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# Better Physician-Patient Communication; an Important Milestone in Control of Hypertension, a Multicenter Study from Karachi, Pakistan

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## ABSTRACT

Control of hypertension is an important cornerstone in prevention of cardiovascular morbidity and mortality. This study was designed to compare physician encounter score in patients with controlled and uncontrolled hypertension. It was conducted at three tertiary care hospitals in Karachi. Patients were categorized into controlled and uncontrolled hypertension based on their initial blood pressure readings on presentation. Primary outcome variable was control of hypertension and physician encounter score (a composite score of 12 item question) was the main candidate variable. Higher scores reflected favorable encounter with physician. Mean age of participants was  $57.7 \pm 12$  years; 224 (50.1%) were men. Controlled hypertension was present in 72.3% (323) and uncontrolled hypertension was present in 27.4% (124). Mean physician encounter score in uncontrolled hypertensive was  $7.25 \pm 2.64$  versus  $7.83 \pm 2.22$  ( $p=0.02$ ) in controlled hypertensive. Patient-physician encounter is an important milestone in control of hypertension in hypertensive patients and directly translates into better adherence to antihypertensives in these patients.

**Key Words:** Hypertension. Adherence score. Physician encounter score.

According to the National Health Survey of Pakistan (NHSP) the prevalence of HTN amongst adults > 15 years was 17.9% and amongst them only 3% had their BP under control.<sup>1</sup> Several studies have been conducted to identify these factors and the established factors can be broadly classified into patient-related and physician related factors. Physician related factors include practice patterns, knowledge base and perceptions about the care delivered.<sup>2</sup> Ockene *et al.* had developed a series of questions on experiences of patients with provider.<sup>3</sup> The questions were mainly designed to see the impact of physician-delivered smoking interventions on smokers.

However, a composite physician encounters score and its relationship to uncontrolled hypertension has not been reported. This study was designed to compare physician encounter score and in patients with controlled and uncontrolled hypertension.

It was a cross-sectional study conducted at three tertiary care hospitals in Karachi, The Aga Khan Hospital, Ziauddin Hospital and Civil Hospital, Karachi. The study was conducted in 2009 - 2010. All hypertensive patients (an average blood pressure of  $\geq 140/90$  mmHg or if the

participant is taking antihypertensive medications) > 18 years of age presenting to the outpatient clinics were included. Ethical approval was taken from the ethical review committee, The Aga Khan University (1193-Med/ERC-09). Ethical approval was also taken from Institutional Review Board, Dow University of Health Sciences (IRB/DUHS/2010/40) and Ethics Committee of Ziauddin University (letter 08-04-2010). Patients fulfilling the inclusion criteria were approached and recruited by the trained research staff. Informed consent was taken from all patients before recruitment.

Primary outcome was control of hypertension. Uncontrolled hypertension was defined as average blood pressure (BP)  $\geq 140/90$  mmHg in non-diabetic patients on treatment. The main candidate variable was physician encounter score. Physician encounter score was a composite score of 12 item question. Each item question was given 1 point if marked correctly (yes, no), hence, the total score was 12. These questions were developed by brainstorming with experts managing hypertension and who suggested that correct response of these questions can be counted towards having good communication between physician and patient. Physician encounter score indicates optimal information given to the patient in the physician encounter. These questions were focused on what the physician has told the patient during the clinic encounter regarding control of hypertension, the cut-offs of control hypertension, adherence to medications, complications of hypertension, lifestyle changes in hypertension and side effects of antihypertensives. Blood pressure was also recorded at the time of recruitment in the right arm using

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a mercury sphygmomanometer with the individual in the sitting position.

Data was entered by two separate data entry operators on Epi info. Statistical Package for Social Sciences (SPSS) version 17 was used for analysis. Descriptive statistics including mean and standard deviation were determined. Uncontrolled hypertension is reported as frequency and percentage. Data was stratified on the basis of control of hypertension. Physician encounter score was calculated by adding individual score of all the individual 12 item questions. Each correct response was given a score of 1, and incorrect response was given score of 0. Hence the total physician encounter score =12. Mean  $\pm$  SD of the total physician encounter score of all participants was also calculated. Frequency and percentage has been reported for all individual item question and chi-square test and Fisher exact test (where appropriate) has been used to compare categorical variable. Student t-test has been used to compare the total physician encounter score of each participant with controlled and uncontrolled hypertensive. P-value of  $< 0.05$  is considered significant.

A total of 600 participants were approached. Out of the total participants who were approached and consented, 447 were found eligible; 284 (63.5%) from The Aga Khan University (AKU), 101 (22.6%) from Dow University of Health Sciences (DUHS) and 62 (13.9%) from Ziauddin Medical University (ZMU). Overall response rate was 319 (71.52%); 81% from AKU, 80% in DUHS and 49.6% in ZMU.

