SUMMER INTERNSHIP REPORT

Under lifestyle intervention to reduce the risk and prevalence of hypertension among urban poor of Delhi: Quasi-experimental study

Implemented by IIHMR, Delhi supported by ICMR, DELHI

(18TH April 2022 to 18 June 2022)

A REPORT ON

To compare the risk of hypertension in different age groups in urban poor area of Goyala vihar, Delhi

Submitted by:

Dr. Maitri Mishra

Post-graduate diploma in Healthcare Management (2021-23)

International Institute of Health Management and Research, New Delhi

(Completion of summer internship from respective organization)

The certificate is awarded is to

Name: MAITRI MISHRA

In recognition of having successfully completed her

Internship in the department of Public health

Title: TO ESTIMATE THE RISK OF HYPERTENSION IN YOUNGER ADULTS COMPARED TO OLDER ADULTS AMONG URBAN POOR OF DWARKA DELHI

And has successfully completed her project

Date:17 June 2022

Organisation:IIHMR, DELHI

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavours

Organization supervisor

Head- HR/Department Head

IIHMR DELHI

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Maitri Mishra, a** scholar of IIHMR Delhi pursuing PGDHM, has completed two months summer internship at **ICMR in collaboration with IIHMR DELHI** (from 18th April to 18th June) under the supervision of **Dr. Pankaj Talreja.**

The candidate has successfully fulfilled all the roles and responsibilities assigned to him.

This certificate is issued in recognition of the successful completion of his project.

Dr. Pankaj Talreja.

ACKNOWLEDGEMENT

I consider myself fortunate to have been allowed to undergo my summer training on the project under ICMR. I want to extend my thanks to everyone who has helped me with this task.

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And I would also like to thank my team members Dr, Disha Bakshi, Dr. Arushi Khosla, Ms. Jyoti, Mrs. Pooja Shankar, Dr. Shama Bhati, for all the help and support which made this project possible.

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CHAPTER I: INTRODUCTION

ABBREVIATIONS

S.NO.	ABBREVIATIONS	FULL FORM
1.	**ASHA**	Accrediated social health activist
2.	**BP**	Blood pressure
3.	**Wt**	Weight
4.	**Ht**	Height
5.	**WHR**	Waist hip ratio
6.	**CVD**	Cardio vascular disease
7.	**BMI**	Body mass index
8.	**HTN**	Hypertension

ABOUT ORGANISATION

- **ICMR DELHI**

  The Indian Council of Medical Research (ICMR), New Delhi, the apex body in India for the formulation, coordination, and promotion of biomedical research, is one of the oldest medical research bodies in the world. The Council's research priorities coincide with the National health priorities, such as control and management of infectious diseases, fertility control, maternal and child health, control of nutritional disorders, development of alternative strategies for health care delivery, containment within safety limits of environmental and occupational health problems; research on major non-communicable diseases like cancer, cardiovascular diseases, blindness, diabetes, hypertension, and other metabolic and haematological disorders; mental health research and drug research (including traditional remedies). All these efforts are undertaken to reduce the total disease burden and promote the population's health and well-being.

With this view, IIHMR Delhi took the initiative and, in collaboration with ICMR DELHI, started this project

ABOUT DIRECTOR ICMR

Balram Bhargava

"Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life.

Professor **Balram Bhargava**, Secretary, Department of Health Research, (Ministry of Health & Family Welfare), Government of India and Director General, Indian Council of Medical Research (ICMR) joined on 16th April, 2018. Prof. Bhargava is Professor of Cardiology at All India Institute of Medical Sciences (AIIMS), New Delhi and also serves as the Executive Director for Stanford India Biodesign Centre, School of International Biodesign (SiB). Professor (Dr) Balram Bhargava is an outstanding cardiologist, one of the foremost leaders in biomedical innovation, public health, medical education and medical research. Professor Bhargava has excellent leadership qualities; and has established the India-Stanford Biodesign programme, a unique interdisciplinary fellowship programme to foster innovation, design in low cost implants/devices. This programme has led to the establishment of the School of International Biodesign (SIB) at AIIMS and development of 30 low cost medical devices leading to 10 startups. Four of the low cost devices are in the Indian market and one device has been approved by the USFDA. He developed the indigenous Platinum Iridium coil coronary stent and has been instrumental in clinically evaluating and establishing the use of two other laser cut medicated Indian

