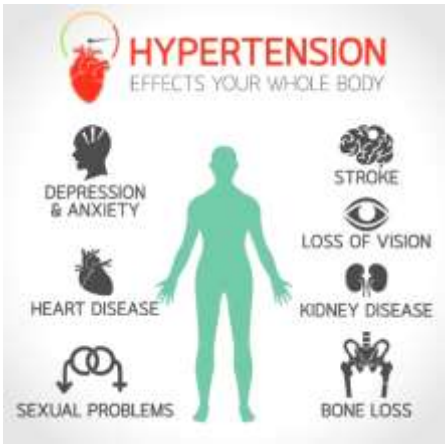
Swasthya Suraksha Chakra

Project

Swasthya Suraksha Chakra: Chapter 2

CSR Project of CENTURYPLY
In partnership
With
VISION MISSION FOUNDATION



जब स्वस्थ रहेगा इण्डिया तभी तो आगे बढ़ेगा इण्डिया

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1. INTRODUCTION

The progress of a nation is significantly impacted by the physical and mental wellbeing of its citizens. Chronic illnesses lead to decreased productivity and higher burden of medical costs at an individual, family and societal level.

Often threats to health concerns go undetected until serious events occur. This is especially true for chronic diseases such as diabetes, hypertension and obesity. In India, nearly 3 out of 10 adults have diabetes or prediabetes. If left untreated or undetected, the illness can have grave consequences. Hypertension is yet another hidden killer. This condition affects nearly 4 out of 10 adults in India and seldom comes to notice until specifically sought for.

Vision Mission Foundation (VMF), a non-profit organization, located at B-37, Sector-67, Noida, Uttar Pradesh, has been actively involved in creating awareness about chronic lifestyle related diseases, since its establishment in 2010.

In partnership with and support from **CenturyPlyboards India Ltd. (CenturyPly),'Project Swasthya Suraksha Chakra'**is paving the way for healthier future. Our collective efforts stitched together is the only way to challenge and overcome these global health threats.

2. BACKGROUND

Burden of Diabetes in India

The prevalence of diabetes mellitus in India is significant and continues to rise. As of recent estimates, around 9.3% of adults in India have diabetes. This prevalence is projected to increase to about 10.9% by 2045. The high rate of diabetes in India is influenced by several factors, including dietary transitions, lack of physical activity, and increasing rates of obesity.[1]

A comprehensive survey, the National Noncommunicable Disease Monitoring Survey (NNMS), conducted in 2017-18, highlighted that while the prevalence of diabetes is high, the levels of awareness, treatment, and control remain relatively low. Only 45.8% of those with diabetes were aware of their condition, 36.1% were receiving treatment, and just 15.7% had their condition under control.[1]

Efforts to address this growing health challenge in India include multifaceted approaches aimed at improving awareness, adherence to treatment, and integrating traditional medicine systems with conventional medical practices. These efforts are crucial to managing and potentially reversing the increasing trend of diabetes in the country.

[1]Mathur P, Leburu S, Kulothungan V. Prevalence, Awareness, Treatment and Control of Diabetes in India from the Countrywide National NCD Monitoring Survey. Front Public Health. 2022 Mar 14;10:748157. doi: 10.3389/fpubh.2022.748157.

Burden of Hypertension in India

Hypertension is highly prevalent in India, affecting a significant portion of the adult population. Current estimates indicate that around 25-30% of adults in India have hypertension. This prevalence translates to approximately 220 million people living with high blood pressure in the country (WHO estimates).

Research and national health surveys have highlighted that the burden of hypertension in India is substantial. For instance, a study published in The Lancet estimated the prevalence of hypertension among adults aged 18 and older at 29.8%. Additionally, the Indian Council of Medical Research's India Hypertension Control Initiative (IHCI) emphasizes that despite the high prevalence, only about 12% of those with hypertension have their condition under control.[2]

The high prevalence of hypertension is a major contributor to the increasing incidence of cardiovascular diseases (CVDs) in India, which account for a significant proportion of mortality and morbidity. Addressing this public health issue requires continued efforts in early detection,

effective management, and widespread awareness campaigns to improve lifestyle choices and adherence to treatment protocol.

