Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 3 (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Knowledge, Attitude and Practice of Structured Physical Activity in Patients with Hypertension

Ms. E. Sheeba[1], Mrs. S. Sridevi[*2], Dr. T. Senthilkumar[3], Dr. N. Venkatesh[4]

[1]Post-graduate, Faculty of Physiotherapy, Sri Ramachandra Institute of Higher Education and Research
https://orcid.org/0009-0006-8025-3148
[*2]Associate Professor, Faculty of Physiotherapy, Sri Ramachandra Institute of Higher Education and Research
[3]Associate Professor, Faculty of Physiotherapy, Sri Ramachandra Institute of Higher Education and Research
[4]Professor, Faculty of Physiotherapy, Sri Ramachandra Institute of Higher Education and Research
***Corresponding Author:**
Email ID: devibsmoorthy@sriramachandra.edu.in

Cite this paper as: Ms. E. Sheeba, Mrs. S. Sridevi, Dr. T. Senthilkumar, Dr. N. Venkatesh, (2025) Knowledge, Attitude and Practice of Structured Physical Activity in Patients with Hypertension. *Journal of Neonatal Surgery*, 14 (3), 1-10.

ABSTRACT

Background: Hypertension is a commonly prevalent non-communicable disease, associated with a sedentary lifestyle. Sufficient physical activity (PA) and lifestyle changes are essential to prevent and manage hypertension. There is less to no awareness about Physical activity in general population, which warrants the need to find the levels of Knowledge, Attitude and the Practice of Physical activity in patients with hypertension.

Aim Of The Study: To identify the Knowledge, Attitude and Practice of Structured Physical activity in patients with hypertension.

Methodology: 256 Hypertensive patients of both genders, of age 18 to 70 with a clinical history of $\geq$ 10 months were included. The demographic and other basic data was obtained. The participants filled the self-developed survey-questionnaire. Based on the participants' responses, their knowledge, attitude and practice of Structured Physical Activity were identified.

Results: The knowledge about importance of physical activity in hypertension is poor in 88.6% and good in 11.4% of population. 37.1% of population had positive attitude and 62.9% had negative attitude about physical activity. Only 39.5% of population is already practicing a structured physical activity. 62.1% had low PA, 36.7% had Moderate PA and only 1.2% of population had High PA levels.

Conclusion: Patients with Hypertension have a poor knowledge and majority of them have a negative attitude towards PA. Those with a good knowledge about PA, have positive attitude towards PA and are having moderate PA levels, but didn't practice a structured PA to manage hypertension, neither do meet the recommended PA levels.

Keywords: *Knowledge, Attitude, Practice, Structured Physical Activity, Hypertension*

1. INTRODUCTION

Hypertension is prevalent among 2.5 million in Indian population [1]. Hypertension has the strongest evidence for causation of Cardio-vascular diseases, Chronic Kidney Disease, and Stroke [2].

Physical activity (PA) has been recommended by several organizations as a cornerstone of non-pharmacologic therapy for hypertension [3]. Hypertension is closely associated with inactive and sedentary lifestyle with energy expenditures of ≤1.5 METs [4], [5]. National hypertension management recommendations are salt restriction, weight reduction, physical activity, reduced alcohol consumption, non-smoking, healthy diet and stress control [6] , [7].

Recurrent, low bouts of low-intensity physical activity, (10,000 steps everyday) can substantially reduce the blood pressure [8]. A moderate-vigorous PA, for at least 40 minutes/day, 3-4 sessions/week is found to reduce BP significantly [9], [10], [3].

An overall drop of 5 mmHg in SBP is ensured with regular exercise, which reduces the mortality rate [3]. Aerobic exercise training lasting < 4 weeks reduces the SBP up to 8.3 mmHg and DBP up to5.2 mmHg approximately [11].

Since there is a need to identify the knowledge, attitudes and practice of a structured physical activity in hypertensive patients living in the semi-urban regions of Chennai, this survey was done. This study aids the patient to self-assess and motivate them towards increasing their overall physical activity levels every day.

NEED FOR THE STUDY

The increased prevalence of hypertension in India, warrants a need for a study to identify the knowledge, attitude and practice of a proper, structured physical activity, since it is an inexpensive way of non-pharmacological management of hypertension.

AIM OF THE STUDY

To identify the Knowledge, Attitude and Practice of Structured Physical activity in patients with hypertension.

