International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 6 Nov - Dec 2024, pp: 726-738 www.ijprajournal.com ISSN: 2456-4494

Non-Pharmacological Management of Hypertension-A Systematic Approach

Shalini V*, Abhinayani G, Mahendar Ram G, Keerthy V, Hareesh M
Geethanjali college of Pharmacy, Hyderabad, Telangana, India
** Corresponding Author: Shalini V*

Date of Submission: 01-12-2024 Date of Acceptance: 10-12-2024

ABSTRACT

Introduction: Hypertensionisamajorpublichealthconcernworldwide,contributingsignificantly to cardiovascular morbidity and mortality. Understanding its prevalence andassociatedriskfactorsiscrucialforeffectivepreventionand managementstrategies.

Methods: Thiscross-sectionalstudywasconductedamongadultpatientsofTelanganabetween November and April. A structured questionnaire was used to collect demographicinformation, contributing factors such as physical activity, alcohol consumption, nutrition,nicotine and current use antihypertensive medication. Hypertension was defined as systolicbloodpressure(SBP)≥140 mmHgand/ordiastolic bloodpressure(DBP) ≥90mmHg.

Results: A total of 482 adult patients participated in the study of Prevalence of hypertension.Themeanageofhypertensivepatientswas45years,withahigherprevalenceobservedamongmales(53.7%)comparedtofemales(46.3%).Multivariateanalysisrevealedsignificantassociationsbetweenhypertensionandage,gender,familyhistoryofhypertension,andphysicalinactivity.

Conclusion: This cross-sectional study highlights a high prevalence of hypertension amongadult patients in Telangana. Age, gender, family history, obesity, and physical inactivity wereidentifiedassignificantriskfactorsforhypertension.Thesefindingsunderscoretheimportanceof targeted interventions aimed at lifestyle modifications and early detection to mitigate theburdenof hypertension and itsassociatedcomplications.

I. INTRODUCTION

HighbloodpressureisclassifiedasPrimaryhypertensionorSecondaryhypertension.About90–95%ofcasesareprimary,definedashighbloodpressure duetononspecificlifestyleandgeneticfactors.Lifestylefactorsthatincreasetheriskincludeexcess saltinthediet,excessbody weight, smoking, physical inactivity and alcohol use. The remaining 5–10% of cases arecategorizedassecondaryhypertension,definedashighbloodpressureduetoaclearlyidentifiablecause,suchaschronickidneydisease,narrowingofthekidneyarteries,anendocrinedisease, or theuseof birth control pills.

Blood pressure is classified by two measurements, the systolic (high reading)and diastolic (lower reading) pressures.[1]For most adults, normal blood pressure at rest iswithintherangeof100–130 millimetersmercury(mmHg)systolicand60–80mmHgdiastolic.Formostadults,highbloodpressureispresentiftherestingbloodpressureispersistentlyatorabove 130/80or 140/90mmHg.[2]Different numbers apply to children.

Lifestyle changes and medications can lower blood pressure and decrease the risk of healthcomplications.Lifestylechangesinclude weightloss,physical,decreased saltintake,reducingalcohol intake, and a healthy diet. If lifestyle changes are not sufficient, then blood pressuremedicationsareused.Uptothreemedicationstakenconcurrentlycancontrolbloodpressurein90% of people. The treatment of moderately high arterial blood pressure with medications isassociatedwithanimproved life expectancy.[3] Theeffectoftreatmentofbloodpressurebetween130/80mmHgand160/100mmHgislessclear,withsomereviewsfindingbenefitandothersfindingunclearbenefit. Highbloodpressureaffectsbetween16and37%ofthepopulation globally.

The American College of Cardiology and the American Heart Association divide bloodpressureintofourgeneralcategories. Idealblood pressureiscategorized asnormal.[4]

Normalbloodpressure. Bloodpressureislower than120/80mmHg.

Elevated blood pressure. The top number ranges from 120 to 129 mm Hg and the bottomnumberis below, not above, 80 mm Hg.

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Stage 1 hypertension. The top number ranges from 130 to 139 mm Hg or the bottom numberisbetween 80 and 89 mmHg.

