

# Inadvertent Labelling of Hypertension in Anxious Patient Especially during Panic Attack

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## ABSTRACT

**Objective:** This study was designed to document that temporary rise in BP is a very common phenomenon in anxiety patients and is especially true during panic attack. We assessed all of our proclaimed hypertensive patients on standard Manifest Anxiety Scale to document anxiety as the underlying cause. By doing this we could stop the unwarranted labelling and un-necessary antihypertensive medicine.

**Study Design:** Observational cross section study

**Place and Duration of Study:** This study was conducted at the Rai Medical College Sargodha and Private Consultancies of the participants from January, 2020 to December, 2020.

**Materials and Methods:** Patients presenting for the treatment of HTN, 30-70 years old, were asked to answer MAS questionnaire. The weekly averages of home BP during symptomatic and non-symptomatic phase were recorded for 4 weeks.

**Results:** Out of 2739 consenting patients, 1340 completed the study. On formal MAS scale, in the 30s age group 70% had high score, 24% had middle and 6% had low score. In 40s figures were 58%, 12% and 30% respectively. In 50s group respective figures were 92%, 6% and 2%. In 60s group respective figures were 45%, 32% and 23%. In the final analysis all patients in 30s turned out to be normotensive, in 40s group only 11% were proven to have hypertension, in 50s age group 32% turned out to be genuine hypertensive and in 60s age group 67% proved to be hypertensives.

**Conclusion:** Anxiety and panic attack are the most common medical conditions which cause a temporary rise in BP. Every hypertensive must be thoroughly evaluated for anxiety. Perimenopausal transition must be considered as a cause of sudden shoot-ups in BP. Even in genuine hypertensives stress management plays very important role.

**Key Words:**

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## INTRODUCTION

Hypertension (HTN) is one of the commonest diseases with considerable morbidity and mortality in middle age. Anxiety and panic attack are the most common medical conditions which cause a temporary rise in Blood Pressure (BP). Worldwide prevalence of HTN is expected to rise to 1.56 billion by 2025 with an upward trend in senior years. In developed economies the incidence curve has flattened but with the adoption of modern westernized life style it is increasing in developing countries.

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Apparently more common in developed countries (37.3% vs. 22.9%), the absolute number of hypertensive persons is more in underdeveloped countries due to much larger population, stretching already strained health care systems. Cardiovascular disease (CVD) is responsible for 30% of all deaths. In spite of all the hype about hypertension and awareness about its complication, undiagnosed HTN and undertreated HTN is expected to cause a staggering 12.8% of the total deaths and another 4.4% disability-adjusted life years globally by 2025. <sup>(1)</sup>

Any sense of foreboding, uneasiness and fear will elicit a defensive response. When it becomes disproportionately debilitating, it is a disease and is called anxiety. Among mood disorders, Anxiety disorder or more precisely Generalized Anxiety Disorder (GAD) is most prevalent globally. <sup>2</sup> WHO declared it the 2nd leading cause of global disease burden. <sup>3</sup> The average prevalence of anxiety reported in different Pakistani studies is about 33.62%, with a point prevalence of 45.5 % in women and 21.7% in men. In a Karachi, 420 volunteers were surveyed, 39.4% females and 23.3% males qualified for anxiety and/or depression. In other Pakistani surveys, figure ranging

from 7 to 50% are quoted from general public surveys while for the primary care centers it rises to 21% to 57%.<sup>5</sup>

HTN label has important lifelong implications on the patients in terms of lifestyle and medicine. Certain standard prerequisites must be met, unfortunately, it's not so. Actually, the symptoms of anxiety and panic attack bring the patient to the clinic and BP is found to be high. During follow-up even though BP is within the normal range, credit goes to antihypertensive medicine and patient is advised to continue the medicine unnecessarily.

## MATERIALS AND METHODS

The study was approved by the "Ethical review committee and Internal review board" of Rai Medical College, Sargodha. We offered all the patients presenting to the respective OPDs of all the participating physicians for the treatment of HTN between the ages of 30-70 years to enter into this study. Participants with hypertension were defined as those who reported that they were told by a doctor to have high blood pressure, and/or those who were currently taking BP medicines. Hypertension was defined as per standard.<sup>6</sup>

After securing informed consent and basic biodata, all were required to answer a standard Manifest Anxiety Scale (MAS) questionnaire by the participating psychiatrist. Patients who qualified for the diagnosis of anxiety and/or panic attack according to the standard proforma were enrolled in the study. Their score on MAS questionnaire was recorded.

These patients were asked to record their BP and heart rate at least once daily while totally comfortable without any symptoms and at least once while experiencing any unpleasant symptoms. BP medicines were continued. All were followed at weekly interval for 4 weeks and weekly averages were entered into the proforma. The research team modified the anxiolytic or antihypertensive medicine on case to case basis.