stents. These low cost indigenous stents have benefitted several thousand patients. The philosophy of the programme has been "More for less for more" with a mandate to promote Global Affordable Need Driven Healthcare Innovation (GANDHI).

- **IIHMR DELHI**

The International Institute of Health Management Research, New Delhi, is part of the Society for Indian Institute of Health Management Research (IIHMR), established in October 1984 under the Societies Registration Act 1958.

- ✓ **CORE VALUES**

- Quality

- Accountability

- Trust

- Transparency

- Sharing knowledge and information

- ✓ **MISSION**

It is an institution dedicated to improvement in standards of health through better management of health care and related programs. It seeks to accomplish

this through management research, training, consultation, and institutional networking from national and global perspectives.

ABOUT THE DIRECTOR IIHMR, DELHI

Dr. Sutapa Bandyopadhyay Neogi

Adjunct professor Dr Sutapa B Neogi is a public health specialist actively engaged in research and teaching at Indian Institute of Public Health- Delhi (IIPHD), Public Health Foundation of India (PHFI). An MBBS from Nil Ratan Sircar Medical College, Calcutta and MD in Community Medicine from Post Graduate Institute of Medical education and Research (PGIMER), Chandigarh, and Diplomate of National Board (DNB) in Maternal and Child Health, she has excellent academic credentials. She received the 'Kataria Memorial Gold Medal' for being the best outgoing student of PGIMER, Chandigarh. She has a rich experience in public health and is particularly interested in implementation of projects that is relevant to national policies and programmes. She has authored several research papers ad is a reviewer of many national and international journals. She is an associate Editor of BMC Pregnancy and Childbirth. She offers her technical services to various academic and research bodies in the country. Her goal is to mentor students who can be change agents in future, those who can see through problems, explore them scientifically, be a link between disciplines (eg engineering and medicine, social science and

medicine), generate synergy between research and programs and promote interdisciplinary research in the country by leading and being a part of an able team.

2.2 MODE OF DATA COLLECTION

Lifestyle Intervention to reduce the risk and prevalence of hypertension among urban poor of Delhi: Quasi-experimental study. In this study, an attempt is made to assess whether environmental or lifestyle (smoking, excess alcohol, urban living, psychological stress, reduced physical activity, unhealthy diet, excess salt intake, overweight and obesity etc) factor are associated with high blood pressure in urban poor living. Study Participants: Study population will be males and females aged 15 years and above at the time of baseline survey conducted under this study. Eligibility Criteria: A. Inclusion criteria: - All men and women aged 15 years and above who have been staying in the study area since past 1 year and intend to stay for at least next 1 year, and those who provide informed consent to participate in the study. B. Exclusion Criteria: - Pregnant women - All participants who are currently undergoing treatment for any disease other than Cardio- vascular disorders - Those who do not provide consent for the study. Study participants would also include service providers – ASHA, ANM, Medical Officer and other PHC staff. Study Design: We will adopt Quasi-experimental study design which will be used to analyze the situation by comparing before and after intervention results among the study

and control group. The population of Goyala Vihar, Delhi was taken for the study and area under 8 ASHA will be studied while we studied the area under PSU-1. The questionnaire collecting data on household and individual was made using KOBO tool. There were total 98 individual and 11 household questions to collect the data on physical activity, diet pattern, stress, tobacco and general identification data. The anthropometric measurements were also taken like BP, Pulse, Wt, Ht, Waist circumference, Hip circumference and WHR. The protocols were followed as trained to us while collecting the data. The mode of data collection was door to door survey of 1 PSU which had 450 houses under ASHA. It took 20 days to complete the area while the population was corporative and helpful.

