	9.1	2	5.3	1	2.2	0	0.0	0	0.0	0	0.0	4	4.8	5	4.1	7	4.7	1	3.2	7	6.6	4	3.0
	Do not know where to go	1	1.1	2	4.5	0	0.0	1	2.0	1	5.0	1	4.2	0	0.0	0	0.0	1	2.2	0	0.0	1	5.3	1	5.9	3	3.6	1	0.8	5	3.3	0	0.0	3	2.8	3	2.2
	Do not think that this needs treatment	3	3.2	3	6.8	1	2.2	2	4.1	1	5.0	2	8.3	0	0.0	1	2.6	2	4.4	2	25.0	1	5.3	0	0.0	4	4.8	3	2.5	6	4.0	2	6.5	3	2.8	4	3.0
	Multiple pills	8	8.5	0	0.0	5	11.1	3	6.1	0	0.0	0	0.0	3	27.3	1	2.6	4	8.9	0	0.0	0	0.0	0	0.0	2	2.4	5	4.1	10	6.7	0	0.0	6	5.7	9	6.7
	New drugs added	2	2.1	0	0.0	1	2.2	1	2.0	0	0.0	0	0.0	0	0.0	0	0.0	2	4.4	0	0.0	0	0.0	0	0.0	0	0.0	3	2.5	7	4.7	1	3.2	5	4.7	4	3.0
	Was travelling	2	2.1	3	6.8	1	2.2	1	2.0	0	0.0	3	12.5	0	0.0	0	0.0	2	4.4	0	0.0	2	10.5	1	5.9	4	4.8	0	0.0	9	6.0	0	0.0	5	4.7	4	3.0
Did you get tested in the last three months for your levels of blood pressure or sugar?	Yes	382	78.8	173	52.6	193	81.1	189	76.5	92	59.7	81	46.3	52	77.6	164	81.2	166	76.9	29	53.7	70	48.3	74	56.9	321	57.7	156	61.2	165	54.8	43	55.8	131	56.5	147	59.5
	No	103	21.2	156	47.4	45	18.9	58	23.5	62	40.3	94	53.7	15	22.4	38	18.8	50	23.2	25	46.3	75	51.7	56	43.1	235	42.3	99	38.8	136	45.2	34	44.2	101	43.5	100	40.5
how many times in the last three months you have tested your levels of blood pressure or sugar?	No	54	14.1	51	29.5	26	13.5	28	14.8	64	31.1	61	30.4	8	15.4	19	11.6	27	16.3	21	35.6	49	28.0	55	31.8	98	30.5	52	33.3	46	27.9	15	34.9	36	27.5	47	32.0
	1 time	177	46.3	71	41.0	95	49.2	82	43.4	90	43.7	84	41.8	26	50.0	74	45.1	77	46.4	23	39.0	80	45.7	71	41.0	136	42.4	67	43.0	69	41.8	16	37.2	61	46.6	59	40.1
	2 Times	89	23.3	35	20.2	41	21.2	48	25.4	35	17.0	32	15.9	11	21.2	41	25.0	37	22.3	10	17.0	32	18.3	25	14.5	56	17.5	26	16.7	30	18.2	8	18.6	25	19.1	23	15.7
	3 or more times	62	16.2	16	9.3	31	16.1	31	16.4	17	8.3	24	11.9	7	13.5	30	18.3	25	15.1	5	8.5	14	8.0	22	12.7	31	9.7	11	7.1	20	12.1	4	9.3	9	6.9	18	12.2
Where did you go for the last test?	Govt hospital (DH/TH/ CHC/Other UPHC)	133	27.4	112	34.0	57	24.0	76	30.8	48	31.2	64	36.6	18	26.9	48	23.8	67	31.0	15	27.8	54	37.2	43	33.1	172	30.9	74	29.0	98	32.6	25	32.5	76	32.8	71	28.7
	UPHC (Roopenagrahara.)	40	8.3	43	13.1	16	6.7	24	9.7	15	9.7	28	16.0	3	4.5	17	8.4	20	9.3	6	11.1	19	13.1	18	13.9	58	10.4	20	7.8	38	12.6	6	7.8	25	10.8	27	10.9
	Pvt Hospital/Clinic	285	58.8	161	48.9	149	62.6	136	55.1	85	55.2	76	43.4	43	64.2	128	63.4	114	52.8	30	55.6	66	45.5	65	50.0	298	53.6	148	58.0	150	49.8	43	55.8	119	51.3	136	55.1