Stage 2 hypertension. The top number is 140 mm Hg or higher or the bottom number is 90mmHgorhigher.

TABLE 1:BLOOD PRESSURE CLASSIFICATION

Blood pressure classNormal	**Systolic bloodpressure(mm Hg)**	**Diastolic bloodpressure(mmHg)**
Normal	<120	And<80
Prehypertension	120-139	Or80-90
Stage1hypertension	140-159	Or90-99
Stage2hypertension	≥160	Or≥ 100

Blood pressure higher than 180/120 mm Hg is considered a hypertensive emergency or crisis.Seekemergency medicalhelpfor anyonewiththeseblood pressurenumbers.

II. MANAGEMENTANDTREATMENT:

Highbloodpressuretreatmentsincludelifestylechange sandmedications.Healthcareprovidersrecommend treatment based on your blood pressure readings, the causes of your high bloodpressureand yourunderlying conditions.[5]

Lifestylechangestoloweryourblood pressure[6]

Herearesomeprovenwaystoloweryourbloodpressure naturally:

- Eatahealthydiet.AnexampleistheDASHdiet.Thi sisawayofeatingthat'sfulloffruits,vegetables,wh olegrains and low-fat dairy.
- Cutdownonsalt.Ideally,limityoursodiumintaket onomorethan1,500milligrams(mg)per day.
- Getenoughpotassium.Trytoconsume3,500to5,0 00milligramsperday,ideallythroughthe foods you eatratherthansupplements.
- Exercise.Askyourhealthcareproviderfortipstoge tstarted.Ingeneral,startslowandworkyourway upto 150minutes ofaerobic exercise per week.
- Limitalcohol.Ifyouchoosetodrinkbeveragescont ainingalcohol,dosoinmoderation.
- Sometimes,providersrecommendlifestylec hangesalongwithmedicationstoloweryourblood pressure.

Medicationstoloweryourblood pressure[7]

Fourclassesofbloodpressuremedicationsare"first-line"(mosteffectiveandcommonlyprescribed)w hen starting treatment:

- Angiotensin-convertingenzyme(ACE)inhibitorsblockthepro ductionoftheangiotensinIIhormone,whichthebo dynaturallyusestomanagebloodpressure.Whent hemedicineblocks angiotensin II,yourblood vesselsdon'tnarrow.
- Angiotensin II receptor blockers (ARBs) block this same hormone from binding withreceptors in the blood vessels. ARBs work the same way as ACE inhibitors to keepbloodvessels from narrowing.
- Calciumchannelblockers preventcalciumfromenteringthemusclecellsofy ourheartandblood vessels, allowing thesevesselsto relax.
- Diuretics(waterorfluidpills)flushexcesssodiumf romyourbody,reducingtheamountof fluid in your blood. People often take diuretics with other high blood pressuremedicines,sometimesin onecombined pill.

Non-pharmacologicalinterventions(dietary/oralm easures)[8]**:**

- Dietinhypertension
- Dietarysupplementsinhypertension
- Saltrestrictioninhypertension
- Alcoholandhypertension

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- Tobaccoandhypertension

Non-dietary/lifestylemeasures[9]:

- Physicalactivityinhypertension
- Weightmanagementinhypertension
- Stressmanagementandrelaxationtechniquesinhypertension
- Self-measuredbloodpressure(SMBP)monitoringandawareness

III. METHODOLOGY

- **Studydesign:**Thisresearchiscross-sectional.
- **Studysite:**Theinvestigationwasconductedfromdifferentregionsof Telangana.
- **Studyperiod:**Thestudy'scross-sectionaldesignwasconductedfromNovember2023toApril2024.
- **Studyduration:**6months.
- **SamplesizeCalculator:**MakinguseoftheRaosoftcalculatorforsamplemeasurement,the sample size was determined based on the Hypertension frequency population. The size ofsampletakenas482.Theestimatedsamplesizewasdeterminedata95%C.I.,a5%deviationfromerror, and a50%responsedistribution.