**Inclusion Criteria:** Qualifying the criteria of anxiety and history of HTN

**Exclusion Criteria:** Secondary hypertension, pre-terminal or terminal illness, acutely or seriously sick person, coronary heart disease, major psychiatric disorder

**Study Design:** Observational cross section study.

**Study Period:** From 1<sup>st</sup> January, 2020 to 31<sup>st</sup> December, 2020.

**Sample Size:** Convenient sampling technique was used. The study sample size was estimated by using a single population proportion formula which calculated with following assumptions: level of significance (Alpha) at 5%, power of test at 90% (1- Beta) and test value of the population proportion at 33%.<sup>5</sup> Given these assumptions the required sample size was determined to be 169. Keeping in mind 10% margin of error, the final

sample size was determined to be 186 by WHO Sample size calculator.

**Statistical Analysis:** Data analysis was done on Microsoft Excel version 2016 and Statistical Package for Social Sciences software version 25. Descriptive statistics (i.e. percentages, mean and standard deviations) were used as the primary analytical methods.

## RESULTS

2739 patients consented to volunteer for this study. 849 patients did not qualified for the participation as they did not had clinically significant anxiety when interviewed by the psychiatrist. 556 patients were lost in the follow-up, they didn't either produced the home monitoring record or did not completed all 4 visits.

**Table No.1: Demographic Data**

Total number of patients	n =1340	n = 482 (36%) males	n = 858 (64%) females
socioeconomics	High income 27 (2%)	Middle income 241 (18%)	Low income 1072 (80%)
Education years	<5 years 750 (56%)	5-10 years, 442 (33%)	College education 148 (11%)

**Table No.2: Detail of groups with scores**

MAS Score		High score	Middle score	Low score
30-39	456 (34%) of participants	319 (70%) (Mean = 30.8, Std .Dev. = $\pm 2.7$ )	110 (24%) (Mean = 12.2, Std .Dev. = $\pm 2.3$ )	27 (6%) (Mean = 2.6, Std .Dev. = $\pm 1.6$ )
40-49	163 (12%) of participants	95 (58%) (Mean = 31.1, Std .Dev. = $\pm 1.1$ )	20 (12%) (Mean = 11.9, Std .Dev. = $\pm 2.0$ )	48 (30%) (Mean = 2.4, Std .Dev. = $\pm 1.8$ )
50-59	348 (26%) of participants	320 (92%) (Mean = 29.1, Std .Dev. = $\pm 0.9$ )	21 (6%) (Mean = 11.3, Std .Dev. = $\pm 1.1$ )	7 (2%) (Mean = 2.4, Std .Dev. = $\pm 0.6$ )
60 plus	373 (28%) of participants	168 (45%) (Mean = 27.9, Std .Dev. = $\pm 1.3$ )	119 (32%) (Mean = 11.2, Std .Dev. = $\pm 0.8$ )	86 (23%) (Mean = 2.5, Std .Dev. = $\pm 1.1$ )

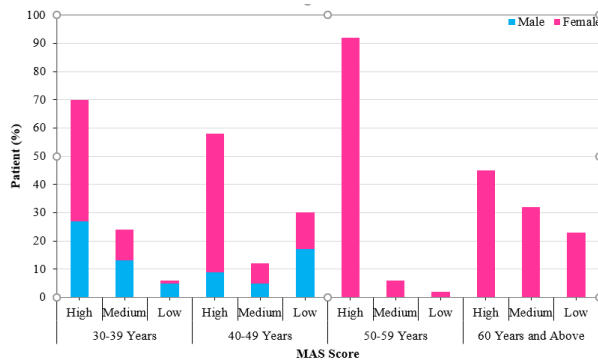


Figure No.1: Detail of gender with MAS Score

456 (34%) of the participant were in the 30s, 163 (12%) in 40s, 348 (26%) in 50s and 373 (28%) were in their 60s. On formal psychological interview as per proforma, in the 30s age group 319 (70%) participants had high score, 110 (24%) had middle and 27 (6%) had low score. In 40s figures were 95 (58%), 20 (12%) and 48 (30%) respectively. In 50s group respective figures were 320 (92%), 21 (6%) and 7 (2%). In 60s group respective figures were 168 (45%), 119 (32%) and 86 (23%) as summarized in Table 2 and graphically.