GENERAL FINDING 3.1 OBSERVATIONAL LEARNING AND CONCLUSIVE LEARNING -OBSERVATION DATA OF COMMUNITY:

1.The area was well facilitated by Public toilets under 'Swach bharat mission'. Also the area had Mohalla clinic too for accessible and affordable treatment along with private hospital.

2. The people were happy and satisfied with clinic.

3. As per data 57.1% urban poor lost jobs during Covid and the vulnerability was still seen in area.

4. The water supply was not proper in the area.

5. There was no yoga or open park for walk hence people were restricted to home especially women prefer to stay indoor hence physical activity was less done.

6.People lack awareness about NCDs and those who had were coping with it or the noncompliance to treatment leads to deterioration to condition.

7.Women empowerment and male education was need of the hour.

8.Anganwadi was well functional and workers had to timely report to the authority about food, children health through digital app which proved to enhance connectivity.

9. People were ignorant toward oral health too . There were certain people who used open grounds for defecation and had high fertility rate in families.

10.Smoking and tobacco consumption was prevelant among male.

11. The diary in the area had poor condition and had risk of many communicable disease as there was interaction with animals. The workers were not vaccinated and their health was ignored.

STRENGTH AND GAP ANALYSIS: STRENGTH GAP ANALYSIS

STRENGTH	GAP ANALYSIS
The community was good and many were willing to change lifestyle to maintain health. The training provided to us was very helpful. Anganwadi and mohalla clinic was well functional in delivering good care. The way we all interested and went a step ahead to ask questions opened us about community mindset which was an amazing experience. ICMR with such projects monitor and check the condition for interventions to be applied.	The main loop hole is lack of connectivity due to which there was no follow up and ignorance to health. Digitalisation can reduce this gap and enhance health. The water supply and WASH need to be worked on along with HWC and yoga area or an open area to enhance physical activity. The visit by NGOs and students to be enhanced to remove social stigma and provide education. Immunisation status of dairy workers to be monitored. ASHA records to be digitalised.

PROJECT REPORT

To compare the risk of hypertension in different age groups in urban poor area of Goyala vihar, Delhi

ABSTRACT

One-third of the world's population are affected by hypertension and is found to be a significant risk factor for cardiovascular diseases, diabetes and renal disorders. This study assessed the risk of hypertension in younger adults , middle age, older adults in the urban Poor of Delhi.

After the data analysis, it was found that 10.9% of the younger adults, 20.75% of the middle age group, and 47.91% of the older adults were affected by hypertension.

It is observed that the population of the older adults are the most affected by hypertension, whereas younger adults population are least affected.

Along with that, it can be observed that recently the middle age group population is also getting affected by hypertension, which causes severe diseases with aging.

DEFINATION

According to WHO, Blood pressure is the force exerted by circulating blood against the walls of the body's arteries, the major blood vessels in the body. Hypertension is when blood pressure is too high.

Hypertension is diagnosed if, when it is measured on two different days, the systolic blood pressure readings on both days is ≥140 mmHg and/or the diastolic blood pressure readings on both days is ≥90 mmHg.

NEED FOR STUDY

Hypertension is a major risk factor for cardiovascular disease, which is the leading cause of death in India.

The cascade of care for some chronic diseases—i.e., the proportion with age related hypertension—is a useful concept to inform intervention design and assess health system performance.