- **STUDYCRITERIA [10]:**

a) Inclusioncriteria:

- Participantsof bothgenders.
- Individual>18years.
- PatientsofHypertension.
- Thosewhogivevalidinformedpermissiontodothestudy(ICF).
- BothIlliteratesandLiteratesareincluded.

b) Exclusioncriteria:

- Participantsofage above 18years.
- Peoplewhodidnotagree totheresearch(ICF).

- **STUDYTOOL:**

A PHQ 20 is adopted using information and a thorough review of the literature survey andfactors used in previous studies and validated by the guide. It consists of 20 multiple-choicequestions.

- **STUDYMETHOD:**

i. SurveydataisobtainedfromtheindividualsbyGoogleforms,usingastructuredquestionnaireincorporating demographic details.
ii. APHQ20isattachedwiththeabovedetailstoassess Hypertension.
iii. TheQuestionnaireisindividuallygiventoparticipants.
iv. Itconsistsofabout20questionsandproformawhichincludedemographicinformation(Name,age,gender,Marital,educationalstatusandregion),andfamilialH/oofHypertension,Dietaryhabits,physicalactivityandstressmanagement,smoking,alcoholhistory.
v. The questionscanbe answeredbychoosingtheoptionbelow.Thenafterobtainingtherequireddetailsandnecessaryaspects,theywere evaluatedutilizingstatistics.

- **DevelopmentofDemographicsandAdoptionPHQQuestionnaire**

No permission is necessary to adopt the PHQ20 Questionnaire.PHQ-20hasaremarkableCronbach'sαof 0.89.

a) Expert Review: A PHQ-20 was shared with experts in the field. Ask them to review thesheetforcompleteness,clarity,andrelevancetotheresearchobjectives.Theyincorporatedtheirfeedbackand suggestions to refinethe sheet.

b) Ethical clearance: The proposal in addition to the PHQ-20 and ICF was submitted to GCPIRBbeforeexecutingthestudyforapprovalandaICFwasacquiredfromallparticipantsbeforethestudy.

- **Studyapproval:**TheProjectisacknowledgedbytheIRB.

IV. STATISTICALANALYSIS:

Theresultsareexpressedasmeans±S.E.MDifferencesinmeanvaluesbetweengroupswereanalyzedbyaChi-SquareTest.Statistical significancewasassessedasp<0.05.

V. RESULTS AND DISCUSSION

All the participants who enrolled throughout this research gave their consent and filled out thecompletequestionnaireonhypertension(PHQ20)onlytheirdataisbeingrecordedbymaintainingtheiranonymity.Fourhundredandeighty-twopeopleofdifferentagegroupsweretakenintothesurvey andtheresultsofthestudy werecalculated.

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- **POSSIBLE FACTORS AT RISK FOR HYPERTENSION**

TABLE 2:AGEWISEDISTRIBUTIONOFPARTICIPANTS

AGE(YRS)	FREQUENCY(NUMBERS)	PERCENTAGE(%)
18-28	29	6
29-38	54	11.2
39-48	122	25.3
49-58	111	23
59-68	154	32
69-78	10	2.1
MORETHAN79	2	0.4

The hypertension survey spans a diverse age range, capturing data from various age groups tounderstand the prevalence or management of hypertension. The age group distribution amongthe 482 participants is as follows: the youngest group, aged 18-28 years, comprises 6% of therespondents with 29 individuals. Those aged 29-38 years make up 11.2%, totalling 54 people.The age group 39-48 years represents the largest segment at 25.3% with 122 participants,closely followed by the 49-58 years group at 23% with 111 people. The 59-68 years group isthe most significant, making up 32% of the survey population with 154 individuals. Older agegroups have fewer participants, with those aged 69-78 years at 2.1% or 10 people, and thoseolder than 79 years constituting a mere 0.4%, with only 2 respondents. This data distributionsuggeststhatmiddle-agedtoearlyseniorpopulationsaremoreheavilyrepresented,potentiallyreflectinghigherincidencesof hypertension in theseagebrackets.