OBJECTIVES OF THE STUDY

To study the knowledge about the physical activity in managing hypertension, to know the patients' attitudes towards a structured physical activity and to identify the practice of a structured physical activity.

To find out the physical activity levels in patients with hypertension and to correlate it with their knowledge, attitude and practice of structured physical activity.

2. MATERIALS AND METHODS

Ethical approval was obtained from the Institutional Ethics Committee (CSP/23/FEB/122/100) and registered with Clinical Trial Registry of India (CTRI/2023/07/055202).

STUDY TYPE: Institution Based Cross Sectional Study (KAP Survey Method.)

STUDY PERIOD: 3 Months

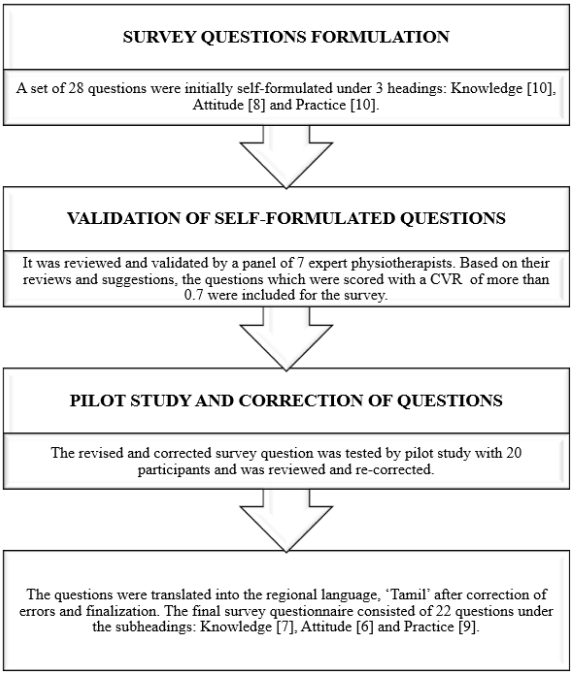
SAMPLE SIZE CALCULATION: USING COCHRAN FORMULA (n= z2pq/d2), the sample size calculated is 256 with 95% CI and 5% of absolute precision.

PROCEDURE:

256 consented patients with Hypertension, attending the Hypertension & Diabetic clinic – OPD were included in the study. Hypertensive patients of both Genders, of age 18 to 70 with a clinical history of $\geq$ 10 months were included; Patients with recent cardiac events, recent hospitalization in the past 2 weeks, severe comorbidities, patients contraindicated to physical activity and pregnant women were excluded from the study.

The Demographic data such as Name, Age, Gender, Marital status and Occupation, Height, Weight, Body mass index (BMI), Body fat percentage were obtained. History on Hypertension, Comorbidities, Medical history, Dietary habits, Sleep patterns, Stress levels and Physical activity levels were collected.

SURVEY QUESTIONS DEVELOPMENT



The collected data were analysed for the Baseline values and each component of the survey questionnaire (Knowledge, Attitude and Practice) was individually analysed and was correlated with the Baseline characters and Physical activity levels for Descriptive analysis.

3. RESULTS

The collected data were analysed with IBM SPSS Statistics for Windows, Version 29.0. (Armonk, NY: IBM Corp). In all the statistical tools the probability value .05*** is considered as significant level.

To describe about the data, descriptive statistics and frequency analysis was used. Percentage analysis was used for categorical variables and the mean & S.D were used for continuous variables. The Independent sample t-test to find the significant difference between the bivariate samples in independent groups, Pearson's Correlation to assess the relationship between the variables, the Fisher's Exact if the expected cell frequency is less than 5 in 2×2 tables, Chi-Square test to find the significance in qualitative categorical data.

Out of the 256 patients with hypertension, 70.3% were females and 29.7% were females with a mean age of 56.2. All of them were on regular medications (100%) and had a history of hypertension with a mean duration of 6.9 years. 67.2 % of population are upper middle class and 19.5 % of them were lower middle class and 10.9 % were lower class in Socio-economic Status (TABLE-1).

