



The Burden of Undiagnosed Hypertension among Dental Patients in Kabul

*Assistant Professor Dr. Mohammad Asif Atiq¹, Abdul Mosawer Bahlolzada², Naseer Ahmad Ahmadi²
Mahmoodullah Azimi¹, Aziz-ur-Rahman Niazi^{3,4}

¹Department of Pharmacology, Kabul University of Medical Sciences, Kabul, Afghanistan. Doctoral Researcher, Afghan Islamic International University (AIU), Kabul, Afghanistan.

²Department of Stomatology, Khatam Al Nabieen University, Kabul, Afghanistan

³Department of Public Health, Faculty of Medicine, Afghan Islamic International University (AIU), Kabul, Afghanistan

⁴Department of Public Health and Infectious Diseases, Faculty of Medicine, Herat University, Herat, Afghanistan

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| Corresponding Author Email: masifatig@gmail.com

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Hypertension represents a major public health challenge, associated with serious health consequences. Early detection can be facilitated by implementation of screening protocols in dental practice. The objective of this study is to estimate the prevalence of undiagnosed hypertension and inadequately managed hypertensive cases within the population accessing care at the Outpatient Department (OPD) of Kabul Stomatology Hospital. This cross-sectional descriptive study was conducted using a convenient sampling method. Patients aged 18 years and older attending the OPD were asked to disclose any prior diagnosis of hypertension and whether they were currently taking antihypertensive medication. Blood pressure measurements were taken in a seated position from both arms using a sphygmomanometer. Statistical analysis of data was performed using IBM Statistical Package for Social Sciences (Version 21). A total of 404 patients from the OPD participated in the study. The overall prevalence of hypertension was found to be 32.1%. Among the participants, 59 individuals (14.6%) reported a prior diagnosis of hypertension, with only 21 of these individuals indicating adherence to their prescribed antihypertensive drugs. Among the 345 participants without a previous hypertension diagnosis, 71 individuals (20.6%) were identified as hypertensive. Notably, 59 of these 71 individuals (83%) with undiagnosed hypertension, were male. This study underscores the important role that dental hospitals and clinics can play in identifying undiagnosed cases of hypertension. Monitoring blood pressure is also crucial for mitigating the risk of adverse events during dental procedures in hypertensive patients seeking care.

Keywords: Dental Patients, Hypertension, Prevalence, Undiagnosed, Hypertension

Introduction

High blood pressure, is a major public health concern with a widespread prevalence around the world, which is also a common problem among dental patients [1, 2, 3, 4]. High blood pressure is defined as “a systolic blood pressure (SBP) of 140 mmHg or more, or a diastolic blood pressure (DBP) of 90 mmHg or more, or taking antihypertensive drugs” [5].

Categorization and classification of hypertension by WHO”, which is Normal or Prehypertension (SBP = 120 or 120–139 mmHg, DBP = <80 or 80–89 mmHg), Stage 1 Hypertension (SBP = 140–159 mmHg, DBP = 90–



99 mmHg), Stage 2 Hypertension (SBP= ≥ 160 mmHg, DBP= ≥ 100 mmHg), and Crisis Hypertension (SBP = ≥ 180 mmHg, DBP = or > 120 mmHg) [5].

Hypertension is responsible for around 7.5 million deaths annually, accounting for 12.8% of global mortality [6]. It is a significant contributing factor to chronic heart disease, stroke, and coronary heart disease. Other complications associated with high blood pressure include heart failure, retinal hemorrhage, and vision impairment [7].

Often referred to as a "silent killer," hypertension typically presents no noticeable symptoms in its early stages, making detection challenging until severe medical events, such as a heart attack, and chronic kidney disease occur [8,9]. Due to absence of specific sign or symptoms, hypertension can only be identified through measuring the blood pressure [10]. It is widely accepted that the most effective approach to prevent these issues is to identify and treat hypertension at an early stage, prior to any damage being caused to the organs [11].

In 2000, it affected around 4.5% of adults (0.9 billion), rising to 7% by 2010, with predictions indicating that by 2025, the number of adults with hypertension could reach 1.6 billion [12,13].

As a leading cause of morbidity and mortality worldwide, hypertension poses a critical public health challenge [14].

Since 1974, the American Dental Association has recommended that dental hospitals routinely monitor blood pressure in patients, a guideline that has gained endorsement since 2006 [15]. Research has documented adverse effects during dental procedures in individuals with uncontrolled hypertension, including complications arising from trigeminal manipulation and the use of epinephrine anesthetics [16, 17]. Screening for hypertension in dental hospitals is crucial to minimize the risk of adverse effects during dental care and to facilitate early detection of individuals with hypertension, ultimately reducing the likelihood of complications associated with this condition.

In Afghanistan, there is a notable absence of research addressing the prevalence of undiagnosed hypertension among dental patients. This study aims to estimate the prevalence of undiagnosed hypertension within this demographic and to evaluate the blood pressure control among individuals with a prior diagnosis of hypertension. By addressing this gap in the literature, the study seeks to provide valuable data that can inform clinical practices and public health strategies related to hypertension management in dental settings.

Materials and Methods

Study Design

This cross-sectional descriptive study was conducted at Kabul Stomatology Hospital using a convenience sampling method from January 1, 2024 to January 7, 2024. The study included patients aged ≥ 18 years who visited the hospital for dental care.

Sample size and Sampling Technique

As the daily OPD patient in this hospital is around 600 patients and after the calculation of sample size in RAOSOFT online sample size calculator with a margin of error of 5%, confidence level of 95%, and population



size of 4200 people, the sample size was calculated to be 353 patients, adding 13.5% to compensate the missing individuals, 404 individuals included in study.

