TO DETERMINE PREVALENCE OF HYPERTENSION AMONG ADULTS AND ITS ASSOCIATED FACTORS

[1]Dr Aeman Shafique, [2]Dr Rashid Ashraf, [3]Dr Aamir Saeed

[1]Amna Inayat Medical College, University of Health Sciences Lahore, [2,3]Services Institute of Medical Sciences, University of Health Sciences Lahore Rashidashraf6153@gmail.com, AAMIRSAEED4444@GMAIL.COM

Abstract:

Hypertension is adaptable risk factor for cardiovascular disease. Many analyses around the world have shown the high hypertension prevalence which is also rising.

Aim: The objective of this analysis was to evaluate the risk factors and prevalence of hypertension among adults.

Study Design: A descriptive cross-sectional study.

Place and Duration: In the Medicine units of Services Hospital Lahore for one-year duration from May 2018 to May 2019.

Methods: The analysis was done in five hundred eighty adults with 20-59 years of age range. Data were collected using an observation method to estimate the hypertension prevalence and BMI. To measure adult's exposure to risk factors; pre-designed questionnaire was used.

Results: 37.0% was the total prevalence in all hypertension cases (215 out of 580). The prevalence was 41.6% in men (264 in 110) and 32.2% in women (105 of 316) (P <0.03 95% CI). Among 215 hypertensive patients, 37.2% did not know that they had hypertension. In the last year, blood pressure was checked on routine basis by 453 (78.1%) participants. The incidence of hypertension increased with advanced age and high BMI. Of these, 58.1% of the participants were observed with hypertension and were current smokers 136 (23.7%).
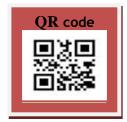
Conclusions: This analysis showed increased hypertension prevalence between adults. The hypertension prevalence was very high among smokers. Approximately 1/3rd of the subjects having hypertension did not know that are suffering from hypertension. The participants who do regular exercise were only few.

Keywords: *Prevalence of hypertension; body mass index; smoking.*

Corresponding author:

Dr Aeman Shafique,
Amna Inayat Medical College, University of Health Sciences Lahore
Aemanon3@live.com

QR code

INTRODUCTION:

WHO suggested that in 2013 non-communicable diseases account for above 69% mortality rate [1]. Obesity, HTN, smoking and physical inactivity are some of the important cardiovascular risk factors, and if blood pressure is not controlled, it causes myocardial infarction, Stroke, renal failure, blindness and heart failure [2-3]. In a 1996 report, high blood pressure-related cardiovascular diseases accounted for almost 21% of overall mortality in the world [4]. The behavioural factors such as lack of physical activity, unhealthy diet, aging and increase stress is raising the hypertension and obesity prevalence [5-6]. A review literature showed that the hypertension prevalence in Pakistan ranged from 18.9% to 41.7%. Many studies conducted at various locations and times showed altered incidence. Analysis have also shown that many people with hypertension do not know about their illness [7-8].

The study was performed to know the prevalence of hypertension among young adults.

MATERIALS AND METHODS:

This is a cross-sectional study conducted in the Medicine units of Services Hospital Lahore for one-year duration from May 2018 to May 2019. The analysis was done in five hundred eighty adults with 20-59 years of age range. Ethical approval was obtained before the study. From all volunteers; informed consent was taken. 580 total subjects were selected from medical units of Services Hospital Lahore. The proportional non-probability sampling was used for randomization. The subjects who were not present at the data collection time they were not included. An observation format was used to record anthropometric data to record blood pressure and body mass index (BMI) values. According to WHO techniques and Training and Physical Measurement Manual; blood pressure was recorded.

A pre-planned questionnaire was used to evaluate information about the hypertension effects and exposure to risk factors such as alcohol consumption, physical activities and smoking. The smoking prevalence was evaluated according to whether the contributors had smoked minimum one time in one week, whether they had consumed any alcoholic beverages in the last 12 months and alcohol consumption was assessed and physical exercise was evaluated. Depending on one or more exercises per week for minimum ten minutes at a time in the last month. The automated digital blood pressure monitor (OMRON of Japan) was used to check Blood pressure and the documented B.P was classified according to the National Commission's blood pressure classification: less than or equal to 120/80 mmHg BP was taken as normal, (SBP 120-140 and / or DBP 80-90 mmHg) was labelled as prehypertension, stage 1 hypertension (SBP 140-160 and / or DBP 90-100 mmHg) and stage 2 hypertension (SBP equal or above 160 and / or DBP equal or above 100 mmHg) .Stage II HTN Observed SBP level is above or equal to 140 mmHg and / or DBP equal or above 90 mmHg, was considered to be the presence of hypertension, 1 Currently taking antihypertensive drugs at the same time was diagnosed as hypertensive.