TABLE 1: DEMOGRAPHIC DATA

DEMOGRAPHIC DATA (n= 256)	MEAN (STANDARD DEVIATION)
AGE (YEARS)	56.2 (7.9)
BMR (KCAL/MIN)	1420.1 (242.3)
BMI (kg/m2)	26.8 (4.7)
BFP (%)	36.9 (6.1)
DURATION OF HYPERTENSION (years)	6.9 (5.2)
DURATION OF DIABETES (years)	8.4 (5.4)
FBS (mg/dl)	128.7 (34.1)
PPBS (mg/dl)	195.2 (47.1)
DURATION OF DYSLIPIDEMIA (years)	4.9 (3.0)
DURATION OF CAD (years)	5.0 (3.9)
PSS SCORE	9.2 (10.8)
IPAQ (MET MINS/ WEEK)	618.2 (677.2)

***To describe about the data descriptive statistics, the mean & S.D were used for continuous variable. (BMR = Basal Metabolic Rate, BMI = Body Mass Index, BFP = Body Fat Percentage, FBS = Fasting Blood Sugar, PPBS = Post-prandial Blood Sugar, CAD = Coronary Arterial Disease, PSS = Perceived Stress Scale, IPAQ = International Physical Activity Questionnaire)*

Descriptive analysis of each question under Knowledge, Attitude and Practice was done. Only 11.4% of the population have the knowledge about the importance of SPA in hypertension management. Knowledge is poor in the rest 88.6% of hypertensive patients. Positive attitude in 37.1% of population. 62.9% of hypertensive patients have negative attitudes about structured PA in hypertension management. Only *39.5%* of population is already practicing a structured physical activity. Out of the study population, 62.1% had low PA, 36.7% had Moderate PA and 1.2% of had High PA levels (TABLE-2).

TABLE 2: PERCENTAGE ANALYSIS OF PHYSICAAL ACTIVITY CATEGORY

PA CATEGORY (Based on IPAQ) (n=256)	Frequency (n)	Percent (%)
Low	159	62.1
Moderate	94	36.7
High	3	1.2

***Percentage analysis was used for categorical variables of Physical activity levels. (IPAQ = International PA Questionnaire. PA = Physical Activity.)*

Using the Pearson's correlation, the correlation between Physical activity levels and KAP individually were analysed (Table 3) and it found that there is a statistically significant positive correlation between physical activity (IPAQ) and Practice (p .0005) and between Knowledge and Physical activity (p - .0001) and there is no correlation between PA and attitude about structured PA (p - .86) (Table 3).

The Pearson's correlation revealed that a statistically significant correlation exist between Knowledge and Practice (p - .0001) and between Attitude and Practice (p - .0005) (Table 3); also, no correlation among Stress and Attitude & Practice, and among Age & Practice was seen. There is statistically significant correlation between IPAQ and Gender (p 0.001) (Table 3). The independent samples test (t-test for equality of means) found a statistically significant negative correlation between Body types and Attitude on structured PA (p - .004). Pearson's Chi-Square test found that there is correlation between IPAQ and Age categories (p 0.934) and no correlation among the age category and PA levels.

TABLE 3: CORRELATION BETWEEN PHYSICAL ACTIVITY AND KNOWLEDGE, ATTITUDE, PRACTICE OF STRUCTURED PA, STRESS AND AGE

n = 256		**K**	**A**	**P**	**KAP**	**PSS**	**AGE**
IPAQ (MET MINS/ WEEK)	r	.133*	.010	.267**	.227**	-.069	-.045
	p	.034	.868	.0005	.0005	.270	.470
K	r	1	.113	.241**	.638**	.030	-.066
	p		.071	.0001	.0005	.628	.292
A	r		1	.282**	.584**	-.032	-.085
	p			.0005	.0005	.608	.175
P	r			1	.822**	-.047	.036
	p				.0005	.456	.564
KAP	r				1	-.027	-.038
	p					.673	.542
PSS SCORE	r					1	-.138*
	p						.028

**Pearson's correlation. * Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed). IPAQ = International PA Questionnaire. PA = Physical Activity. K = Knowledge, A = Attitude, P = Practice, PSS = Perceived Stress Scale.*

There is a statistically significant correlation between PA category and Practice of Structured Physical Activity.