Data Collection

Participants were provided with a brief description of the study and its objectives. Participation was voluntary and informed consent was obtained prior to participation. Demographic information, including age, gender, and marital status, was collected. Participants were also asked to disclose any previous diagnosis of hypertension and whether they were currently taking antihypertensive medications. Then the screening process was conducted before any dental examination. After a standardized 5-minute rest period, blood pressure was measured in both arms while the patient was seated, using a sphygmomanometer and stethoscope. If the initial systolic blood pressure exceeded 140 mmHg or the diastolic reading exceeded 90 mmHg in either arm, a second measurement was taken after an additional 5-minute rest. The lowest recorded blood pressure value from these measurements was considered the screening blood pressure. Participants with a screening systolic or diastolic pressure exceeding 140 or 90 respectively were advised to seek blood pressure management from primary healthcare providers.

Statistical Analysis

The data were entered to Excel for Coding and then to SPSS version 21 for analysis.

Categorical data, including variables such as gender, marital status, and stages of hypertension, will be reported using frequency counts and percentages to provide a clear overview of their distribution within the study population. Continuous data, such as age, will be expressed as the mean.

Results

A total of 404 patients took part in the study, with a slight majority being female (50.2%). The age of participants ranged from 18 to 85 years, with a mean age of 41.5 years. The majority of participants were married, while only 8.9% were single. The overall prevalence of hypertension in the study population was 32.1%, among whom, 59 individuals (14.6%) reported a prior diagnosis of hypertension, with only 21 patients (35.5%) indicating regular adherence to prescribed antihypertensive medications. Particularly, 45 of these patients demonstrated high blood pressure during the screening, indicating insufficient hypertension management; of these eight were classified as being in hypertensive crisis (Table 1). Among the 345 participants without a prior diagnosis of hypertension, 71 (20.6%) were identified as hypertensive. This group of undiagnosed hypertensive patients predominantly consisted of males (83%), with the majority of cases occurring in individuals aged 40 – 60 years (table 2). In this study among undiagnosed hypertensive individuals, 50 (70.4%) were categorized as stage 1 hypertension, 16 (22.6%) as stage 2 hypertension, and 5 were identified as being in hypertensive crisis (Table 3).

	Frequency	Percentage
Normotensive	7	11.9
Prehypertension	7	11.9
Stage 1 hypertension	21	35.6
Stage 2 hypertension	24	40.7
Total	59	100

Table 1: stages of hypertension among previously diagnosed hypertension



	Frequency	Percentage
Male	59	83.1
Female	12	16.9
Total	71	100

Table 2: Undiagnosed hypertensive individuals according to gender

	Frequency	Percentage
Stage 1 hypertension	50	70.4
Stage 2 hypertension	16	22.6
Hypertensive crisis	5	7
Total	71	100

Table 3: Stages of hypertension among undiagnosed hypertensive individuals

Discussion

This study assesses the prevalence of undiagnosed hypertension in patients seeking dental care. Hypertension is a prevalent and significant risk factor for cardiovascular, cerebrovascular, and kidney diseases, making it an important public health concern globally. Within the field of dentistry, patient assessment plays an essential role in delivering effective and safe dental treatments. Numerous studies have highlighted the important contribution of dental care professionals in promoting overall health by measuring blood pressure and identifying cases of undiagnosed hypertension [18, 19, 20, 21].

This study reveals several concerning findings regarding the management of hypertensive patients and prevalence of undiagnosed hypertension among the population. The prevalence of previously diagnosed hypertension among participants in this study was notably higher than that reported in a previous study conducted in Kabul, which reported a prevalence of 5.6% [23]. Despite a portion of patients having a prior diagnosis of hypertension, a majority reported irregular adherence to their prescribed antihypertensive medications. This inadequate management is reflected by a substantial number of patients exhibiting elevated blood pressure during the examination, indicating ineffective control of their blood pressure. Ensuring consistent adherence to antihypertensive medications is crucial for effective management of blood pressure levels [24, 25, 26, 27].

Furthermore, it is noteworthy that a significant proportion of participants (20.6%) without a prior diagnosis of hypertension were identified as hypertensive, highlighting the urgent need for early detection and regular blood pressure monitoring. Previous studies in different countries reported the prevalence of undiagnosed hypertension in dental clinics at rates of 20.6% [11], 29.0% [21], 38.0% [22], and 83.7% [23].

Among the newly identified hypertensive cases, the majority were males, consistent with findings from other research [23], implying that hypertension may have a higher prevalence or greater severity in males compared to females. This gender difference could suggest the need for targeted interventions and awareness programs to address hypertension risk factors specifically in male populations.

The results emphasize the importance of proactive screening, early diagnosis, and effective management of hypertension. Because prevalence of hypertension is rapidly increasing in many Low- and middle income countries [26]. Strategies aimed at improving adherence to medications and promoting lifestyle modifications, along with enhanced awareness and education regarding hypertension, should be considered to mitigate the burden of this chronic condition and its associated complications.



Limitation: the selection of single dental hospital for this study presents a potential limitation. However, this facility is the only public hospital providing dental care, and patients come from different parts of the country for dental care. This diversity in the population helps to alleviate concern regarding representativeness of the sample.

Conclusion

Routine blood pressure measurement for all dental patients should be established as a standard practice. This study highlights the significant role that dental hospitals and clinics can fulfill in the identification of undiagnosed hypertension cases. Furthermore, consistent monitoring of blood pressure is critical for reducing the risk of adverse effects during dental procedures, particularly for hypertensive patients seeking treatment.

Recommendations

1. Routine blood pressure screening in dental setting
2. Patient education and awareness campaigns
3. Referral system for hypertensive patients
4. Targeted interventions for high-risk groups

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