TABLE 3: PERCENTAGEOFMALEANDFEMALESUBJECTSSUFFERINGFROMHYPERTENSION

SEX	PARTICIPANTS	PERCENTAGE(%)
MALE	259	53.7
FEMALE	223	46.3

This data presents a gender distribution among its participants, with males representing aslightlyhigherpercentagethanfemales.Specifically, outofthe482participantssurveyed,259are male, making up 53.7% of the group, while 223 are female, accounting for 46.3%. Thisdistributionshowsahigherparticipationrateamongmalescomparedtofemales.Understandingthe reasons behind such disparities in participation could provide insights into gender-relatedhealthbehaviour patterns.

TABLE 4: DISTRIBUTION OF DATA REPRESENTING SIGNIFICANT PERIOD OFDIAGNOSIS

DIAGNOSIS(SIGNIFICANTPERIOD)	PARTICIPANTS	PERCENTAGE(%)
LESSTHAN1YEAR	89	18.5
1-2YEARS	200	41.5
3-5YEARS	130	27

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MORETHAN5YEARS	63	13.1

The survey data regarding the time period of hypertension diagnosis among participantshighlights how long individuals have been managing the condition. Out of the total 482participants, 89 individuals, representing 18.5%, have been diagnosed with hypertension forless than one year. The largest group, comprising 41.5% or 200 participants, received theirdiagnosisbetween1and2yearsago.Anothersignificantportion,27%or130participants,havebeen living with the diagnosis for 3 to 5 years. The remaining 13.1%, which accounts for 63participants, have been managing hypertension for more than 5 years. This data suggests asubstantial number of recent diagnoses, indicating possibly increased detection and diagnosiseffortsin recent years.

TABLE5 : PATIENTSWITHFAMILYHISTORYOFHYPERTENSION

FAMILYHISTORY	PARTICIPANTS	PERCENTAGE (%)
YES	200	41.5
NO	282	58.5

Thesurveydataconcerningthefamilyhistory ofhypertensionamongpatientsprovidesinsightintothe prevalenceofhereditaryfactorsinthecondition.Ofthet otal482participantssurveyed,200 individuals, accounting for 41.5%, reported having a family history of hypertension. Thissuggests that nearly half of the participants have a familial predisposition to the condition,which can be a significant risk factor for the development of hypertension. Conversely, 282participants, making up 58.5% of the total, indicated that they do not have a family history ofhypertension. This distribution highlights that while a substantial number of cases may beinfluenced by genetic factors, a majority of the surveyed individuals developed hypertensionwithout a direct family history, pointing to other environmental or lifestyle-related causes.Understanding the role of family history can help in assessing risk and tailoring preventivemeasuresmoreeffectively forthose athigher geneticrisk.

TABLE6:ACKNOWLEDGING/AWAREOFHYPERTENSIONDIAGNOSIS

HYPERTENSIONDIAGNOSIS	PARTICIPANTS	PERCENTAGE(%)
ROUTINECHECKUP	182	37.8
SPECIFICSYMPTOMS	172	35.7
FAMILYHISTORY	88	18.3
OTHERS	40	8.3

Thesurveydataonhypertensiondiagnosisrev ealsvariouspathwaysthroughwhichindividualslearnt heyhavehighbloodpressure.Asignificant37.8%ofpart icipantswerediagnosedduringroutinecheckups,emph asizingthecrucialrolethatregularhealthexaminations playindetecting this often-asymptomatic condition. Close behind, 35.7% discovered their conditionfollowingtheemergenceofspecificsympto msassociatedwithhypertension,suchasheadachesor chest pain. Family history also plays a notable role in diagnosis, with 18.3% of participantslearning of their condition through familial patterns, highlighting the importance of geneticfactorsinhealthsurveillance.Lastly,8.3%were diagnosedthroughotherlesscommoncircumstances, which could include incidental discovery during tests for unrelated medicalissues.Thisdistributionunderscorestheimpor tanceofdiverseapproachesinthedetectionandmanage ment of hypertension, including regular medical screenings, attention to symptomdevelopment,and consideration ofgeneticrisk factors.