	NGO Hospital/Clinic	0	0.0	1	0.3	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	0	0.0	1	1.9	0	0.0	0	0.0	1	0.2	1	0.4	0	0.0	1	1.3	0	0.0	0	0.0
	Private Pharmacy	21	4.3	10	3.0	13	5.5	8	3.2	4	2.6	6	3.4	3	4.5	8	4.0	10	4.6	0	0.0	6	4.1	4	3.1	20	3.6	9	3.5	11	3.7	0	0.0	11	4.7	9	3.6
	At home	5	1.0	2	0.6	2	0.8	3	1.2	1	0.7	1	0.6	0	0.0	1	0.5	4	1.9	2	3.7	0	0.0	0	0.0	6	1.1	2	0.8	4	1.3	2	2.6	1	0.4	3	1.2
	Others	1	0.2	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	1	0.2	1	0.4	0	0.0	0	0.0	0	0.0	1	0.4
What is the main reason that you did not go for the test	Did not feel necessary	47	45.6	70	44.9	23	51.1	24	41.4	31	50.0	39	41.5	5	33.3	17	44.7	25	50.0	10	40.0	34	45.3	26	46.4	107	45.5	45	45.5	62	45.6	14	41.2	45	44.6	48	48.0
	Regularly taking medicine	43	41.8	59	37.8	14	31.1	29	50.0	20	32.3	39	41.5	6	40.0	19	50.0	18	36.0	9	36.0	28	37.3	22	39.3	86	36.6	35	35.4	51	37.5	12	35.3	41	40.6	33	33.0
	Did not have time	5	4.9	15	9.6	2	4.4	3	5.2	5	8.1	10	10.6	2	13.3	0	0.0	3	6.0	3	12.0	7	9.3	5	8.9	21	8.9	8	8.1	13	9.6	5	14.7	8	7.9	8	8.0
	Do not want to take medicine	3	2.9	4	2.6	2	4.4	1	1.7	2	3.2	2	2.1	1	6.7	1	2.6	1	2.0	1	4.0	2	2.7	1	1.8	6	2.6	3	3.0	3	2.2	1	2.9	2	2.0	3	3.0
	Costly	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.7	0	0.0	1	1.0	0	0.0
	Self-test at home	4	3.9	6	3.9	3	6.7	1	1.7	2	3.2	4	4.3	1	6.7	1	2.6	2	4.0	1	4.0	4	5.3	1	1.8	8	3.4	4	4.0	4	2.9	1	2.9	4	4.0	3	3.0
	Others	1	1.0	2	1.3	1	2.2	0	0.0	2	3.2	0	0.0	0	0.0	0	0.0	1	2.0	1	4.0	0	0.0	1	1.8	6	2.6	4	4.0	2	1.5	1	2.9	0	0.0	5	5.0
Is there any reason for not going to a government facility for testing BP/Blood Sugar? Any other reason?	Facility timing not convenient	129	41.3	74	42.5	72	43.6	57	38.8	45	49.5	29	34.9	17	37.0	67	48.9	45	34.9	11	33.3	33	45.8	30	43.5	129	39.4	70	43.2	59	35.8	14	30.4	56	42.4	59	39.6
	Health personnel often absent	123	39.4	66	37.9	66	40.0	57	38.8	33	36.3	33	39.8	19	41.3	55	40.1	49	38.0	10	30.3	31	43.1	25	36.2	118	36.1	62	38.3	56	33.9	11	23.9	59	44.7	48	32.2
	Waiting time too long	112	35.9	65	37.4	44	26.7	68	46.3	38	41.8	27	32.5	12	26.1	50	36.5	50	38.8	14	42.4	27	37.5	24	34.8	125	38.2	59	36.4	66	40.0	17	37.0	53	40.2	55	36.9
	Poor quality of care	78	25.0	30	17.2	38	23.0	40	27.2	16	17.6	14	16.9	14	30.4	32	23.4	32	24.8	4	12.1	15	20.8	11	15.9	70	21.4	33	20.4	37	22.4	7	15.2	35	26.5	28	18.8