In the final analysis all patients in 30s turned out to be normotensive, their antihypertensive medicines were stopped and they were prescribed anxiolytics mainly on SOS basis. In 40s group only 18 (11%) were proven to have hypertension and were prescribed antihypertensive medicines. In this group, 95 (58%) scored high on MAS score, Serotonin Reuptake Inhibitors (SSRIs) and anxiolytics were prescribed for them. In 50s age group, 111 (32%) turned out to be genuine hypertensive, relevant medicine were continued or prescribed for them. As 320 (92%) in this group scored high on MAS score, SSRIs and anxiolytics were prescribed. In 60s age group, 250 (67%) proved to be hypertensives and they were prescribed or asked to continue the medicine with dose and drug adjustment. 168 (45%) were prescribed SSRIs and anxiolytics on the basis of high MAS score. This is summarized in following Graph.

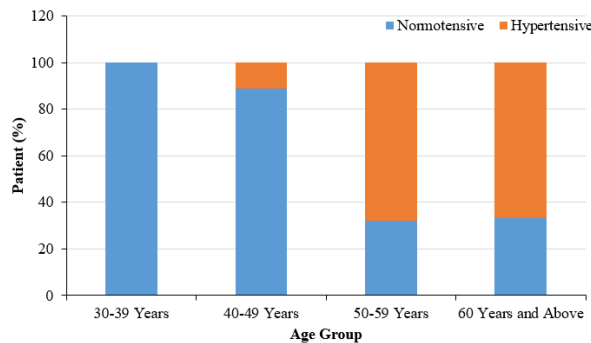


Figure No.2: Detail of Patients showing normotensive and hypertensive

## DISCUSSION

In our study, out of 1340 patients, 64% were females, mainly from lower income and lower education group.

We grouped them in age decades in each ascending order, 70%, 58%, 92% and 45% had high MAS score. This speaks loudly about the incidence of anxiety and its importance. The highest incidence in 50s can be explained on the basis of menopausal transition associated with high incidence of anxiety and depression.

With continuous public awareness campaigns by the medical community and media, checking Blood Pressure (BP) has become almost mandatory. Contrary to the popular view BP has no clinical symptoms of its own, symptoms are due to some other discomfort mostly anxiety and panic attack. False label of HTN is given during the symptomatic phase. During follow-up even though BP is within the normal range, credit goes to regular antihypertensive medicine. In our study, in 30s, all proclaimed hypertensive were proven wrong. Their BP remained in the normal range on anxiolytics only. Of our proclaimed hypertensives in forties, only 11% proved to be genuine cases. Even in 50s group, only 32% proved to be hypertensives. We had to prescribe anxiolytics to 92% of patients in this group. Any severe pain, cocaine use, withdrawal of drugs of dependence or panic attack/ anxiety can cause a sharp rise in BP. Even hyperventilation typical of panic attack may precipitate a complex of symptoms mimicking pheochromocytoma. These facts are very well known for last thirty years.<sup>7</sup>

BP measurement even by trained clinicians and paramedics is often compromised due to well-known patient factors like diurnal variation, effect of physical activity, stimulant like caffeine, tobacco and alcohol intake. On the other hand, operator biases, poor technique in cuff application and low quality or wear and tear of apparatus, all contribute.<sup>(8)</sup> With widespread availability of the required gadgetry, Ambulatory or home BP monitoring has become a common practice but office reading are generally considered more reliable.<sup>9</sup>

One limitation of office BP recording is well known White Coat Effect (WCE) mediated through sympathetic. Mere presence of healthcare persons can cause a clinically significant elevation of >20 mmHg for SBP and >10 mmHg for DBP in a known hypertensive patient. It is mediated through sympathetic neuro-endocrine reflexes and leads to dose escalation or addition. This must be differentiated from White Coat Hypertension (WCH), encountered in 25-30% of office visits, usually in obese elderly women, where repeatedly only the office BP readings are above the reference range in a normotensive person while both ambulatory or home monitoring are within range. This intermediate stage has 2.5 time higher future chances of developing HTN. Masked Hypertension (MH) is the inverse of WCH where office BP readings are normal while ABPM and/or HBPM are high in persons not

taking any antihypertensive medications, it is associated with higher risk of target organ damage.<sup>(10)</sup>

Like many other multifactorial diseases, anxiety and hypertension have bidirectional cause and effect relationship. Sympathetic and renin angiotensin system activation is the link. It is associated with endothelial dysfunction, abnormal lipid metabolism, reduced renal blood flow, increased renal water and sodium retention, a sure recipe for HTN. The activation of hypothalamic-pituitary-adrenal axis is the second major response to any stress, steroid over-secretion further contributes to water and sodium retention. Anxious persons are much more likely to indulge in unhealthy lifestyle like dietary indiscretion, alcohol abuse, smoking, unwillingness for exercise and medicine. Knowing the diagnosis of HTN and feeling of some sinister disease looming around, these patients are much more likely to frequently visit emergency departments.<sup>(11,12)</sup>