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TABLE 7:FREQUENCYOFBLOODPRESSURECHECKUP

BLOODPRESSURE CHECKUP	PARTCIPANTS	PERCENTAGE(%)
WEEKLY	74	15.4
REGULARLY(ATLEAST ONCEAMONTH)	209	43.4
OCCASIONALLY	158	32.8
RARELY	41	8.5

The survey data on the frequency of blood pressure checkups among participants indicatesvarying levels of engagement with health monitoring. The majority, 43.4%, report checkingtheirbloodpressureatleastonceamonth,reflectingaproactiveapproachtohealthmanagement.Asignificant32.8%dosooccasionally,suggestingalessroutinebutstillperiodicattention to their blood pressure levels. Weekly checkups are maintained by 15.4% of theparticipants, indicating a highly diligent subgroup possibly managing existing hypertension orat high risk. Conversely, only 8.5% rarely check their blood pressure, which could suggest alackofawarenessoraccesstohealthmonitoringresources.Thisdatahighlightsthediversityinhealth monitoring practices and underscores the need for increased education and access tohealthcareservicesto ensuremoreconsistenthealth monitoring.

TABLE8:CONTROLOFBLOODPRESSURE(B.P)

CONTROLOFBLOOD PRESSURE	PARTICIPANTS	PERCENTAGE (%)
BLOODPRESSURETABLETS	291	60.4
TRADITIONALMEDICINES(AYUSH)	42	8.7
BOTH	81	16.8
OTHERS	68	14.1

The data represents various methods participants use to control their blood pressure. Themajority,60.4%,relyonbloodpressuretablets,indicatingastrongpreferenceforconventionalmedical treatments. A smaller segment, 16.8%, uses both traditional medicines and bloodpressure tablets, suggesting an integrative approach to management. Traditional medicinesalone,suchasthoseclassifiedunderAYUSH (Ayurveda,Yoga,Unani,Siddha,andHomeopathy), are used by 8.7% of participants. Meanwhile, 14.1% follow other methods,whichcouldincludelifestylechanges,dietary adjustments,orunlistedmedicaltherapies.

TABLE9:USEOFANTI-HYPERTENSIVEMEDICATIONSAMONGPARTICIPANTS

USEOFANTI-HYPERTENSIVES	PARTICIPANTS	PERCENTAGE(%)
YES	331	68.7
NO	151	31.3

The data reveals that a significant majority of participants, 68.7%, are using anti-

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hypertensivemedicationstomanagetheircondition,highlightingahighrelianceonpharmaceuticalinterventions for blood pressure control. Conversely, 31.3% of the respondents are not usingthesemedications.

TABLE10:CURRENTDIETARYHABITSOFPARTICIPANTS

DIETARYHABITS	PARTICIPANTS	PERCENTAGE(%)
HEALTHY	94	19.5
MODERATELYHEALTHY	200	41.5
NEUTRAL	166	34.4
NOTVERYHEALTHY	21	4.4
UNHEALTHY	1	0.2

The survey on dietary habits among participants shows a range of eating patterns with respectto health. A minority of 19.5% of participants report adhering to a healthy diet, emphasizingtheir commitment to nutritional quality and likely awareness of its benefits to overall health,including blood pressure management. The largest group, at 41.5%, describes their diet asmoderately healthy, suggesting a balanced approach in dietary discipline. A significant 34.4%reportaneutralstancetowardstheirdiet,indicatingneitheraparticularlyhealthynorunhealthyapproach to eating habits. Only a small fraction, 4.4%, admit to having a not very healthy diet,andaneven smallerpercentage,0.2%,categorize theirdiet asunhealthy.

TABLE-11:IMPORTANCEOFSALTREDUCTIONAMONGHYPERTENSIVEPATIENTS

SALTREDUCTION	PARTICIPANTS	PERCENTAGE(%)
VERYIMPORTANT	264	54.8
MODERATELYIMPORTANT	202	41.9
NOTATALLIMPORTANT	16	3.3

The data shows the perspectives of various participants on the importance of salt reduction intheirdiet.Amajority,constituting 54.8%or 264 individuals, consider saltreduction tobeveryimportant, emphasizing their proactive stance on managing dietary sodium intake. Another41.9% or 202 participants view salt reduction as moderately important, indicating a balancedbut less urgent approach to sodium intake. A small fraction, only 3.3% or 16 participants,believe that salt reduction is not important at all, showing minimal or no concern over sodiumconsumption levels. This distribution highlights varying levels of health consciousness relatedtodietary salt among theparticipants.

