

Assessment of Disease Control Status in Hypertension and Type 2 Diabetes Mellitus Patients Coming for Medication Report Renewal and Home Blood Pressure Measurement Habits in Hypertension Patients

Ayşenur Uçar¹, Mehmet Erdevir¹

¹ Department of Internal Medicine, Adana Yüreğir State Hospital, Adana, Türkiye

Abstract

Aim: In this study, the disease control status of patients who came to renew their medication reports was compared with that of patients who visited for follow-up, and home blood pressure measurement habits were evaluated in hypertensive patients.

Methods: The records of outpatients who visited the Internal Medicine Outpatient Clinic-13 of Adana Yüreğir State Hospital between 1 January and 14 February 2025 were retrospectively reviewed. A total of 1,774 patient files were screened, and 389 patients with hypertension and 367 patients with type 2 diabetes were identified. Patients were divided into two groups based on their reason for presentation: those who came to renew their medication report renewal and those who came for control. Hypertension was considered controlled if systolic blood pressure was <130 mmHg and diastolic blood pressure was <80 mmHg. Type 2 diabetes was considered controlled in patients with fasting blood sugar ≤130 mg/dl and HbA1c ≤7%.

Results: 36.8% of hypertension patients came to renew their medication reports, and 15.9% came for control. The habit of measuring blood pressure at home was 34.3% in the report renewal group and 54.8% in the control group ($p<0.05$). Hypertension control was similar and low in both groups (28.7% and 27.5%, $p=0.85$). Among patients with type 2 diabetes, 36.5% applied for report renewal and 23.4% for follow-up. The rate of diabetes control was 30.6% in the report renewal group and 39.5% in the follow-up group ($p=0.172$).

Conclusions: The rates of follow-up visit attendance and disease control were low in both disease groups and most patients visited the hospital only to get a medication report.

Keywords: Hypertension; Type 2 Diabetes; home blood pressure monitoring

1. Introduction

In our country, the Social Security Institution ensures that patients receive their medications free of charge or at a reduced cost when the necessity for their use is reported by a physician.¹ Many patients also apply to hospitals to obtain medication reports in order to access their medications free of charge.

Hypertension and type 2 diabetes are diseases with preventable complications, are very common in the community,² and require regular medical check-ups at specific intervals, which vary from patient to patient. Hypertensive patients who start antihypertensive treatment should be evaluated for the effectiveness of the antihypertensive medication within the first two months, if possible. The frequency of follow-up visits for patients depends on blood pressure control levels and the patient's comorbidities. After BP is controlled and stabilised with treatment, at least annual follow-up is recommended, and the frequency of follow-up may need to be increased depending on the patient's additional risk factors.³ Learning to measure BP independently improves treatment compliance in patients with hypertension.^{4,5} Hypertensive patients are advised to

measure their BP twice daily for the week prior to their medical appointment.³ In our country, the Ministry of Health's Directorate of Public Health recommends that hypertensive patients measure their BP at home at least 5 days a week, preferably every day, in the morning and evening.⁸

In patients with type 2 diabetes, various laboratory values should be monitored at intervals ranging from 3 months to 1 year (fasting blood sugar, haemoglobin A1c, lipid profile, creatinine, urine tests, etc.). In adult patients with adequate glycemic control, stable lifestyle, and appropriate treatment, HbA1c measurements may be performed every 6 months.⁹

In our country, many patients with hypertension and type 2 diabetes visit the hospital only to obtain or renew their medication prescriptions. There is no detailed statistical research on this subject. Unfortunately, we observe that very few of these patients achieve their treatment goals and that very few of the hypertensive patients who visit the hospital to renew their medication prescriptions have the habit of measuring their blood pressure at home.

2. Materials and Methods

Study Population and Sample

This study is a retrospective, cross-sectional investigation that examined the records of patients who visited the Internal Medicine Outpatient Clinic-13 at Adana Yüreğir State Hospital between 1 January 2025 and 14 February 2025. The study population includes patients diagnosed with hypertension and type 2 diabetes mellitus who visited the outpatient clinic during the specified date range. The sample size calculation was performed at a 95% confidence interval and a 5% margin of error with $\alpha = 0.05$, with a minimum of 200 patients anticipated for each disease group. A total of 1,774 patient files were retrospectively reviewed, of which 389 were diagnosed with hypertension and 367 with type 2 diabetes mellitus. Among the hypertensive patients, 143 were renewing their medication reports and 62 were seeking follow-up; among the type 2 diabetes mellitus patients, 134 were renewing their medication reports and 86 were seeking follow-up. The inclusion criteria for the study were: being 18 years of age or older, having been followed up for at least 6 months with a diagnosis of hypertension or type 2 diabetes mellitus, applying for medication report renewal or follow-up, and having complete data. Exclusion criteria included patients with incomplete data ($n=31$ for hypertension, $n=10$ for diabetes mellitus), patients previously seen for any reason, patients called for follow-up, patients with newly diagnosed hypertension and diabetes mellitus, patients with type 1 diabetes mellitus, and patients presenting with acute causes (prescription writing, pain, infection, high/low blood pressure/blood sugar, diabetic foot complications, etc.) and patients who applied for other reasons ($n=153$ for hypertension, $n=137$ for diabetes mellitus).