[2]https://www.who.int/india/health-topics/hypertension

Obesity in India

Obesity is a growing public health concern in India, with recent data indicating that the prevalence is on the rise. Approximately 1 in 4 adults in India is now considered overweight or obese. Specifically, the prevalence of obesity among adults has increased significantly over the years, with about 24% of women and 23% of men being classified as obese according to the latest National Family Health Survey (NFHS-5) data from 2019-21.[3]

This increase in obesity is observed across various demographic groups, but there is a notable disparity between urban and rural areas. Urban regions report higher obesity rates compared to rural areas, likely due to differences in lifestyle, dietary habits, and physical activity levels. Additionally, socioeconomic factors play a significant role, with higher obesity rates observed among wealthier populations.

Childhood obesity is also becoming a significant issue. Studies indicate that over 12.5 million children aged 5 to 19 are overweight, marking a substantial increase from previous decades. This trend is alarming as childhood obesity can lead to various health complications later in life, including diabetes and cardiovascular diseases.

Overall, the rising prevalence of obesity in India highlights the need for comprehensive public health strategies to promote healthier lifestyles and reduce the burden of obesity-related diseases.

[3]https://main.mohfw.gov.in/sites/default2Q/files/NFHS-5_Phase-II_0.pdf

3. CURRENT CHALLENGES

Detecting diabetes, hypertension, and obesity presents several challenges across clinical, technological, and socio-economic dimensions. These challenges impact early diagnosis, effective management, and overall public health outcomes.

Diabetes Detection Challenges

Asymptomatic Nature: Many individuals with type 2 diabetes can remain asymptomatic for years, delaying diagnosis until complications arise.

Access to Screening: Limited access to healthcare facilities and routine screenings in rural or underserved urban areas reduces the likelihood of early detection.

Variability in Symptoms: Symptoms of diabetes can be nonspecific, such as fatigue and frequent urination, which are often overlooked or attributed to other causes.

Cost of Testing: The cost of diagnostic tests like HbA1c or oral glucose tolerance tests can be prohibitive for uninsured or underinsured populations.

Awareness and Education: Lack of awareness about diabetes risk factors and symptoms can lead to delays in seeking medical advice.

Cultural Factors: Cultural beliefs and practices may prevent people from seeking medical help or adhering to prescribed treatments.

Healthcare Workforce: There is a shortage of trained healthcare professionals, including endocrinologists and diabetes educators, particularly in rural regions.

Hypertension Detection Challenges

Silent Disease: Hypertension often has no symptoms until significant damage occurs, earning it the nickname "the silent killer."

Inconsistent Monitoring: Blood pressure can fluctuate, and single measurements in a clinical setting might not be indicative of chronic hypertension, requiring multiple readings or 24-hour monitoring.

White Coat Syndrome: Anxiety during medical visits can cause temporary spikes in blood pressure, leading to misdiagnosis.

Access to Regular Screening: Like diabetes, lack of access to regular healthcare services can impede early detection.

Cultural and Socioeconomic Factors: Socioeconomic disparities can affect the frequency of medical visits and adherence to screening recommendations.

Obesity Detection Challenges

Stigma and Bias: Stigma associated with obesity can deter individuals from seeking medical advice and contribute to underreporting of weight-related health issues.

Inconsistent Metrics: Reliance on BMI as a sole indicator can be misleading as it does not account for muscle mass, distribution of fat, and other health factors.

Cultural Perceptions: Cultural attitudes towards body weight and size can vary, influencing the likelihood of recognizing and addressing obesity as a health concern.

Access to Comprehensive Assessments: Comprehensive assessments that include body composition analysis are not always available or covered by insurance.

Comorbid Conditions: Obesity often coexists with other conditions like diabetes and hypertension, complicating diagnosis and treatment plans.

General Challenges Across Conditions

Healthcare Infrastructure: Insufficient healthcare infrastructure in certain regions hampers effective screening and follow-up.

Health Literacy: Low levels of health literacy can lead to misunderstandings about the importance of regular screenings and preventive measures.

Economic Barriers: Out-of-pocket costs for healthcare services and diagnostic tests can be prohibitive for many people, leading to delayed or foregone medical care.