BACKGROUND

High blood pressure increases the risk for heart disease, stroke, kidney disease, cancer, osteoporosis, and dementia. In India, deaths due to cardiovascular disorders in males are 25%, and in females, it is 20.8%. As per NFHS-4, 2015-16, the prevalence of hypertension for men and women is 14.8% and 11%, respectively, but many are unaware they have it because there are no warning signs, which is why it's called the "silent killer. "Thirty-seven years of scientific evidence conducted by Dean Ornish, M.D., and his colleagues in collaboration with the UC San Francisco and other leading academic institutions shows that changes in diet and lifestyle can make a powerful difference in your heart function and overall well-being. Urbanization is strongly correlated with increased hypertension prevalence, and migration from rural to urban areas is also associated with increased blood pressure. Urbanization affects food consumption patterns, with increased consumption of fat and oils. This diet change can increase body weight, which is an independent risk factor for the development of hypertension. In an urban south Indian population, the mean daily salt intake was 8.5 grams per person, correlated with the risk of hypertension.

OBJECTIVE

Primary objective:

To compare the risk of hypertension in different age groups in urban poor area of Goyala vihar, Delhi

CHAPTER-II: REVIEW OF LITERATURE

STUDY	METHODOLOGY	RESULT	CONCLUSION
A Cross-Sectional Study on Correlates of High Blood Pressure among School-Going Children in an Urban Area	892 randomly selected school children of 6th–10th class. Measurements such as height, weight, and BP were recorded and classified as per the standard guidelines for given age and sex.	On linear regression analysis, the studied factors explained 30% variation in SBP and only 12% variation in DBP.	Overweight or obesity, being male, family history of HT, and increasing age were important risk factors of elevated BP.
Prevalence and Associated Risk Factors of Hypertension: A Cross-Sectional Study in Urban Varanasi	A community based cross-sectional study was carried out among the people aged 25 to 64 years living in the selected study area.	640 study subjects were interviewed for the survey. The median age (±SD) of the study subjects was 39.0 (±11.9) years and for male and female it was 40.0 (±11.9) years and 38 (±11.8) years, respectively.	prevalence of both pre hypertension and hypertension is very high in urban Varanasi. Increasing age is proved to be an independent risk factor for hypertension.

Effect of Age on Hypertension: Analysis of Over 4,800 Referred Hypertensive Patients	4800 hypertensive patients, referred by their physicians for evaluation of possible secondary causes for their hypertension. Previous attempts to control their hypertension were considered, by their referring physicians, to have been unsatisfactory.	At ages 18-29 years 83% of the patients were off medications for > one week but over age 70 only 45% of them were to discontinue their medications for > one week ($p < 0.000001$). There was an increase with age. In patients aged > 70 years the prevalence of secondary forms of hypertension was 17.4%.	Effect of age on measured parameters for patients with essential hypertension. There was a significant increase in SBP with age. There was also a significant increase in DBP with age, however, it decreased after age 60 years.
Relationship between overweight/obesity and hypertension among adults in China	The subjects of this prospective study were 13 739 Chinese adults aged 35-74 years recruited at the baseline surveys of China. Baseline surveys were conducted in 1998 and during 2000-2001, respectively, and the follow-up was conducted during 2007-2008. Age-standardized cumulative incidence of hypertension was calculated.	Age-standardized cumulative incidence of hypertension for the underweight, normal weight, overweight and obesity groups were 20.3%, 30.9%, 43.6% and 50.8% in men, respectively; and 22.9%, 30.4%, 41.1% and 50.8% in women, respectively.	Overweight or obese people are at an increased risk of developing hypertension, thus prevention and control of overweight/obesity are needed to reduce hypertension incidence among adults in China.
Distribution of blood pressure & correlates of hypertension in school children aged 5-14 years from North east India	The district has 1,631 schools covering 1,80,153 children. School children from the selected schools belonging to the age group 5-14 yr were eligible for the present study.ample size was calculated using software OpenEpi, version-2 Sampling was done by	Girl children had significantly higher mean SBP (104.2 ± 12.0 vs. 103.2 ± 11.6 mmHg, $P<0.001$) than boys. With increase of age there was a gradual rise in both SBP and DBP in boys and girls .	The present study highlights distribution of blood pressure and correlates of hypertension in school children aged 5-14 yr from Dibrugarh district. Mean blood pressure in this young segment of population was high.

	stratified random cluster method		Hypertension was detected in 7.3 and 7.8 per cent for male and female children, respectively.