Target blood pressure values for patients were determined according to current guidelines; 2024 ESC Guidelines for the management of elevated blood pressure and hypertension 120-129/70-79 mmHg, preferably with out-of-office BP confirmation but also allowing in-office BP measurement. Although it varies from patient to patient, for this retrospective review we considered systolic blood pressure below 130 mmHg and diastolic blood pressure below 80 mmHg as controlled, and for those over 80 years of age, systolic blood pressure <140 mmHg was considered controlled⁵.

Diabetes control was defined as fasting blood sugar ≤ 130 mg/dl (7.2 mmol/l) and HbA1c $\leq 7\%$ (53 mmol/mol)⁹.

Study Procedures

The data collection process involved reviewing patient files from the past. The researchers documented all demographic data and medical records and medication lists and laboratory findings and vital sign readings for each patient. The laboratory protocols required patients with diabetes mellitus to have their fasting blood sugar and HbA1c values measured within the last three months and standard blood pressure measurements for patients with hypertension. As part of the follow-up protocol, hypertension patients were routinely asked whether they had measured their blood pressure at home and their measurements from the last week were recorded. Standard patient file forms and the hospital information management system were used as data collection tools, and the reliability coefficient of these tools was calculated as >0.90 in previous studies.

Intervention Protocol

The patients received their assignments based on their referral purposes into two distinct groups: medication report renewal group (RY) and control group (K). The patient grouping occurred without randomization because it stemmed from natural referral reasons. The evaluation of patients with hypertension and diabetes mellitus occurred separately for patients who had both conditions.

The standard outpatient examination was performed on all patients while they received inquiries about home blood pressure monitoring and needed laboratory tests. The study excluded pa-

tients who visited for reasons other than prescription writing or acute infections or cardiovascular complications.

Statistical Analysis

Statistical analyses were performed using SPSS 25.0 (IBM Corp., Armonk, NY, USA) software. Categorical data were presented as numbers and percentages, continuous data with a normal distribution were presented as mean (SD), and data without a normal distribution were presented as median (minimum-maximum) values. The assumption of normal distribution was evaluated using the Shapiro-Wilk test. For intergroup comparisons, the Pearson chi-square test was used for categorical variables, and the independent samples t-test or Mann-Whitney U test was used for continuous variables, depending on the normal distribution. For missing data management, patients with missing data were excluded from the analysis, and no imputation method was used. The research included subgroup analyses based on gender and age groups and disease duration. The research used $P<0.05$ as its statistical significance threshold while reporting P values ≥ 0.01 as two digits and $P<0.01$ as three digits.

Units of Measurement

Blood pressure values are expressed in mmHg, and laboratory parameters are expressed in International System of Units (SI) units. The glucose measurements appear in mg/dl units with a conversion factor of 0.0551 ($\text{mmol/l} = \text{mg/dl} \times 0.0551$). The HbA1c measurements appear in both percent (%) and mmol/mol units and blood pressure measurements appear in mmHg units. The recorded age values are in years while body weight measurements are in kilograms and height measurements are in centimetres.

Ethical Considerations

The study followed Helsinki Declaration principles after receiving approval from the local ethical committee. The retrospective chart review nature of the study exempted the need for patient consent but the researchers maintained patient confidentiality through data anonymization. The study team maintained exclusive access to the database through encrypted computers to ensure data security.

Table 1

General Demographic Data and Study Summary

Parameter	Value
Total number of screened patients	1,774
Patients diagnosed with hypertension	389
Patients diagnosed with type 2 diabetes mellitus	367
Study duration	45 days (01/01/2025–14/02/2025)
Study design	Retrospective
Statistical software	SPSS version 25.0
Level of significance	$p < 0.05$
Target values for hypertension	SBP <130 mmHg, DBP <80 mmHg (SBP <140 mmHg for patients >80 years)
Target values for diabetes mellitus	FPG ≤ 130 mg/dL, HbA1c $\leq 7\%$

3. Results

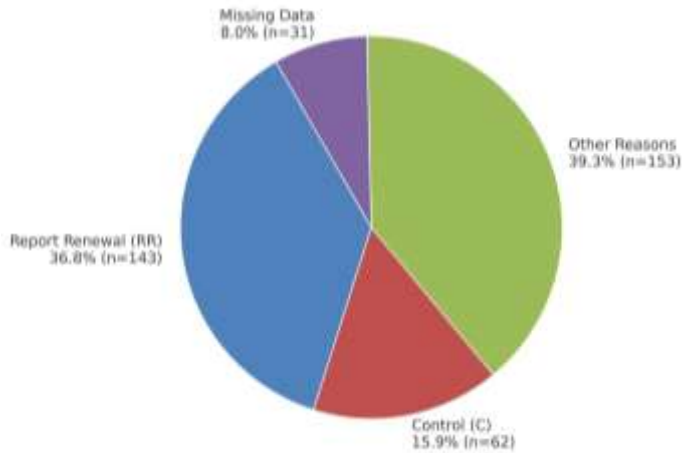
Of the 389 patients diagnosed with hypertension, 143 (36.8%) visited the outpatient clinic to renew their medication reports, while only 62 (15.9%) came for control.