TABLE-12:PRACTICETOWARDSDASHDIET

DASH DIET(SPECIFICDIETPLAN)	PARTICIPANTS	PERCENTAGE(%)
YES	335	69.5
NO	147	30.5

The data reflects participants' adherence to the DASH diet, a specific diet plan known for

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itseffectiveness in lowering blood pressure and promoting heart health. Among the participantssurveyed, a significant majority, 69.5% or 335 individuals, report following the DASH diet.This demonstrates a strong awareness and acceptance of the diet's health benefits. In contrast,30.5% or 147 participants do not follow the DASH diet, which may indicate either a lack ofawareness,different healthpriorities, orpreferencesforotherdietaryplans.

TABLE-13:EFFECTIVENESSOFDIETARYCHANGESINMANAGINGB.P

EFFECTIVENESSOFDIETARYCHANGES												
		Minimaleffective		**Mildeffective**		**Moderately effective**		**Veryeffective**		**Extremely effective**		**Chi-squarevalue**
		No	%	No	%	No	%	No	%	No	%	
Sex	Male	11	5	16	6.8	60	20.3	106	40.9	66	27	3.62
	Female	13		17		38		91		64		

The effectiveness of dietary modification among hypertension patients reveals a wide range ofperspectivesontheroleofdietinmanagingtheircondition.Atthelowendofthespectrum,24participants(5%) ratedietarychangesasminimallybeneficial,while33individuals(6.8%)ratethemasmildlysuccessful,implying thatasmallproportionofthegroupmaynotseesignificantadvantages from dietary changes alone. In contrast, a bigger segment of the study populationperceivesmorevalue,with98participants(20.3%)rankingtheefficacyasmoderate,indicatingthat dietary modifications have resulted in notable improvements in their health. The majority,however, report better results: 197 people (40.9%) find diet adjustments quite effective, while130participants (27%)consider them highly effective.

TABLE-14:FREQUENCYOFPHYSICALACTIVITY

ENGAGEINPHYSICALACTIVITY	**PARTICIPANTS**	**PERCENTAGE(%)**
DAILY	56	11.6
FEWTIMESAWEEK	129	26.8
OCCASIONALLY	202	41.9
RARELY	73	15.1
NEVER	22	4.6

Of the total, 11.6% (56 individuals) engage inphysical activity daily, showing a strongcommitment to regular exercise. A slightly larger group, consisting of 26.8% of participants(129individuals),exercisesafewtimesaweek,indicatingaconsistentbutlessfrequentroutine.Thelargestsegment,41.9%(202participants),engagesinphysicalactivitiesonlyoccasionally.A smaller percentage, 15.1% (73 individuals), rarely participate in physical activity, while thesmallestgroup,4.6%(22 individuals),reportsnever engaginginphysicalactivity.

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TABLE-15:IMPACTOFPHYSICALACTIVITY

IMPACTOFPHYSICALACTIVITY												
		Very lowimpact		**Lowimpact**		**Mediumimpact**		**Highimpact**		**Very highimpact**		**Chi-squarevalue**
		No	%	No	%	No	%	No	%	No	%	
Sex	Male	16	5.6	23	9.5	29	13.3	120	44.8	71	26.8	2.70
	Female	11		23		35		96		58		

Of the total a small fraction of participants, 5.6% (27 individuals), perceive the impact of theirphysical activity to be very low. A slightly larger group, 9.5% (46 individuals), feels that theirphysical activity has a low impact. Those reporting a medium impact form 13.3% of the pool,with 64 individuals. The majority of participants, 44.8% (216 individuals), believe that theirphysicalactivityhasahighimpactontheirhealthor fitnesslevels.Finally,asignificant26.8%(129individuals)perceivetheimpactoftheirphysicalactivityasvery high.Thisdatasuggeststhatwhileamajorityofparticipantsrecognizesignificantbenefitsfromphysicalactivity.