Indicator		Total				Diabetic				Hypertension				Diabetic						Hypertension						For all who are HTN which also includes those who are also DM									
	Category	Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44		45–59		60+		Total		Male		Female		30–44		45–59		60+	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
	Self-test at home	18	5.8	11	6.3	12	7.3	6	4.1	5	5.5	6	7.2	1	2.2	2	1.5	15	11.6	2	6.1	5	6.9	4	5.8	20	6.1	9	5.6	11	6.7	3	6.5	6	4.5	11	7.4
	Consumables out of stock	1	0.3	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	OTHER	14	4.5	5	2.9	9	5.5	5	3.4	1	1.1	4	4.8	4	8.7	3	2.2	7	5.4	2	6.1	1	1.4	2	2.9	18	5.5	10	6.2	8	4.8	5	10.9	4	3.0	9	6.0

Table 11: Out-of-Pocket Expenditure (Group 2)

Indicator	Category	Diabetic		Hypertension	
		N	%	N	%
Consultation cost	Free of Cost	166	34.2	158	48.0
	upto Rs 100	22	4.5	29	8.8
	Rs 101 to Rs 500	186	38.4	102	31.0
	more than 500	54	11.1	9	2.7
	Don't Know	57	11.8	31	9.4
	Mean	192		140	
	SD	214		188	
	Median	100		0	
Testing cost	Free of Cost	168	34.6	161	48.9
	upto Rs 100	57	11.8	14	4.3
	Rs 101 to Rs 500	181	37.3	112	34.0
	more than 500	16	3.3	8	2.4
	Don't Know	63	13.0	34	10.3
	Mean	247		134	
	SD	251		187	
	Median	200		0	
How much would you spend on oral medicines every month?	Free of Cost	146	30.1	141	42.9
	upto Rs 1000	201	41.4	137	41.6
	Rs 1001 to Rs 2000	113	23.3	43	13.1
	More than Rs 2000	23	4.7	7	2.3
	Don't Know	2	0.4	1	0.2
	Mean	849		511	
	SD	848		844	
	Median	998		180	
How many times in a day do you consume oral medicine?	1 time	210	43.3	235	71.4
	2 times	264	54.4	89	27.1
	3 times	11	2.3	5	1.5
From where do you generally procure oral medicine?	Govt hospital pharmacy	108	22.3	101	32.3
	UPHC (RoopenAgrhara)	45	9.3	42	11.6
	Pvt pharmacy shop	303	62.5	178	54.0
	Jan aushadi Kendra	26	5.4	7	1.8

Indicator	Category	Diabetic		Hypertension	
		N	%	N	%
	Others	3	0.6	1	0.4
Reasons for not procuring from Jan aushadhi Kendra then what might be the reason/s?	NOT SURE OF EFFICACY	175	38.1	113	35.1
	MANY TIMES MEDICINE NOT AVILABLE	195	42.5	147	45.7
	DOCTOR SPECIFICALLY SAYS TO PROCURE FROM OTHER SHOPS	141	30.7	83	25.8
	Others	23	5	17	5.3
Are you taking insulin as part of diabetes treatment?	No	461	95.1		
	Yes, Shown	17	3.5		
	Yes, not shown	7	1.4		
How many times in a day do you inject insulin?	1 time	18	81.8		
	2 times	4	18.2		
Expenditure towards insulin in a month?	Median	1099			
Where do you generally procure insulin from?	Govt hospital pharmacy	4	16.7		
	UPHC(RoopenAgrahara)	1	4.2		
	Pvt pharmacy shop	17	70.8		
	Jan aushadi Kendra	1	4.2		
	Others	1	4.2		
Are you taking any non-allopathic medication for the condition?	Yes	65	13.4	50	15.2
	No	420	86.6	279	84.8
If Yes What is the cost?	Free of cost	17	26.2	17	34.0
	upto Rs 100	1	1.5	1	2.0
	Rs 101 to Rs 500	12	18.5	10	20.0
	above Rs 501 to Rs 800	1	1.5	2	4.0
	Don't Know	34	52.3	20	40.0
	Mean	590		491	
	SD	455		457	
	Median	998		375	

Table 12: Disease Monitoring and Co-morbidity (Group 2)

Indicator	Category	Total				Diabetic				Hypertension				Diabetic				Hypertension			
		Diabetic		Hypertension		Male		Female		Male		Female		< 65 Yrs		>= 65Yrs		< 60 Yrs		>= 60Yrs	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Hypertension Metabolic control (for those who have their reports)	Good Control if Systolic is <= 150 and diastolic <=90 for age >= 60 and if Systolic is <140 and diastolic <90 for age < 60			34	32.1					16	29.6	18	34.6					17	27.9	17	37.8
	Poor Control if Systolic is > 150 and diastolic >90 for age >= 60 and if Systolic is > =140 and diastolic >=90 for age < 60			72	67.9					38	70.4	34	65.4					44	72.1	28	62.2
Diabetes Metabolic control (for those who have their reports)	Good Control FBS-upto 130 mg/dl and PPBS-<180 mg/dl	87	54.7			44	55.7	43	53.75												
	Poor Control FBS-> 130 mg/dl and PPBS->=180 mg/dl	72	45.3			35	44.3	37	46.2												
HBA1C Good Control: Diabetes->=65-years-<=7.5% and <65 year-<7%-HB1AC values Poor Control: Diabetes->=65-years->7.5% and <65 year->7%-HB1AC values	Good Control (HbA1c <7.0%)	5	3.1			3	3.8	2	2.5					4	3.4	1	2.5				
	Poor Control (>=8.0%)	154	96.9			76	96.2	78	97.5					115	96.6	39	97.5				