The body weight was measured by digital weight scale and measure body height was measured by a statute height measurement scale (Bio-Plus, India). BMI was interpreted on the basis of the BMI Classification of the World Bank Index World Bank Database. Data were entered into SPSS 17 package and descriptive statistics of percentages, frequencies and correlations were recorded for the relevant variable data.

RESULTS:

Of the 580 participants, females were 314 (54.5%) and males were 264 (45.5%), the majority (39.5%) were in the 30 to 39 age group and the majority (73.5%) were recent diagnosed. Of the total, 453 (78.1%) were confirmed blood pressure in the last 12 months and the percentage was advanced in women and illiterate or non-formal educated individuals (Table 1).

Table 1. Practice of checking blood pressure by gender and education status.

Gender	BP checked within last 12 months		Total
	Yes	No	
Female	255 (80.7%)	61	316
Male	198 (75.3%)	66	264
Total	*453 (78.1%)*	*217*	*580*
Education status			
Illiterate or no formal education	144 (86.7%)	23	166
School level	97 (78.2%)	27	124
Higher secondary or above	212 (73.1%)	78	290

Based on the JNC 7 category for blood pressure classification, low than normal BP was noted in 235 (40.5%), pre-hypertensive stage 130 (22.4%), stage I hypertension observed in 194 (33.4%) and stage II hypertension was among 21 (3.6%) of cases (Table II).

Table 2. Blood pressure status by age group on basis of JNC-7 classification of blood pressure.

Age Group	Blood Pressure Status				
	Normal	Pre HTN	HTN Stage I	HTN Stage II	Total
20 -29	16	3	1	0	20
30 - 39	156	47	21	5	229
40 - 49	45	47	81	3	176
50 - 59	18	33	91	13	155
Total	235 (40.5%)	130 (22.4%)	194 (33.4%)	21 (3.6%)	580

Overall, 215 (37.0%) had hypertension. The prevalence was 32.2% in women and 41.6% in men (significance level with 5% P <0.03). This rate was higher between the ages of 50 and 59 (59.1%) (Table 3). Of 215 hypertensive patients, 80 (37.2%) have no idea that they have hypertension.

Table 3. High blood pressure status by age group and gender.

Age group	HTN Status Male		HTN Status Female		HTN Status Combined		Total	Confidence level 95%
	Yes *	No	Yes *	No	Yes *	No		
20 -29	0	5	1	14	1 (5%)	19	20	
30 - 39	15	87	11	116	26 (11.3%)	203	229	Fisher Exact
40 - 49	40	42	44	50	84 (47.7%)	92	176	P = <0.001
50 - 59	55	20	49	31	104 (59.1%)	51	155	
Total	110 (41,6% among male)	154	105 (32,2% among female	211	215 (37.0% among total)	365	580	Male to Female; P <0.03

* SBP = > 140 mmHg and or DBP = > 90 mmHg

Amongst them, 514 (88.6%) supposed that high BP must be under control, and 89.9% of them suffered stroke or problems in the brain, heart attack in 61.8% of cases and 25.3% cases of renal disease. Among 163 participants who stated that their blood pressure was high, 61.3% answered that they used allopathic medication and alternative medicine was the choice by 14.1%.

Table 4. Hypertension status by BMI.			
BMI	**High Blood Pressure**		**Total**
	Yes*	No	N=580
BMI classification of Global Database on Body Mass Index, WHO [14]			
Below (<18.5)	1 (10.0%)	9 (90%)	10
Normal (18.5 - 24.9)	49 (20.9%)	185 (79.1%)	234
Pre obese (25 - 29.9)	125 (44.9%)	153 (55.1%)	278
Obese (= / > 30.0)	40 (68.9%)	18 (31.1%)	58
BMI classification for Asian Population [13]			
Under weight (<18.5)	1 (10.0%)	9 (90%)	10
Acceptable / increasing risk (18.5 - 23.0)	28 (18.5%)	123 (81.5%)	151
Increased risk (23 - 27.5)	96 (35.7%)	173 (64.3%)	269
Higher high risk (= > 27.5)	90 (60.0%)	60 (40.0%)	150