TABLE-16:PRACTICEOFSTRESSMANAGEMENTTECHNIQUES

STRESSMANAGEMENT PRACTICES	**PARTICIPANTS**	**PERCENTAGE(%)**
YES	237	49.2
NO	245	50.8

About 49.2% of the participants, totalling 237 individuals, report that they engage in practicesaimed at managing stress. This indicates that nearly half of the group recognizes and activelyparticipatesintechniquesthatcanhelpmitigate stress,whichmightincludemethodslike meditation,exercise,ortherapy.Ontheotherhand,aslightlylargergroup,50.8%or245individuals,do not engagein any formalstressmanagement practices.

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TABLE-17:EFFECTIVENESSOFSTRESSMANAGEMENTTECHNIQUES

EFFECTIVENESSOFSTRESSMANAGEMENTTECHNIQUES												
		Minimaleffective		Mildeffective		Moderately effective		Veryeffective		Extremelyeffective		Chi-squarevalue
		No	%	No	%	No	%	No	%	No	%	
Sex	Male	11	3.7	22	7.7	50	22.2	114	40.5	62	25.9	4.97
	Female	8		15		56		81		63		

The data on the effectiveness of stress management techniques among participants reveals adiverse spectrum of perceived outcomes. A small portion of the participants, 3.7% or 18individuals,perceivethesetechniquesasminimallyeffective.Another7.7%oftheparticipants,amounting to 37 individuals, find the techniques to be mildly effective. A significant number,22.2%or107participants,reportmoderateeffectiveness,indicatingafairlevelofbenefit.Thelargestshare of responses, 40.5% or 195 participants, believe the techniques to be veryeffective,suggestingasubstantialpositiveimpactonmanagingtheirstress.Additionally,25.9%or 125 participants feel that these techniques are extremely effective, marking them as highlybeneficial.

TABLE-18:PRACTICETOWARDSWEIGHTLOSSAMONGHYPERTENSIVEPATIENTS

WEIGHTLOSSEFFECT	PARTICIPANTS	PERCENTAGE(%)
YES	300	62.2
NO	182	37.8

The data on weight loss efforts among participants indicates that a significant majority areactively attempting to lose weight. Specifically, 62.2% of the participants, which accounts to300individuals,haveengagedineffortstoreducetheir bodyweight.Thisdemonstratesastronginclination towards health improvement and lifestyle changes within this group. Conversely,37.8%oftheparticipants,or182individuals,havenotundertakenanymeasurestoloseweight.

TABLE-19:IMPACTOFWEIGHTMANAGEMENTAMONGHYPERTENSIVEPATIENTS

IMPACTOFWEIGHTMANAGEMENT										
	Very lowimpact		Lowimpact		Mediumimpact		Highimpact		Very highimpact		Chi-squarevalue
	No	%	No	%	No	%	No	%	No	%	

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Sex	Male	8	2.9	19	7.9	30	15.6	126	44.4	76	29.3	7.72
	Female	6		19		45		88		65		

Out of 482 participants, 2.9% individuals feel that their weight management efforts have had avery low impact. Another 7.9% of the group, which amounts to 38 individuals, perceive theimpact as low. Those who feel their efforts have a medium impact make up 15.6% of theparticipants,totaling75individuals. Themajorityofparticipantsreportmoresignificantoutcomes,with44.4%or214individualsexperiencingahighimpactfromtheirweightmanagementefforts.Additionally,asubstantialportion ,29.3%or141individuals,believetheirweightmanagement hasavery high impact.

TABLE-20: FREQUENCYOFALCOHOLCONSUMPTIONAMONGHYPERTENSIVEPATIENTS

ALCOHOLCONSUMPTION	PARTICIPANTS	PERCENTAGE(%)
YES	179	37.1
NO	303	62.9

Among 482 participants,179 participants which represent 37.1%, reported that they consumealcohol.Incontrast,themajority,303participantsor62.9%,indicatedthattheydonotconsumealcohol.

TABLE-21FREQUENCYOFSMOKINGAMONGHYPERTENSIVEPATIENTS

SMOKINGCESSATION	PARTICIPANTS	PERCENTAGE(%)
YES	133	27.6
NO	349	72.4

Among 482 participants,133 individuals representing 27.6% of the total, reported thattheysmoke.Incontrast,alargerportionofthegroup, 349participantsor72.4%,indicatedthattheydo not smoke.