TABLE: 4 ANALYSIS OF PA LEVELS WITH K, A AND P OF STRUCTURED PA

n=256	**IPAQ**	**Mean (SD)**	**ANOVA (Between Groups) p-value**
Knowledge	Low	14.3(2.5)	.186
	Moderate	14.9(2.7)	
	High	15.0(0.0)	
Attitude	Low	14.2(2.3)	0.91
	Moderate	14.1(1.6)	
	High	14.3(0.6)	
Practice	Low	12.9(3.4)	0.0005***
	Moderate	15.4(3.1)	
	High	17.3(1.5)	

Between groups ANOVA. p < 0.05* is considered as significant level.*

IPAQ = International PA Questionnaire. PA = Physical Activity

4. DISCUSSION

Hypertension is the major risk factor for cardio-vascular diseases, which is a major contributor of morbidity and mortality. With an increasing burden of the disease globally, physical inactivity and sedentary lifestyle has been the major risk factors for developing Hypertension. Reduction of physical inactivity and other lifestyle modifications has become the cornerstones of non-pharmacological intervention for hypertension. Though physical activity is an inexpensive and an effective intervention, there is a less awareness about its importance among the hypertensive population. To find about the patients' pre-existing knowledge, attitudes and practice of structured physical activity (with FITT principle), a KAP survey questionnaire was formulated and the data was collected from 256 hypertensive patients.

The study among 200 young hypertensive patients in Anand City revealed that there is a complete awareness about hypertension, but a less knowledge about the role of aerobic exercise and yoga, and only a few practiced it [12] . In this study, it was found that the majority (43.5%) of the population had poor knowledge on Hypertension and 88.3% had a good knowledge on physical activity. But, the knowledge about the importance of physical activity to manage hypertension is poor in majority. A study among hypertensive patients by Rajan et al., [13] found that positive attitude and practice were observed among the patients except for practice of regular exercise. This study also found that only 39.5% of population is already practicing a structured physical activity regularly.

In a study done among 150 Nigerian population with hypertension, the practice of exercise to control blood pressure was significantly influenced by their knowledge and a negative attitude towards physical exercise [14]. This study found that, majority had negative attitude about physical activity. Also, 60.9% of the population is not willing to participate in a structured PA; only 15.2% of population is reported to be willing, with the remaining population being indecisive. More positive Attitude was associated with good Practice of physical activity.

As per WHO guidelines- 2020, hypertensive patients should perform a moderate intensity aerobic exercise, such as walking for at least 150 minutes per week, i.e. 600 MET minutes/week [15], [16]. The hypertensive patients in our study reported a mean physical activity of 618.2 MET minutes/week, assessed using the IPAQ- short form questionnaire. From this study, 62.1% of the population were sedentary, 36.7% were moderately active and only 1.2 % were physically active.

As the National hypertension recommendations include salt restriction and weight reduction [8], [9] the salt intake and the body fat percentage and BMI were assessed. 70.3% population were females and 29.7 % were males; out of them 75.4 % were not working and 24.6% were working. 98% had mixed dietary preferences and veg being 2% out of which 76.6% had moderate salt intake and only 17.2 % had low salt intake, with 52% of hypertensive patients having low oil intake.

According to the study by Babu et al, among the shared risk factors for hypertension, obesity plays a major role [17]. From our study, with a mean BMI of 26.8 kg/m^2 and mean body fat percentage of 36.9%, 56.3% were obese and 43.8% of them have latent obesity. Hypertension, Diabetes and obesity are correlated by the insulin resistance. Diabetes mellitus can increase blood pressure and control of blood pressure can influence the insulin resistance [18]. Out of the 256 hypertensive patients, 77 % of them had diabetes; 24.6% had dyslipidaemia and 10.9% had cardiovascular diseases.

Repeated exposure to stress has been reported to cause sustained elevation in the blood pressure as well as increase the incidence of hypertension [19]. 51.2% of the study participants reported that stress was one of the reasons for Hypertension with a mean stress score of 9.2 in the Perceived stress scale (PSS) and 10.2 % of them were on medications to manage their stress. But in our study, it has been found that the duration of Hypertension and Stress has no significant association and also there was no correlation among psychological stress and PA. Sleep disruption can significantly increase the likelihood of incidence of hypertension [20]. In our study, only 31.3% patients have a proper sleep of >6 hours and 60.9% have a moderate sleep between 4 to 6 hours, out of which, 72.3% of patients with hypertension have an undisturbed sleep.

Those with a good knowledge and a positive attitude towards PA, were practicing a moderate amount of PA. Most of the hypertensive patients who participated in the study were either obese (n=144) or latent obese (n=112). It has been found that, negative attitude towards PA and lower physical activity levels were seen among obese body types ($p = .004$). No correlation was found between Knowledge and Socio-Economical Status as contradictory to the study by Awotidebe et al.,[19]. There is relatively higher physical activity seen in Males than females ($p = .001$).