Just to quote the impact on health cost in USA, non-cardiac chest pain is the underlying cause for 50% of Emergency and 80% of Outpatient office visits. Repeated assessments fail to inspire any reassurances.<sup>(13)</sup>

The interface and gray areas between medical and psychiatric domains make it extremely challenging task especially in the background that very lucky ones have adequate interest, training or expertise in both fields.<sup>(14)</sup>

Targeting the possible mechanism shall be the rationale approach. One 2005 study published in American Journal of Hypertension documented that in acute hypertensive episode Diazepam was as effective as sublingual Captopril.<sup>(15)</sup>

We did not formally analyze but we had a strong impression that all these had far fewer spikes in BP and even dose was reduced in the majority. These figures argue strongly in favor of our hypothesis that every hypertensive must be thoroughly evaluated before starting the pharmacotherapy. Lifestyle modification must involve stress management and judicious anxiolytics. This is especially true in 30s and 40s. In 50s perimenopausal transition must be considered as a cause of sudden shoot-ups in BP. Even in genuine hypertensives stress management plays very important role.

## CONCLUSION

Anxiety and panic attack are the most common medical conditions which cause a temporary rise in BP. Every hypertensive must be thoroughly evaluated for anxiety. Perimenopausal transition must be considered as a cause of sudden shoot-ups in BP. Even in genuine hypertensives stress management plays very important role.

### Author's Contribution:

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

1. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data *www.thelancet.com* Vol 365 January 15, 2005.
2. Kessler RC, Keller MB, Wittchen HU. The epidemiology of generalized anxiety disorder. *Psychiatr Clin North Am* 2001;24: 19-39.
3. Murray CJL, Lopez AD. The Global Burden of Diseases: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors in 1990 and Projected to 2020. Cambridge: Harvard University Press; 1996.
4. Khan H, Kalia S, Itrat A, Khan A, Kamal M, Khan MA, et al. Prevalence and demographics of anxiety disorders: a snapshot from a community health centre in Pakistan Published online 2007 Nov 13. doi: 10.1186/1744-859X-6-30. PMID: 17999756
5. Khan MS, Ahmed MU, Adnan M, Khan MA, Bawany FI. Frequency of generalised anxiety disorder and associated factors in an urban settlement of Karachi. *J Pak Med Assoc* 2013; 63(11):1452-62.
6. Chobanian AV, Bakris GL, Black HR, et al. Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, National Heart, Lung, and Blood Institute, National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 2003;42:1206-1252.
7. Kaplan NM. Anxiety-induced hyperventilation. A common cause of symptoms in patients with hypertension. *Arch Intern Med* 1997;157:945-948.
8. Najafi F, Pasdar Y, Shakiba E, Hamzeh B, Darbandi M, et al. Validity of Self-reported Hypertension and Factors Related to Discordance between Self-reported and Objectively Measured Hypertension: Evidence from a Cohort Study in Iran *J Prev Med Public Health* 2019; 52:131-139. Dawes MG, Bartlett G, Coats AJ, Juszczak E.

9. Comparing the Effects of White Coat Hypertension and Sustained Hypertension on Mortality in a UK Primary Care Setting. *Ann Fam Med*. 2008 Sep; 6(5): 390–396.
10. Pioli MR, Ritter AMV, de Faria AP, Modolo R. White coat syndrome and its variations: differences and clinical impact. Published online 2018 Nov 8. doi: 10.2147/IBPC.S152761.
11. Pan Y, Cai W, Cheng Q, Dong W, An T, Yan J. Association between anxiety and hypertension: a systematic review and meta-analysis of epidemiological studies. *Neuropsychiatr Dis Treat* 2015;11:1121–1130.
12. Teragawa H, Oshita C, Orita Y. Is Noncardiac Chest Pain Truly Noncardiac? *Clin Med Insights Cardiol* 2020;14:1179546820918903.
13. Campbell KA, Madva EN, Villegas AC, Beale EE, Beach SR, Wasfy JH, et al. Non-cardiac Chest Pain: A Review for the Consultation-Liaison Psychiatrist. *Psychosomatics* 2017;58(3): 252–265.
14. Löwe B, Shedden-Mora MC. Health Care for Persistent Somatic Symptoms Across Europe: A Qualitative Evaluation of the EURONET-SOMA Expert Discussion. *Front. Psychiatr* 2018;7:9–646.
15. Grossman E, Nadler M, Sharabi Y, Thaler M, Shachar A, Shamiss A. Anti-anxiety Treatment in Patients with Excessive Hypertension. *Am J Hypertension* 2005;18(9):1174–1177.