Technology and Data Management: Inconsistent use of electronic health records (EHRs) and lack of integration across healthcare systems can result in fragmented care and missed opportunities for early detection.

Behavioral and Lifestyle Factors: Unhealthy lifestyles, including poor diet and physical inactivity, contribute to all three conditions, and behavioral interventions are often challenging to implement and sustain.

Urbanization and modernization have led to lifestyle changes that increase the risk of these conditions, but there is insufficient emphasis on preventive measures and healthy living education.

Addressing these challenges in India requires a comprehensive approach that includes improving healthcare infrastructure, increasing public awareness and education, making diagnostic tests and treatments more affordable, and implementing effective public health policies. **Initiatives such as mobile health clinics, community health worker programs, and national health campaigns can play a critical role in overcoming these obstacles.**

4. OBJECTIVE OF PROJECT SWASTHYA SURAKSHA CHAKRA

The primary objective of the project is to screen for diabetes, hypertension and obesity in the population.

Specific objectives: Diabetes

A. Identify undiagnosed cases of diabetes in the population

B. Encourage persons with diabetes to modify lifestyle and seek medical help

C. To promote healthy lifestyle in those having borderline elevated blood glucose (prediabetes) to prevent progression to diabetes

D. Counselling about appropriate medical care for those who have high blood glucose levels (both previously and newly diagnosed persons).

Specific objectives: Hypertension

A. Identify undiagnosed cases of hypertension in the population

B. Encourage persons with hypertension to modify lifestyle and seek medical help

C. Counselling about appropriate medical care for those who have high blood pressure levels (both previously and newly diagnosed persons).

Specific objectives: Obesity

A. Identify persons with obesity, overweight and normal weight in the population

B. Encourage persons with obesity to modify lifestyle and seek medical help if required

C. To promote healthy lifestyle in those who are overweight to prevent chronic diseases

D. Counselling about appropriate medical care for those with obesity or those who are overweight.

5. METHODOLOGY

Screening (and counselling) camps were planned at nearby companies, villages and public places (*Annexure 1*: List of Camp Sites; *Annexure 2*: Photographs of Camp Sites) specially targeted towards economically weaker sections who have limited access to routine health check-up.

A questionnaire (*Annexure 3:* Screening Questionnaire) was developed to gather basic demographic information and history of diabetes and hypertension of the participants in the camp.

Standard methods and procedures were used to measure blood pressure, height and weight.Glucometer was used to measure random capillary blood glucose (RBG).

All those who attended the campwere handed overeducation material on diabetes and lifestyle diseases.

The attendees were stratified into different risk categories depending on RBG, blood pressure and BMI. All attendees were counselled by certified health coach / diabetes educator / dietician immediately after screening. Those at risk were counselled and advised to undergo appropriate lifestyle changes. Those with established disease or newly diagnosed cases of probable diabetes, hypertension and obesity were offered medical treatment at a subsidized rate. Provision for follow-up of high-risk cases, via telephone, has also been arranged. In addition, a follow-up message has been sent to all 5056 attendees as reminder to adhere to the advice imparted by the certified health coach / diabetes educator / dietician and to reiterate the open channel available to them for further consultation. (*Annexure 4:* Follow-Up Message)

Note: All screening results were reviewed by a senior endocrinologist.

6. KEY DEMOGRAPHICS & STATISTICS

Demographics

In 2023-2024 the 2nd chapter of Project Swasthya Suraksha Chakra was implemented. (1st chapter was implemented in 2022-2023). A total of 5056 citizens were screened as Project Swasthya Suraksha Chakra: Chapter 2.

The population screened were primarily factory workers, villagers and general population from low socioeconomic strata with majority (77%) having income less than Rs. 20000 per month and only 50% educated beyond Class 10. Males accounted for 78% of the screened population.