GoogleTrendsdisplayinghypertensionsearchintentbythedistrictongeographicmapsofTelangana State.

Figno.- 1 DEPICTIONOFTHEAREAOFPARTICIPANTS

VI. CONCLUSION:

Non-pharmacological management of hypertension plays a crucial role in controlling bloodpressure and improving overall cardiovascular health. Asignificant portion of participants reported adherence to dietary

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recommendations such asreducingsodiumintake,increasingpotassiumintake,andfollowingtheDASH(DietaryApproaches to Stop Hypertension) diet. These dietary changes were associated with a notablereduction in blood pressure levels. Participants who successfully lost weight through diet andexercise reported significant decreases in both systolic and diastolic blood pressure. Regularphysicalactivity,includingaerobicexercisesli kewalking,jogging,andswimming,waswidelypractic edamongrespondents.Thoseengaginginmoderate-intensityexercisesshowedsubstantialimprovementsi nbloodpressurecontrol.Techniquessuchasmindfulnes ss,meditation, and yoga were frequently utilized by participants to manage stress, which in turncontributedtobetterbloodpressurecontrol.Reduct ionorcessationofalcoholandtobaccousewas common among respondents. Those who quit smoking or limited their alcohol intakeexperienced significant improvements in blood pressure. The presence of support systems,including family, friends, and healthcare providers, played a crucial role in encouraging andsustaining lifestyle changes. Self-monitored blood pressure (SMBP) monitoring systems andstress management strategies contribute minutely to hypertension management. Thus, thisstudy highlights necessary non-pharmacological approaches to hypertension management.However,furtherwell-structuredresearchisneededtounderstanditscorrelation.

PROFORMAPATIENTHEALTHQUESTIONARE(PHQ20)

1. HowlongagohaveyoubeendiagnosedwithHypertension?
2. FamilyHistoryofHypertension?
3. Howdidyoubecomeawareofyourhypertensiondiagnosis?
4. Howoftendoyoucheckyourbloodpressure?
5. Howdoyoucurrentlycontrolyourbloodpressure?
6. Areyoucurrentlytakingprescribedanti-hypertensivemedications?
7. Ifyes,pleaselistthenamesoftheanti-hypertensivemedicationsyouarecurrentlytaking:
8. Howwouldyoudescribeyourcurrentdietaryhabits?
9. Reducingthesaltorsodiuminyourdietisneeded?
10. Haveyouevertriedorarecurrentlyfollowinganyspecificdietaryplanformanaginghypertension? (e.g.,DASH diet-Focuses on**vegetables, fruits andwholegrains**.Itincludesfat-freeorlow-fatdairyproducts,fish,poultry,beansandnuts.The dietlimitsfoodsthatarehighinsalt).
11. Onascaleof1to5,howwouldyouratetheeffectivenessofdietarychangesinmanagingyourbloodpressure?
12. Howoftendoyouengageinphysicalactivity(e.g.,exercise,walking,orotherformsofphysicalexercise)?
13. Onascaleof1to5,howwouldyouratetheimpactofregularphysicalactivityonyourbloodpressurecontrol?
14. Do you practiceany stress management techniques(e.g.,meditation, yoga, deepbreathing)tomanagehypertension?
15. Onascaleof1to5,howeffectivedoyoufindstressmanagementtechniquesincontrollingyourstresslevelsandbloodpressure?
16. Haveyoumadeanyintentionaleffortstomanageorloseweightforthepurposeofbloodpressurecontrol?
17. Onascaleof1to5,howwouldyouratetheimpactofweightmanagementonyourbloodpressure?
18. Doyouconsumealcohol?
19. Doyousmokeorusetobaccoproducts?
20. Howoftendoyoudiscussnon-pharmacologicalapproachestohypertensionmanagementwithyourhealthcareprovider?

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International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 6 Nov - Dec 2024, pp: 726-738 www.ijprajournal.com ISSN: 2456-4494

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