* SBP = > 140 mmHg and or DBP = > 90 mmHg

Among them, based on the WHO BMI classification, 278 (47.9%) were pre-BMI and 58 (10.0%) obese. Between 278 who were pre-obese and 58 obese, 44.9% and 68.9% had hypertension, correspondingly. Similarly, according to the proposed Asian population BMI classification for the, 150 (25.9%) were in the highest risk group and increased risk group included 269 (46.4%). Among the increased and highest risk group, 35.7% and 60.0% were hypertensive (Table 4). Of the five hundred and eighty subjects, current smokers were 136 (23.5%), of which hypertension was noted among 58.1% and among non-smokers, the prevalence was 27.4% (Table 5).

Table 5. Current smokers and hypertension status among the smokers.			
Smoking status	**High Blood Pressure**		**Total**
	Yes	No	
Yes	79 (58.1%)	57	136 (23.5%)
No	112 (27.4%)	296	408
Used to smoke*	24 (66.7%)	12	36
Total	215	365	580

* Never smoked within last three months with intension to quit smoking

In the last 12 months, In 171 (29.5%) subjects had not consumed alcohol. Only (27.2%) 158 participants responded to exercise and 53 (33.3%) responded to regular physical exercise (= /> 5 days a week).

DISCUSSION:

It was found that approximately 453 (78.1%) of the 580 participants had controlled blood pressure in the last year. BP validation was found to be higher among uneducated or non-formal education (86.8%) than higher education (73.2%) and primary education (77.92%) [9-10]. Based on the JNC 7 BP classification, in the pre-hypertensive period there were 130 (22.4%) participants, there was a high-risk relationship (2.6 among females and 1.7 among males) for cardiovascular diseases compared with non hypertensives [11-12]. It was much lower than a working community. The incidence was advanced than a 2015 national survey reporting 27% hypertension prevalence among Pakistani adults (31%

males and 21% of females). The study establish that the hypertension prevalence increased with progressing age (5% in the 20-29 age group, 11.3% in the 30-39 age group, 47.7% in the 40-49 age group; 59.1% in the 50-60 age group). The variation was noteworthy at 6% significance level (P <0.001). The incidence between the ages of 50 and 59 was slightly lesser than in analysis held in 2012 by the Zeeshan and Ali; this was 49.4% in the 50 to 64 age group, but advanced than in another study [13]. Of 215 hypertensive patients, 80 (37.2%) have no idea that they have hypertension. The data were higher than the JNC Seventh Hypertension Prevention, Detection, Evaluation and Treatment Report, which claimed that it was about 31 percent and much lower than a Dhulikhel analysis that showed it was 70.0%. In other study 39.13% of subjects don't know that they are hypertensive conducted in Iran [14]. Of the 112 participants who had never undergone any BP examinations in the last 12 months, 24 (11.2%) had hypertension and did not know the condition of the hypertension. However, drug history was collected based on information provided by participants without additional history verification. In total, 136 (23.5%) smoked and were slightly hypertensive higher than the 2013 national survey; Similarly, a survey conducted in three municipalities of Kathmandu in 2016 showed that hypertension prevalence among smokers between 20 and 50.8 adults was only 19.9% and 28.6% in rural areas. A total of 409 (70.5%) alcoholic beverages with different consumption frequencies (less than one month per month, more than four months per month) were recorded. In a survey of other municipalities in Kathmandu, the prevalence of alcohol consumption in the rural community in Sindh upal chowk was only 27.0% and 47.8%. It was found the habit of doing less exercise[15]. Of these, only 158 (27.2%) exercised, while 53 (33.5%) responded regularly (= /> 5 times a week).

CONCLUSION:
Although the hypertension prevalence in adults was 37.0%, it was slightly lower in women (32.2.0%) than in men (41.60%). It was found that the hypertension prevalence increased with advanced age and increased with the highest BMI score. Of the 215 individuals with hypertension, 37.2% did not know that they are hypertensive. Approximately one quarter (23.5%) of the contributors smoked and 58.1% were hypertensive and 27.2% had physical exercise, but 9.1% had regular physical exercise.

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