CHAPTER-III: METHODOLOGY

Study Design: A cross-sectional study design was used. A quantitative study approach was adopted to generate the required information for the study.

Study Area and Study Population:

The study was conducted in collaboration with the urban primary health center (UPHC) covered under National Urban Health Mission and undertaken in the community served by ASHAs in the southwest region of Delhi.

The population of Goyala Vihar, Delhi was taken for the study and area under 8 ASHA will be studied while we studied the area under PSU-1. The questionnaire collecting data on household and individual was made using KOBO tool. There were total 98 individual and 11 household questions to collect the data on physical activity, diet pattern, stress, tobacco and general identification data. The anthropometric measurements were also taken like BP, Pulse, Wt, Ht, Waist circumference, Hip circumference and WHR. The protocols were followed as trained to us while collecting the data. The mode of

data collection was door to door survey of 1 PSU which had 450 houses under ASHA. It took 20 days to complete the area while the population was corporative and helpful.

Sampling Technique: Convenient sampling technique was carried out for the study based on feasibility and accessibility to collect maximum information from the participants.

Eligibility Criteria:

A) Inclusion Criteria:

- All men and women aged 15 years and above who have been staying in the study area for the past year
- those who provide informed consent to participate in the study.

B) Exclusion Criteria:

- Pregnant women
- All participants who are currently undergoing treatment for any disease other than Cardiovascular disorders
- Those who do not provide consent for the study.

Sample size: 282 individuals

Study duration: 2 months

Method of Data Collection and Analysis:

- Household and individual data were collected and entered in a Kobo Collect android application containing a structured questionnaire (282 individual questions).
- The questionnaire included close-ended questions related to demographic details, diet, stress, physical activity, alcohol, and tobacco.
- Systolic and diastolic BP were measured 3 times (using a portable Omron BP monitor) in each individual on the same arm, with at least 5 minutes between each BP measurement and 5 minutes of sitting before the first measurement. We used the mean of the 3 BP measurements to calculate BP.
- Raised BP was defined as having a mean systolic BP ≥ 140 mm Hg or a mean diastolic BP ≥ 90 mm Hg

ANTHROPOMETRIC MEASUREMENTS TAKEN WERE:

Blood pressure measured using digital apparatus in sitting and relaxed position. Three readings were taken and average was calculated.

	SBP	DBP
NORMOTENSIVE	<140	<90
MILD-HTN	140-180	90-105
BORDERLINE HTN	140-160	90-95
MODERATE TO SEVERE HTN	>180	>105
ISOLATED SYSTOLIC HTN	>140	<90

The readings were recorded as per WHO guidelines.

Raised BP was defined as having a mean systolic BP ≥ 140 mm Hg or a mean diastolic BP ≥ 90 mm Hg

