



ORIGINAL ARTICLE

Medication Adherence: Assess Compliance and Associated Factors among Hypertensive Patients

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Abstract

Background: Health care decision-makers require more information on differences in compliance rates associated with antihypertensive drugs and the implications of these differences for health care utilization and costs. This community-based prospective study was conducted to assess hypertensive patients' compliance with their prescribed regimen.

Method: This was a cross-sectional community-based prospective study. Four hundred hypertensive patients were selected from OPD of tertiary care centre hospital of Delhi. Data were collected through a structured questionnaire and then analyzed by SPSS.

Results: The finding of this study shows that the majority (41.25%) of the selected patients belonged to females and the older age group. A total of 56% of patients were fully compliant, 24% had fair compliance, 14% had poor compliance, and only 6% did not comply with hypertensive management with their antihypertensive treatments. Two factors were identified to independently associated with compliance: Gender ($P = 0.51$) and Age ($P = 1.10$). The educational status were found to have significant effects on compliance ($P = 0.028$).

Conclusion: Patients need to improve their compliance; therefore, a healthcare worker should adhere to their new role that requires proper dispensing practices. There are persistence improvement in compliance with antihypertensive medications after educating the patients about hypertension and its complications. Education about hypertension should be strengthened to the patients. Patient compliance needs to improve. We need to make a guideline for pharmacists to adhere to their new role that requires proper dispensing practices.

Keywords

India, Hypertension, Patient, Compliance, Medication, Persistence

Burden of Hypertension on Community

Hypertension is one of the most prevalent chronic diseases and one of the most serious health problems in developed and developing countries, causing death as a single contributor. It is a significant risk factor for many diseases that is a substantial cause of morbidity and mortality [1]. According to the World health organization, 1.13 billion people worldwide have hypertension, mainly (67%) living in low- and middle-income countries. The WHO has stated that hypertension is a primary reason for premature deaths at global level [2]. In India, the prevalence of hypertension has been estimated to be 3% to 34.5% in men and 5.8% to 33.5% in women. It is projected that by the end of 2025, the prevalence of hypertension in Indian males and females will be 22.9% and 23.6%, respectively [3]. Indians have the highest rates of coronary artery disease all over the world. It is 2-4 times higher at all ages and 5-10 times higher in those below 40 years of age [4].

Compliance toward Hypertensive Management

Hypertensive compliance can be described as the degree to which the patient complies with medical advice on lifestyle and dietary adjustments and follow-up

and treatment appointments as prescribed. Compliance is key to therapeutic success and its particular concern in hypertension. While it is recognized that awareness of compliance has increased in recent years, there is still a long way to go [5]. The problem is more complicated because it has low compliance with antihypertensive medication, even though it lowers blood pressure (BP) and reduces morbidity and mortality related to hypertension. In outpatients, compliance with antihypertensive medication ranges from 20% to 80% [6]. Poor adherence to treatments for chronic diseases is a global problem. Patient dissatisfaction with the health care provider and poor interpersonal relationships with them, or lengthy waiting times to get appointments to increase the risk of noncompliance. Continuous drug treatment and various dosing levels often raise the risk of non-compliance [7]. The lack of a patient-friendly, scalable healthcare system was also listed as the main reason for noncompliance [8]. The Systolic BP Intervention Trial showed the significance of intensive BP control for decreasing the frequency of stroke, intense coronary disorder, dead myocardial tissue, congestive heart failure [9]. The quantity of life and life expectancy is higher in patients experiencing severe treatment [10]. The limited availability of data regarding adherence to antihypertensive therapy in Asia, including India, led to the current study, which was designed to elucidate the adherence to antihypertensive treatment in patients who come to OPD (outpatients department) of a tertiary care center.