Hypertensive patients have the same knowledge and attitude towards SPA, irrespective of their PA levels. But those who have a high levels of PA, follow a good practice of SPA (Table 4). Those with a good knowledge about PA, have positive attitude towards PA and are having moderate PA levels. The patients who were not practicing a proper structured PA and those who were not willing to practice, reported certain barriers such as: physical pain & fear avoidance, lack of time and lack of interest to perform a structured PA. After participating in the survey and being provided with a proper patient education, most of the participants who weren't already practicing a structured physical activity, were willing to increase their physical activity according to their ability.

Thus, an awareness about the importance of a structured physical activity in patients with hypertension needs to be created, and a positive attitude towards physical activity should be inculcated. Regular practice of increase in physical activity in day-to-day life should be ensured, to reduce the burden of non-communicable diseases, especially in Hypertensive population.

CLINICAL IMPLICATIONS:

Since most patients have a less knowledge and negative attitude and poor practice toward a structured PA among Hypertensive patients, a proper Patient education has to be provided to emphasize the practice of a tailor-made progressive increase in structured PA according to the capability of the patient.

FUTURE SCOPE:

Using this KAP survey as a base, future multi-centred studies with larger samples can be done. Campaigns to spread the awareness about the importance of PA and the lurking danger of the Physical inactivity among the population with non-communicable diseases, especially Hypertension should be emphasized.

5. CONCLUSION

This study concludes that, there is a poor knowledge about the importance of PA among Hypertensive patients and majority of the hypertensive patients have a negative attitude towards PA and almost all the population are under obese body type. Most of the hypertensive patients come under the Low physical activity category. Even the population that is under moderate levels of PA, are low in performance of a structured PA.

The hypertensive patients with a good knowledge about PA, have positive attitude towards PA and are having moderate PA levels (MET minutes/week), but didn't practice a structured PA to manage Hypertension, neither meet the recommended PA levels.

There is an urgent need to create an awareness and provide proper patient education about the importance of Physical activity among the hypertensive patients. As a follow up, the population needs to be prescribed with an individualised and structured PA regimen and adherence to it should be ensured using an exercise log. Future surveys with larger sample population are

encouraged.

Funding Statement

This work was supported by Research Supporting Project Number (RSPD2025R585), King Saud University, Riyadh, Saudi Arabia

Author Contribution

Conception: Ms. E. Sheeba, Design: Mrs. S. Sridevi, Data Acquisition: Ms. E. Sheeba, Analysis and Interpretation: Ms. E. Sheeba and Mrs. S. Sridevi, Review: Dr. T. Senthilkumar and Dr. N. Venkatesh

Conflict of Interest

The authors have no conflicts of interest associated with the material presented in this paper.

Declarations

Author(s) declare that all works are original and this manuscript has not been published in any other journal.

REFERENCES

[1] Patel V, Chatterji S, Chisholm D, Ebrahim S, Gopalakrishna G, Mathers C, et al. Chronic diseases and injuries in India. Lancet .. 2011;377(9763):413–28. . https://pubmed.ncbi.nlm.nih.gov/21227486/

[2] Fuchs FD, Whelton PK. High Blood Pressure and Cardiovascular Disease. Hypertension. 2020 Feb 1;75(2):285–92. . https://www.ahajournals.org/doi/abs/10.1161/HYPERTENSIONAHA.119.14240

[3] Alpsoy Ş. Exercise and Hypertension. Adv Exp Med Biol. 2020;1228:153–67. . https://pubmed.ncbi.nlm.nih.gov/32342456/

[4] Diaz KM, Shimbo D. Physical Activity and the Prevention of Hypertension. Curr Hypertens Rep .. 2013 Dec ;15(6):659. . /pmc/articles/PMC3901083/

[5] Lavie CJ, Ozemek C, Carbone S, Katzmarzyk PT, Blair SN. Sedentary Behavior, Exercise, and Cardiovascular Health. Circ Res .. 2019 Mar 1 ;124(5):799–815. . https://pubmed.ncbi.nlm.nih.gov/30817262/

[6] Gee ME, Campbell N, Sarrafzadegan N, Jafar T, Khalsa TK, Mangat B, et al. Standards for the uniform reporting of hypertension in adults using population survey data: recommendations from the World Hypertension League Expert Committee. J Clin Hypertens (Greenwich) .. 2014 Nov 1 ;16(11):773–81. . https://pubmed.ncbi.nlm.nih.gov/25157607/