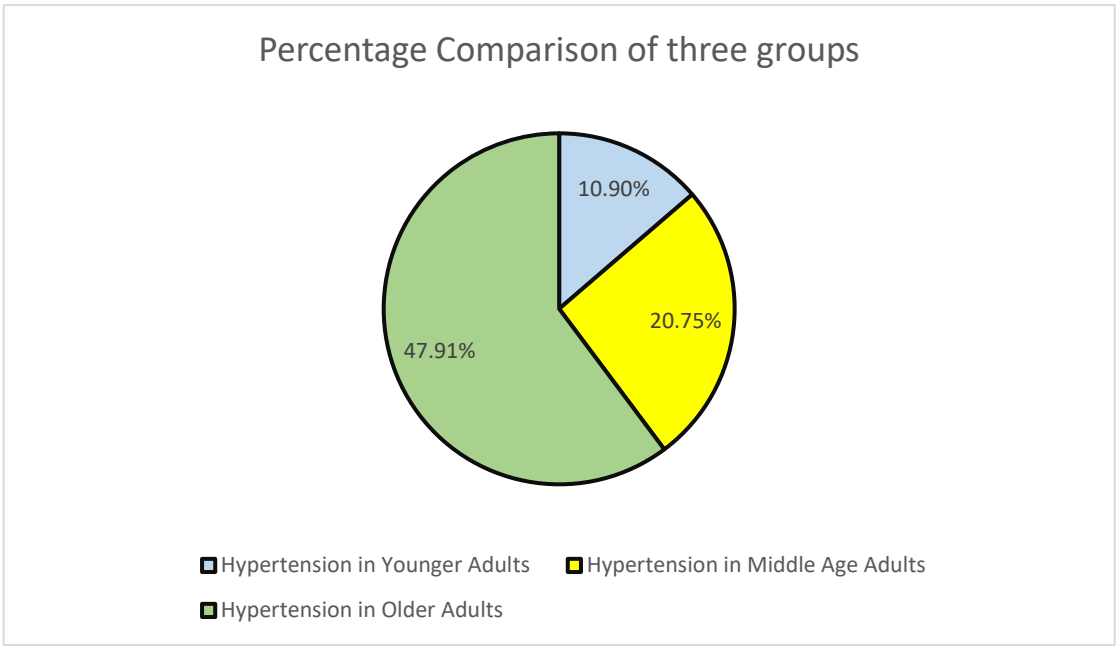
CHAPTER-IV: STATISTICAL ANALYSIS AND FINDINGS

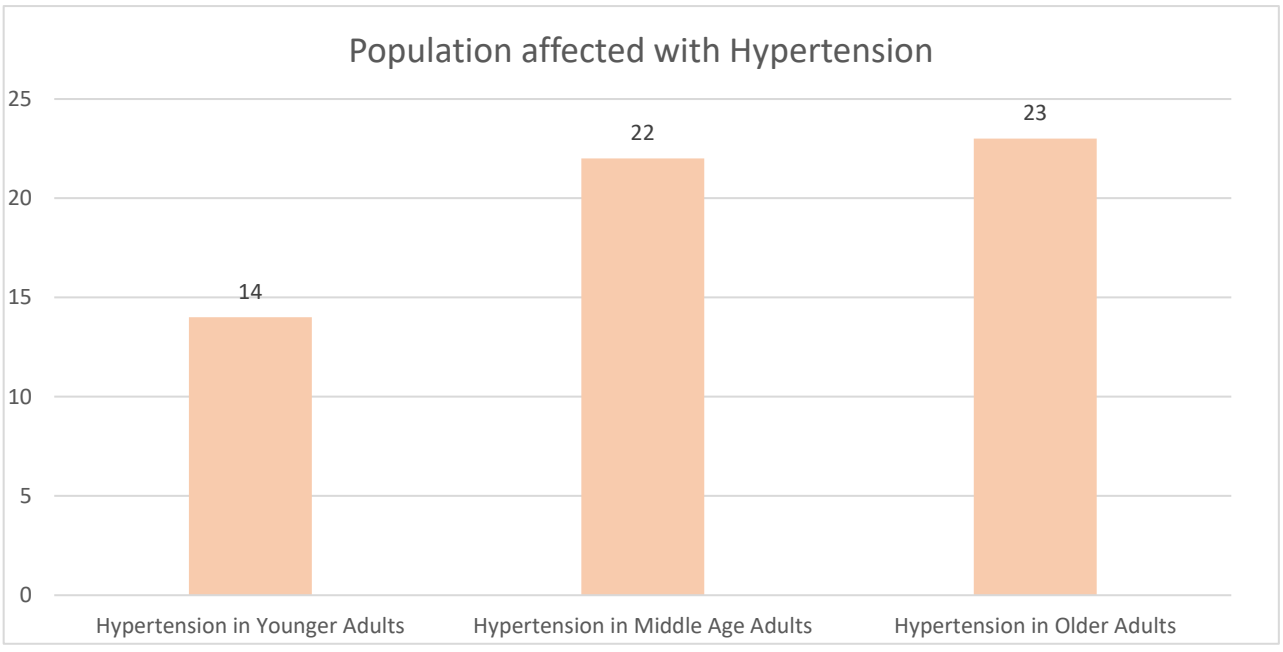
To compare the risk of hypertension in different age groups in urban poor area of Goyala vihar, Delhi