Methods

The quantitative research approach was suitable for the present study. A cross-sectional community-based prospective study design was selected for the data collection. The present study was conducted at the OPD (outpatients department) department of the tertiary care center in New Delhi. The duration of data collection was 20 days. The study population was patients who already diagnosed as hypertensive according to the World health organization criteria for hypertension. In the study, 389 subjects were selected by a non-randomized convenient sampling technique. Data collection was done with the help of a demographic variable tool and modified Moriskey medication adherence. The adherence score range was 0-10. The level of adherence was categorized as full adherence (7-8), fair adherence (5-6), poor adherence (3-4), and no adherence (0-2) according to adherence scores. All data gathered via data collection forms were coded into variables. Prior permission was obtained from the ethical committee and administrative authorities. Informed written consent was taken from respondents, and confidentiality was maintained throughout the study. The results were further tabulated, interpreted, and discussed; figures were plotted using Microsoft Office computer software (2010). The data analysis was done with the help of SPSS version 16.

Result

Most hypertensive patients were above 60 years, and female. Most patients were literate, out of these percent had educational level up to the primary, secondary, and senior secondary, whereas only 4 percent had educational level up to graduate and above. The data presented in Table 1 and Table 2 indicates the compliance status of hypertensive patients with respect to their management. Data reveals that majority of hypertensive patients had fully compliance (56%) state of hypertensive management whereas (24%) had fair compliance and 14% poor compliance and only 6% did not comply with hypertensive management. Table 3, shows the computed Chi-square value to establish the association between compliance scores and demographic variables. The results indicate that the compliance score is independent of Age, and sex factors: and dependent on educational status (Figure 1).

Discussion

Hypertension has become a common global public health problem due to an increasingly aging population. Many people are at risk of stroke and cardiovascular disease who are non-compliance to antihypertensive treatment [11,12]. This investigation aimed to study the

Table 1: Frequency distribution of Hypertensive patients according to their age, Sex, Educational status.

Demographic factors	Frequency (N = 389)
AGE	
21-30 years	00
31-40	16
41-50	62
51-60	140
60 above	171
SEX	
Male	179
Female	210
EDUCATIONAL STATUS	
Illiterate	70
Primary	132
Secondary	101
Senior secondary	70
Graduate	16

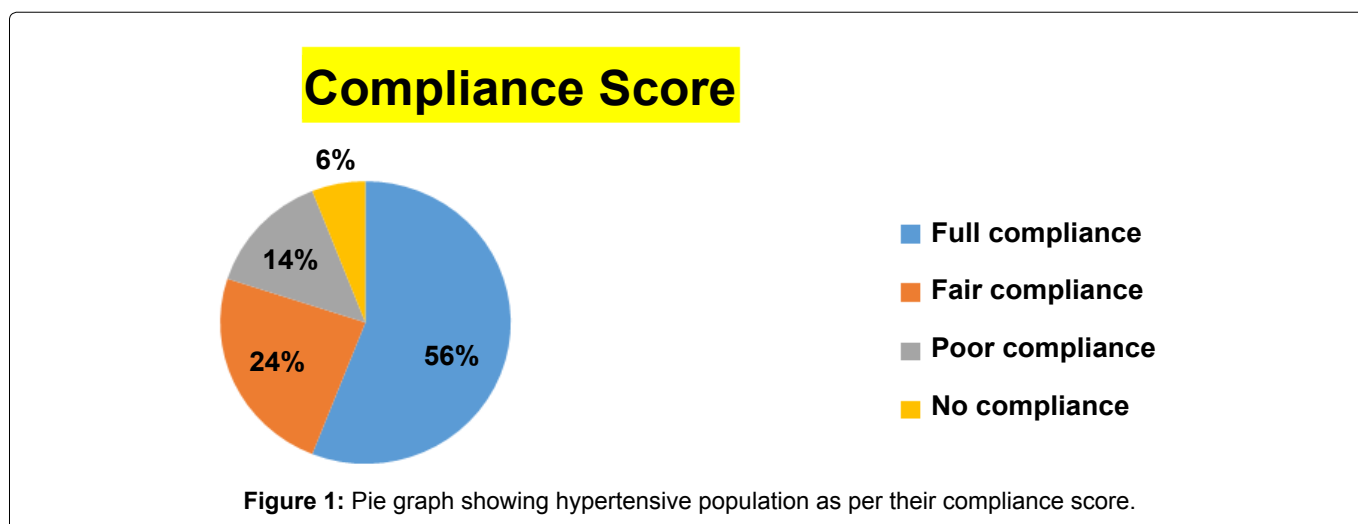
Table 2: Frequency distribution of hypertensive patient as per their compliance status.