At a glance

Total Number Screened : 5056

Mean Age (years) : 37 years

Income Distribution

< 20K	: 3909[1] (77%)
20K – 50K	: 899[1] (18%)
> 50K	: 248[1] (5%)

[1]Number

Education

< Class 10	: 1799[1] (36%)
Class 10	: 720[1] (14%)
Class 12	: 1042[1] (21%)
Diploma	: 143[1] (3%)
Graduate & Above	: 1352[1] (27%)

[1]Number

Gender Split

Number of Males	: 3966 (78%)
Number of Females	: 1090 (22%)

Key Statistics

- **96%** were not in the habit of exercising.
- **20%** of the screened population are smokers.
- **7%**of the screened population have diabetes (Randomblood glucose≥ 200 mg/dL). This percentage is not very divergent from the estimated prevalence of diabetes in India which was reported to be 11.4% according to a 2023 study published in Lancet[4].

[4]*Lancet study: More than 100 million people in India diabetic (bbc.com)*

- **53%** of individuals with diabetes had Hypertension (Systolic BP> 140 mmHg; or Obesity (BMI ≥ 30 kg/m^2); 11% of individuals with diabetes had both Hypertension and obesity.
- **14%** of the screened population had pre-diabetes (Random blood glucose: 140-199 mg/dL). This percentage is very similar to the standard prevalence of pre-diabetes in India which was reported to be 15.3% according to the study published in 2023 in Lancet[5].

[5]*Lancet study: More than 100 million people in India diabetic (bbc.com)*

- **31%** of the screened population has or is at-risk ofHypertension (Systolic BP > 140 mmHg). This is in line with national average[6].

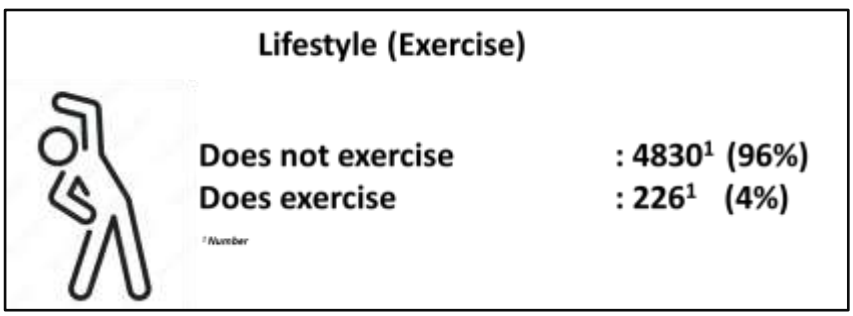
[6]*Frontiers | Prevalence, Awareness, Treatment, and Control of Hypertension in Young Adults (20–39 Years) in Kerala, South India (frontiersin.org)*

- **11%** of the screened population hadObesity (BMI ≥ 30 kg/m^2);**29%**of the screened population was overweight (25 kg/m^2≤ BMI < 30 kg/m^2).
- Reported vs. Actual prevalence:

Disease	Reported	Actual	Gap (%)
Diabetes	347	370	6%
Hypertension	197	1557	87%

(*Annexure 5:* Master Data)

At a glance



Lifestyle (Smoking)

Smoker	: 950[1] (19%)
Non-Smoker	: 4106[1] (81%)

[1] Number

Diabetes

Diabetic	: 370[1] (7%)
Non-Diabetic	: 4686[1] (93%)

[1] Number

Pre-Diabetics
(Non-fasting Blood Sugar : 140-199 mg/dL)

14%

Note : As measured during screening

Hypertension

Hypertensive	: 1557[1] (31%)
Non-Hypertensive	: 3499[1] (69%)

[1] Number

Note : Hypertensives are defined as those with Systolic Blood Pressure is ≥ 140 mg/dL as measured during screening

Obesity

Obese	: 533[1] (11%)
Non-Obese	: 4523[1] (89%)

[1] Number

Note : Obese are defined as those with BMI ≥ 30 kg/m^2 as measured during screening

7. IMPLICATIONS & ACTION

Implications

The aforementioned statistics present concerning implications with respect to the health status of the screened population:

- A significant majority of the screened population does not exercise. It is well known that even moderate physical exercise is both preventive and also a key element of disease management in confirmed cases. A consistently overwhelming majority (similar trend reported in Project Swasthya Suraksha Chakra: Chapter 2) of the screened population not engaging in any kind of physical activity implies significant gap in awareness about the benefits of exercise and serious implications due to lack of.
- Nearly 2 out of 10 people within the screened population are smokers. Globally, significant efforts are being made to reduce the incidence of smoking - from awareness / education campaigns to higher taxes on tobacco to heavy fines for smoking outside designated areas and more. Such efforts have led to reduction in incidence of smoking. Similar initiatives will be required in our society as well in order to mitigate the one of the most dominant risk factor for these chronic diseases.
- Nearly 2 out of 10 people are pre-diabetic. This condition can silently transition to diabetes if early interventions are not made. On the contrary, early intervention can prevent the costly transition to diabetes.
- A finding of great concern is the lack of knowledge gap between prevalence of disease in the population vis-à-vis awareness of its prevalence. This is owing to the asymptomatic nature of these chronic conditions which often lead to late diagnosis and thus poorer and costlier health outcomes. E.g.: Ony 13% of the screened population who have Hypertension were aware of the same. Remaining 87% of the screened population who have Hypertension were unaware of the same. Regular screening and education play a critical role in early detection or prevention.

Action

The aforementioned findingsunequivocally call for regular screening, early detection or prevention, education / awareness and follow-up. During and post completion of the screenings, following actions have been taken (and ongoing):

- At the time of screening each member was made aware and counselled for these diseases irrespective of their health status. This also included distribution of education materials, which they can refer to anytime and even share with their friends and family. This counselling was done by certified health coaches. All screened population are in process of receiving follow-up message via SMS/WhatsApp as reminder for adherence to the medical advice provided. *(Annexure 4: Follow-Up Message)*
- Those with pre-diabetes and / or overweight have been flagged as high-risk. This sub-population received not only received additional counselling but also isin process of receiving follow-up phone calls to ensure adherence to the medical advice provided.
- Those with already established disease or newly diagnosed at the time of screening, medical intervention at subsidised rate was offered / made available. This sub-population too is in process of receiving follow-up phone calls to ensure adherence to the medical advice provided.

8. SOCIAL IMPACT REPORT

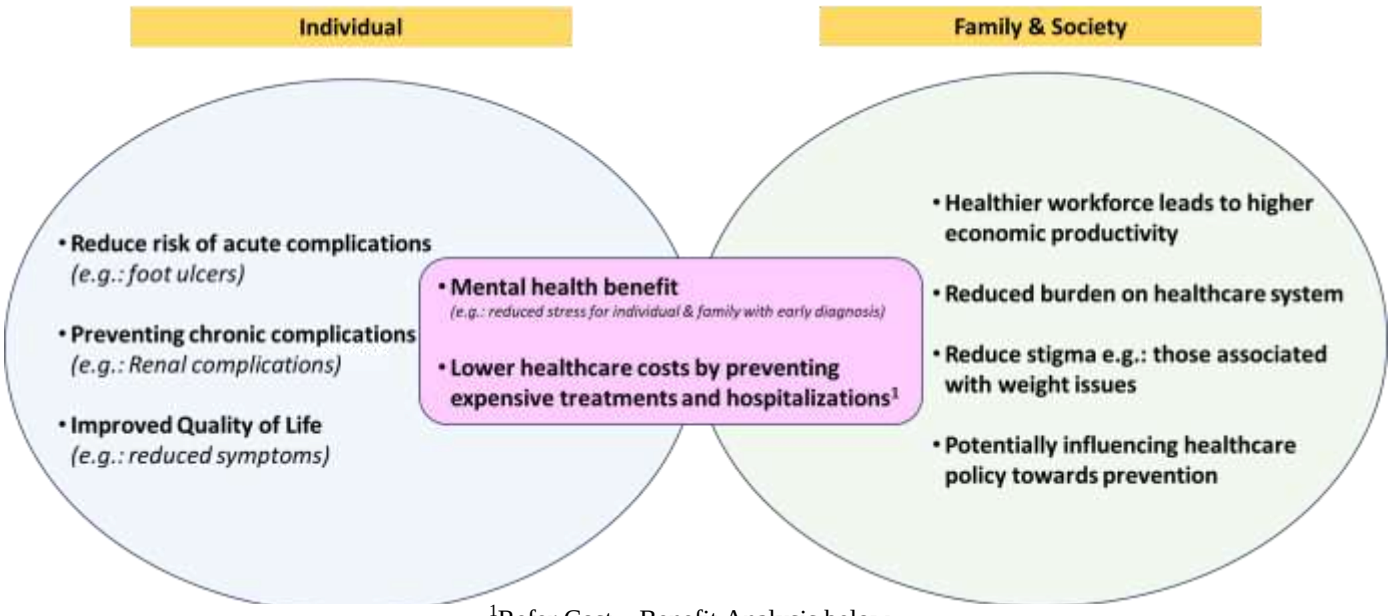
Project Swasthya Suraksha Chakra: Chapter 2 aims to reduce the significant morbidity and mortality associated with the widely prevalent chronic diseases – diabetes, hypertension and obesity.