DIFFERENT AGE GROUPS	INDIVIDUALS HAVING HYPERTENSION	INDIVIDUALS EXAMINED	PERCENTAGE
Hypertension in Younger Adults	14	128	**10.90%**
Hypertension in Middle Age Adults	22	106	**20.75%**
Hypertension in Older Adults	23	48	**47.91%**

TABLE 1- Descriptive statistics for different age groups of individuals having hypertension in urban poor area Goyala Vihar, Delhi.

Age groups defined by **National Health and Nutrition Examination Survey** in three categories young adults (18-39) middle age adults (40-59) and older adults. (60 and over)


Percentage Comparison of three groups
10.90%
20.75%
47.91%
Hypertension in Younger Adults
Hypertension in Middle Age Adults
Hypertension in Older Adults


Population affected with Hypertension
25
20
15
10
5
0
14
22
23
Hypertension in Younger Adults
Hypertension in Middle Age Adults
Hypertension in Older Adults

CHI SQUARE TEST done to assess the association of hypertension between middle age groups and older adults.

	HYPERTENSIVE	**NON HYPERTENSIVE**	**MARGINAL ROW TOTALS**
MIDDLE AGE ADULTS	22 (30.97) [2.6]	84 (75.03) [1.07]	106
OLD AGE ADULTS	23 (14.03) [5.74]	25(33.97) [2.37]	48
MARGINAL COLUMN TOTALS	45	109	154 (GRAND TOTAL)

Data is interpreted from social statistic calculator.

The chi-square statistic is 11.7856. The p-value is .**000597.** Significant at p < .05.

The chi-square statistic with Yates correction is 10.5089. The p-value is .001188. Significant at p < .05.

RESULTS & CONCLUSIONS

Hypertension is a major risk factor for cardiovascular disease. Lowering blood pressure has been shown to decrease the incidences of stroke, heart attack, and heart failure.

According to National Health and Nutrition Examination Survey (2017–2018) data revealed that Hypertension increased with age: 22.4% (aged 18–39), 54.5% (40–59), and 74.5% (60 and over).

After the data analysis, it was found that 10.9% of the younger adults, 20.75% of the middle age group, and 47.91% of the older adults were affected by hypertension. Chi square test is performed to check the association of hypertension in middle age group and older adults.The p-value came out to be .000597. Significant at $p < .05$.

There is an increased percentage of hypertension in older adults compared to younger and middle age groups in Goyla Vihar Dwarka. Along with that, it can be observed that recently the middle age group population is also getting affected by hypertension, which causes severe diseases with aging. Interventions to raise awareness and to improve both capacity and accessibility of facilities for screening hypertension are highly recommended.

CHAPTER-V: RECOMMENDATION AND LIMITATIONS

RECOMMENDATION

1. Health awareness campaign and male education in area.
2. Yoga, park to be established to enhance physical activity.
3. College students and NGOs visit to such area.
4. Digitalize ASHA work like Anganwadi workers and use of notifications for follow up.
5. To increase awareness of national guidelines for physical activity and sedentary behavior. Educate and encourage use of free sources/ materials to implement positive lifestyle changes towards physical activity as a preventive/ treatment measure to HTN
6. IEC (Information Education and Communication) material on healthy lifestyle habits and benefits of implementation can be provided to individuals and families.
7. Elderly clubs could be set up.

LIMITATION

1. The study would be better if it included more sample size.
2. The blood investigation on (cholesterol, lipids and other) would enhance the finding and would also suggest many precautions to be followed.
3. People were more concerned about diabetes checkup as many individuals already had digital b.p machines at home.

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