Compliance status	Frequency (n = 389)
Full compliance	218 (56.05%)
Fair compliance	93 (23.92%)
Poor compliance	55 (14.13%)
No compliance (0-2)	23 (5.9%)

Table 3: Demographic variables and their association with compliance.

Demographic parameter	Frequency (N = 389)	Chi square calculated	p-value
Gender			
Male	179	2.29 ^{N.S.}	0.51
Female	210		
Age (in years)			
21-30	0	2.56 ^{N.S.}	1.10
31-40	16		
41-50	62		
51-60	140		
60 ABOVE	171		
EDUCATION			
Illiterate	70	10.828 [*]	0.028 [*]
Primary	132		
Secondary	101		
Sen. Sec.	70		
Graduation	16		

0.05 level of significance; ^{N.S.}Non-significant; ^{*}Significant



treatment compliance of hypertensive patients and the associated risk factors. This study revealed that most patients (56%) adhered to antihypertensive treatment. These findings are consistent with the study finding reported by Bhusalin, in which 58.9% of patients had controlled blood pressure by taking medicine [13]. The compliance rate found in this study was higher than that reported in some developed countries and developing countries [14-16]. Many factors may be associated with the rates of compliance, including gender, age, location, cost of the medications, and socioeconomic status [17]. In this study, 2 independent factors (age and gender) and one dependent factor (educational status) were related to antihypertensive treatment adherence. The effect of the level of knowledge on compliance status remains the topic of debate. Several studies found that patients with higher educational levels might have higher compliance [18,19]. In contrast, some studies found

no association. In the present study, the compliance score showing positive results with the education that means patients with higher educational levels should have better knowledge about the disease and therapy and therefore should be more compliant. In this research, compliance with antihypertensive treatment did not depend upon gender. This finding was the same as certain studies. We concluded that gender had not been found to influence compliance [20,21]. Gender may not be a good predictor of non-compliance because of the inconsistent conclusions. One more study strongly indicates that males were generally more associated with noncompliance to hypertensive treatment because of lifestyle recommendations, even if they were aware of their disease [22]. According to the report of the recent studies showed that increasing age was related to better compliance [23-25]. The possible explanation was that older people might be more concerned about their

health than younger patients. They can get the necessary help from healthcare providers or family members, and they may be more likely to comply with therapies. Our study finding showed that age might hardly have any influence on compliance to medication. This finding is similar to other studies in which the age was not a factor which causes non-compliance [26,27]. This Community-based study showed that most subjects were found full compliant and adherent to their antihypertensive drug regimens and maintained regular follow-up. Patients' educational status was the single most crucial factor for full compliance. Achieving satisfactory compliance may have a far more significant impact than any other maneuvers to improve antihypertensive treatments, and healthcare systems must evolve to meet this challenge. Compliance with medication is necessary to control the disease. It's also useful in minimizing the morbidity and mortality due to hypertension. Healthcare professionals have to encourage the patients towards medication adherence.

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Conflict of Interest

None.

Contributor's Statement

Shatrughan Pareek and Yashawant designed the study, guided the methodology, wrote the first draft and responsible for searching the articles. Yashawant and Nitesh were responsible for database selection, search strategy and charting. Shatrughan Pareek was responsible for analysis; Shatrughan Pareek, Yashawant and Vijay kumar critically reviewed, discussed, and modified the manuscript. All authors read and approved the final manuscript for publication.

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