Mean age of participants was  $57.7 \pm 12$  years; 224 (50.1%) were men, and 223 (49.9%) were women. Among all 108 (24.3%) were of Muhajir ethnicity, 208 (46.5%) had  $> 10$  years formal education and 142 (31.8%) were hospitalized due to uncontrolled hypertension. Mean duration of hypertension was  $9.9 \pm 7.42$  years, Systolic blood pressure was  $135.1 \pm 22.4$  and diastolic blood pressure was  $84.4 \pm 13.2$  mmHg. Mean total physician encounter score of all participants was 7.67 (2.36%) out of sum score of 12.

Uncontrolled hypertension was present in 124 (27.4%) and controlled hypertension was present in 323 (72.3%). Mean age of patients with uncontrolled hypertension was  $54.33 \pm 13.4$  years versus  $59.05 \pm 11.2$  years ( $p < 0.001$ ). Gender was male in 53 (42.7%) in uncontrolled hypertensive and 171 (52.9%) in controlled group. Out of the total score of 12; mean  $\pm$  total physician encounter score in uncontrolled hypertensive was  $7.25 \pm 2.64$  versus  $7.83 \pm 2.22$  in controlled hypertensive ( $p = 0.002$ ). Comparison of individual item question used for calculation of physician encounter scores between uncontrolled and controlled hypertensives is shown in Table I.

There was a marked difference in the counselling provided by the physicians during the clinic encounter in patients who had controlled hypertension versus those who had uncontrolled hypertension. Patients with uncontrolled hypertension had lower physician encounter scores indicating that the counselling about hypertension provided to them was not optimal.

Patient-physician relationship affects outcomes of medical encounters.<sup>4</sup> Physician-patient communication was important in better adherence to antihypertensive medications, particularly more advanced skills in history taking and physical examination. This was observed in a population-based study of 13,205 hypertensive patients who started antihypertensive medication in Quebec, Canada, between 1993 and 2007. Medical Council of Canada licensing examination scores were used to assess medical management and communication ability.<sup>5</sup> The reason behind lower physician encounter score in patients with uncontrolled hypertension could be the use of technical terminologies too frequently, time constraints and not being able to reconfirm with the patient, if he/she has understood everything right about the blood pressure control. Similar observations were observed in a study conducted on patient-physician discussions about chronic kidney disease in primary care.<sup>6</sup> Also a more frequent physician-patient encounter

**Table I:** Physicians' encounter score in hypertensive, controlled and uncontrolled hypertension.

S. No.	Characteristic	Controlled Hypertension n = 323 n (%)	Uncontrolled Hypertension n = 124 n (%)	p-value
1	Did your doctor tell you what your BP reading should be?	249 (77.1)	72 (58.1)	$< 0.001$
2	Has your doctor ever told you which number is important to keep under control?	66 (20.4)	39 (31.5)	0.01
3	Did your doctor ask you about your BP readings during your appointment?	267 (82.7)	89 (71.8)	0.009
4	Did your doctor ask you about your medicines?	298 (92.3)	106 (85.5)	0.02
5	Did your doctor ask if you are taking all the medicines as prescribed?	295 (91.3)	108 (87.1)	0.12
6	Did your doctor discuss how important is BP medicine for your BP control?	272 (84.2)	93 (75)	0.01
7	Did your doctor tell you about complications of high BP?	147 (45.5)	63 (50.8)	0.18
8	Did your doctor discuss things that get in the way of taking your medicines?	55 (17)	18 (14.5)	0.31
9	Did your doctor tell you the side effects of the medicines?	39 (12.1)	20 (16.1)	0.16
10	Did your doctor tell you about other lifestyle modifications which can help you control your BP?	253 (78.3)	86 (69.4)	0.03
11	Did your doctor answer all the questions you had regarding your health?	291 (90.1)	100 (80.6)	0.007
12	Are you satisfied with your doctor?	295 (91.3)	102 (82.3)	0.007

might further contribute to blood pressure control in addition to other factors like lifestyle and adherence to medication.

The physician encounter scores that we used showed lower scores particularly to questions related to correct blood pressure cut-offs being told to the patient, home blood pressure monitoring, importance of taking antihypertensive medications regularly and lifestyle modifications in hypertension. Further interventional research is required in this aspect. Firstly, presence of some hypertension specific care management plan in physician organizations may be associated with better BP outcomes among hypertensive patients. In particular, patients may benefit from physician efforts to improve medication compliance as well as organizational monitoring of hypertensive patients and their clinical data. Secondly, shorter encounter intervals ( $\leq 2$  weeks) are associated with faster decrease in blood pressure and earlier blood pressure normalization.

There are several limitations to this study. The adherence score was not adjusted for cost and side effects of drugs. The results cannot be generalized for the entire population as only three study centers were involved, however, the data represents public sector healthcare and private sector as well. Patients were labeled to have uncontrolled hypertension on one clinic visit and it was not accounted for white coat effect. We did not mention the total number of encounters with physicians for each patient. The strength of this study is

that a composite score on physician encounter has been reported, which can be used as a checklist for counselling patients during these encounters.

Patient physician encounter is an important milestone in control of hypertension in hypertensive patients and directly translates into better adherence to antihypertensives in these patients. Collaborative work among healthcare providers and dedicated training in effective counselling about hypertension may play a vital role and requires further research.

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