Table 13: Family Support in reminder for medicine and accompanying for health check-up (Group 2)

Indicator	Category	Total				Diabetic				Hypertension				Diabetic						Hypertension					
		Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44		45–59		60+	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Who reminds you to take the BP/Diabetes medicines on time?	Husband/wife	256	52.8	179	54.4	167	70.2	89	36	106	68.8	73	41.7	48	71.6	115	56.9	93	43.1	39	72.2	88	60.7	52	40
	Son/daughter	191	39.4	114	34.7	63	26.5	128	51.8	34	22.1	80	45.7	8	11.9	72	35.6	111	51.4	14	25.9	42	29	58	44.6
	Son-in-law/daughter-in-law	44	9.1	17	5.2	14	5.9	30	12.1	3	1.9	14	8	3	4.5	18	8.9	23	10.6	0	0	6	4.1	11	8.5
	Others	6	1.2	6	1.8	2	0.8	4	1.6	0	0	6	3.4	2	3	0	0	4	1.9	0	0	2	1.4	4	3.1
	None	65	13.4	47	14.3	32	13.4	33	13.4	24	15.6	23	13.1	9	13.4	27	13.4	29	13.4	5	9.3	22	15.2	20	15.4
When you go for health check-up/testing particularly for diabetes or hypertension, who usually accompanies you?	Husband/wife	238	49.1	171	52	148	62.2	90	36.4	96	62.3	75	42.9	41	61.2	106	52.5	91	42.1	39	72.2	82	56.6	50	38.5
	Son/daughter	189	39	111	33.7	60	25.2	129	52.2	31	20.1	80	45.7	9	13.4	70	34.7	110	50.9	14	25.9	40	27.6	57	43.8
	Son-in-law/daughter-in-law	42	8.7	17	5.2	12	5	30	12.1	3	1.9	14	8	3	4.5	12	5.9	27	12.5	0	0	6	4.1	11	8.5
	Others	7	1.4	7	2.1	2	0.8	5	2	0	0	7	4	1	1.5	0	0	6	2.8	0	0	3	2.1	4	3.1
	Nobody, I go by myself	82	16.9	53	16.1	52	21.8	30	12.1	34	22.1	19	10.9	15	22.4	37	18.3	30	13.9	5	9.3	26	17.9	22	16.9

Table 14 : PATIENT HEALTH QUESTIONNAIRE FOR ANXIETY AND DEPRESSION Group 2

Indicator	Category	Diabetic						Hypertension					
		Total		Male		Female		Total		Male		Female	
		N	%	N	%	N	%	N	%	N	%	N	%
PHQ4	Normal	193	39.8	105	44.1	88	35.6	138	42.0	69	44.8	69	39.4
	Mild	194	40.0	89	37.4	105	42.5	139	42.3	58	37.7	81	46.3
	Moderate	90	18.6	39	16.4	51	20.7	50	15.2	26	16.9	24	13.7
	Severe	8	1.7	5	2.1	3	1.2	2	0.6	1	0.7	1	0.6

Table 15: self-perceived health status (Group 2)

Perceived Illness		Total				Diabetic				Hypertension				Diabetic						H
	Category	Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
	Low illness threat	175	36.1	128	38.9	88	37.0	87	35.2	60	39.0	68	38.9	20	29.9	72	35.6	83	38.4	
	Moderate illness threat	148	30.5	112	34.0	77	32.4	71	28.7	56	36.4	56	32.0	22	32.8	64	31.7	62	28.7	
	High illness threat	162	33.4	89	27.1	73	30.7	89	36.0	38	24.7	51	29.1	25	37.3	66	32.7	71	32.9	

Table 16 : Self-Efficacy and Confidence in Managing Challenges (GSE) (Group 2)

						Diabetic				Hypertension				Diabetic						Hypertensio
	Category	Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
	Low Self-Efficacy	246	50.7	171	52.0	113	47.5	133	53.9	75	48.7	96	54.9	32	47.8	97	48.0	117	54.2	30	55.6

						Diabetic				Hypertension				Diabetic						Hypertensio	
	Category	Diabetic		Hypertension		Male		Female		Male		Female		30–44		45–59		60+		30–44	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
	Moderate Self-Efficacy	173	35.7	114	34.7	87	36.6	86	34.8	53	34.4	61	34.9	19	28.4	75	37.1	79	36.6	17	31.5
	High Self-Efficacy	66	13.6	44	13.4	38	16.0	28	11.3	26	16.9	18	10.3	16	23.9	30	14.9	20	9.3	7	13.0