The salient features of Project Swasthya Suraksha Chakra: Chapter 2 include:

- Creation of awareness (including distribution of materials) by trained healthcare professionals about these diseases particularly amongst the lower socio-economic sections, who otherwise are unlikely to have access to such information.
- Screening leading to timely diagnosis and appropriate medical intervention.
- Sustained follow-up to ensure adherence to medical advice / medications.

The positive impact of **Project Swasthya Suraksha Chakra: Chapter 2**manifests are manifold. The benefits are not only for the individual but for the family and society as well:

Multi-faceted Impact of Project Swasthya Suraksha Chakra: Chapter 2
Positive Multi-level Impact



[1]Refer Cost – Benefit Analysis below

Cost-Benefit Assessment of Project Swasthya Suraksha Chakra: Chapter 2 (Indicative)

Hypertension			
A	Have Hypertension not aware until screening	No.	1360
B	% of newly diagnosed patients achieving target blood pressure[1]	%	10%
C	% prevention in Cardiovascular events due to controlled blood pressure [2]	%	19%
D	Average cost of treatment for CV event[3]	INR(lacs)	2.5
AXBXCXD	**Potential Healthcare Savings**	**INR(lacs)**	**65**
Pre-Diabetes			
A	Diagnosed with Pre-Diabetes during screening	No.	708
B	% prevented from progressing to Diabetes due to screening[4]	%	25%
C	Annual Cost of Diabetes Treatment in India[5]	INR(lacs)	0.13
AXBXC	**Potential Healthcare Savings**	**INR(lacs)**	**23**
Investment for Screening Camp			
A	Number of persons screened	No.	5056
B	Cost per person	INR	200
AXB	**Total Investment**	**INR(lacs)**	**10**

[1] Towards better hypertension management in India - PMC (nih.gov)
[2] Epidemiology of Uncontrolled Hypertension in the United States | Circulation (ahajournals.org)
[3] Cost analysis of treating cardiovascular diseases in a super-specialty hospital - PMC (nih.gov)
[4] Many miss prediabetes wake-up call - Harvard Health
[5] Cost of Management of Diabetes Mellitus: A Pan India Study - PMC (nih.gov)

Therefore, there are clear and compelling health (physical & mental) and economic benefits of Project Swasthya Suraksha Chakra: Chapter 2 both at an individual and at a societal level.

9. CONCLUSION

Project Swasthya Suraksha Chakra: Chapter 2 screened 5056 people belonging to low-socioeconomic strata. This segment of the population has limited access to routine health check-ups whereas the chronic diseases of Diabetes, Hypertension and Obesity do not differentiate across socio-economic classes. Therefore, this population segment is highly vulnerable and requires greater attention from the government and civil society.

This population segment also comprises of a major portion of the workforce of our nation. Poor health leads to reduced productivity, absenteeism and increased healthcare costs for both the employer and employee. In India, nearly 3 out of 10 adults have diabetes or pre-diabetes. If undetected or uncontrolled, the disease can be life-threatening. Another silent killer is Hypertension. Nearly 4 out of 10 adults in India have this condition, which unfortunately goes undetected in many cases.

The Project has achieved its goals of screening and counselling the population in order to prevent or manage these burdensome diseases. However, given that vast population additional such sincere and rigorous efforts need to be made regularly.

Vision Mission Foundation sincerely thanks Century Plywood for the support in this noble initiative.