[7] Ebrahim S, Smith GD. Lowering blood pressure: a systematic review of sustained effects of non-pharmacological interventions. J Public Health Med .. 1998 ;20(4):441–8. . https://pubmed.ncbi.nlm.nih.gov/9923952/

[8] Iwane M, Arita M, Tomimoto S, Satani O, Matsumoto M, Miyashita K, et al. Walking 10,000 steps/day or more reduces blood pressure and sympathetic nerve activity in mild essential hypertension. Hypertens Res .. 2000 ;23(6):573–80. . https://pubmed.ncbi.nlm.nih.gov/11131268/

[9] Tian Y, Zhang Y. The relationship between hypertension and physical activity in middle-aged and older adults controlling for demographic, chronic disease, and mental health variables. Medicine .. 2022 Nov 25 ;101(47):E32092. . https://pubmed.ncbi.nlm.nih.gov/36451488/

[10] Pescatello LS, MacDonald H V., Lamberti L, Johnson BT. Exercise for Hypertension: A Prescription Update Integrating Existing Recommendations with Emerging Research. Curr Hypertens Rep .. 2015 Nov 1 ;17(11). . /pmc/articles/PMC4589552/

[11] Lopes S, Mesquita-Bastos J, Alves AJ, Ribeiro F. Exercise as a tool for hypertension and resistant hypertension management: current insights. Integr Blood Press Control .. 2018 ;11:65. . /pmc/articles/PMC6159802/

[12] Vaghela N, Mishra D, Sheth M, Dani VB. To compare the effects of aerobic exercise and yoga on Premenstrual syndrome. J Educ Health Promot .. 2019 Jan 1 ;8(1). . /pmc/articles/PMC6852652/

[13] J. R, M. S, Raj GM, A. M. Knowledge, attitude and practice of hypertension among hypertensive patients in a tertiary care teaching hospital. Int J Basic Clin Pharmacol .. 2019 Apr 23 ;8(5):1013–8. . https://www.ijbcp.com/index.php/ijbcp/article/view/3259

[14] Awotidebe TO, R. A. A, Rasaq WA, V. O. A, Mbada CE, Akinola OT, et al. Knowledge, Attitude and Practice of Exercise for Blood Pressure Control: a Cross-sectional Survey. Journal of Exercise Science and Physiotherapy .. 2014 Jun 1 ;10(1):1. . https://www.researchgate.net/publication/275964346_Knowledge_Attitude_and_Practice_of_Exercise_for_Bl

ood_Pressure_Control_a_Cross-sectional_Survey

[15] Zhang W, Xu R, Cai Z, Zheng X, Zheng M, Ni C. Association between physical activity and resistant hypertension in treated hypertension patients: analysis of the national health and nutrition examination survey. BMC Cardiovasc Disord .. 2023 Dec 1 ;23(1). . https://pubmed.ncbi.nlm.nih.gov/37286953/

[16] Mengesha MM, Roba HS, Ayele BH, Beyene AS. Level of physical activity among urban adults and the socio-demographic correlates: a population-based cross-sectional study using the global physical activity questionnaire. BMC Public Health .. 2019 Aug 22;19(1). . https://pubmed.ncbi.nlm.nih.gov/31438909/

[17] Babu GR, Murthy GVS, Ana Y, Patel P, Deepa R, Neelon SEB, et al. Association of obesity with hypertension and type 2 diabetes mellitus in India: A meta-analysis of observational studies. World J Diabetes .. 2018 Jan 1 ;9(1):40. /pmc/articles/PMC5763039/

[18] DeFronzo RA, Ferrannini E. Insulin resistance. A multifaceted syndrome responsible for NIDDM, obesity, hypertension, dyslipidemia, and atherosclerotic cardiovascular disease. Diabetes Care .. 1991 ;14(3):173–94. . https://pubmed.ncbi.nlm.nih.gov/2044434/

[19] Spruill TM. Chronic Psychosocial Stress and Hypertension. Curr Hypertens Rep .. 2010 Feb 12(1):10. . /pmc/articles/PMC3694268/

[20] Calhoun DA, Harding SM. Sleep and hypertension. Chest .. 2010 Aug 1 ;138(2):434–43 https://pubmed.ncbi.nlm.nih.gov/20682533/