The remaining 153 patients (39.3%) presented for other

reasons, and 31 patients (8.0%) were excluded from the study due to missing data. This clearly indicates that the majority of patients visited the hospital solely for medication report renewals rather than routine follow-up.

Figure 1

Distribution of Admission Reasons Among All Initially Evaluated Hypertension Patients (n=389)

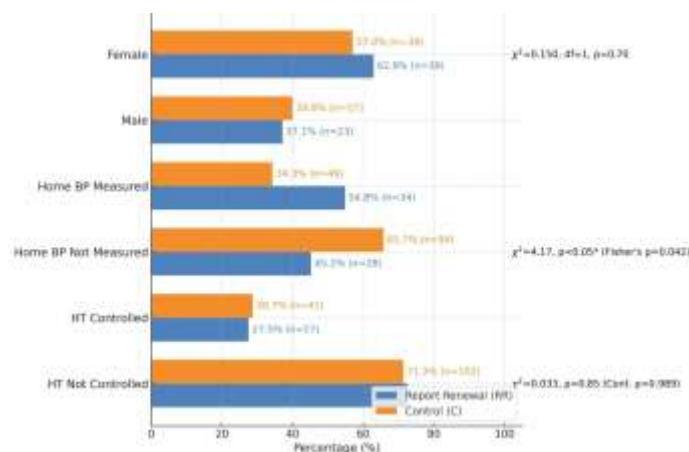


In terms of age, the average age of patients in the medication report renewal group was 63.2±10.0 years, while it was 61.5±9.6 years in the control group. This difference was not statistically significant (p=0.25). The proportion of female patients was similar in both groups, with 60.1% in the medication report renewal group and 62.9% in the control group (p=0.70).

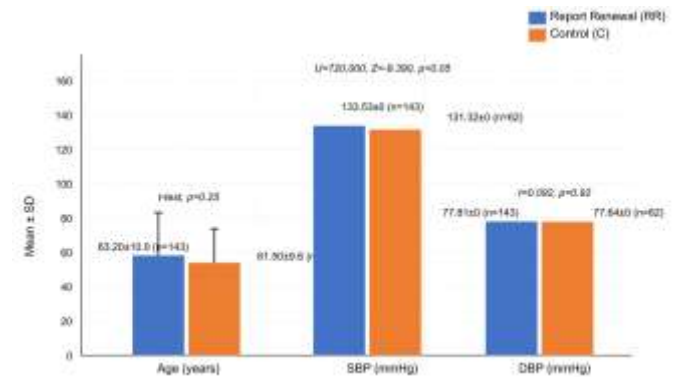
A significant difference was found between the groups in terms of the habit of measuring blood pressure at home. Only 34.3% of patients who came for medication report renewal measured their blood pressure at home, while this rate increased to 54.8% in patients who came for control purposes. This difference was statistically significant (p<0.05). When comparing systolic blood pressure averages, the mean value was 133.53 mmHg in the medication report renewal group and 131.32 mmHg in the control group, and this difference was found to be significant (p<0.05). However, there was no significant difference between the groups in terms of diastolic blood pressure values (p=0.92).

Figure 2

Comparison of Categorical Parameters by Group (n=205)

**Figure 3**

Comparison of Continuous Parameters by Group

**Table 2**

Hypertension – Home Blood Pressure Monitoring and Gender Analysis

Parameter	HT Controlled n (%)	HT Not Controlled n (%)	Total	p-value	Test Statistic
Performed HBPM	26 (31.3%)	57 (68.7%)	83	0.427	χ² = 0.632
Did not perform HBPM	32 (26.2%)	90 (73.8%)	122		Fisher's p = 0.434
Female	40 (32.0%)	85 (68.0%)	125	0.141	χ² = 2.170
Male	18 (22.5%)	62 (77.5%)	80		Continuity p = 0.189
Total	58 (28.3%)	147 (71.7%)	205		Linear-by-Linear p = 0.428

Note: HBPM: Home blood pressure monitoring; HT: Hypertension. The minimum expected cell count was 23.48 for the HBPM vs. HT control analysis and 22.63 for the gender vs. HT control analysis (both >5), indicating sufficient sample size for all chi-square tests (df = 1). All p-values were calculated using the appropriate statistical tests (chi-square, Fisher's exact, continuity correction, or linear-by-linear association). Findings pertain to patients with hypertension.

When evaluated in terms of disease control, similar and low control rates were observed in both groups. While 28.7% of patients in the medication report renewal group had their hypertension under control, this rate was 27.5% in the control group. This difference was not statistically significant (p=0.85) (Figures 1-2-3).

When examining hypertension control among patients who measured their blood pressure at home, 31.3% of those who measured their blood pressure had it under control, while 26.2% of those who did not measure their blood pressure had it under control. This difference was not statistically significant, contrary to expectations (p=0.427). When control rates were compared by gender, 32.0% of women and 22.5% of men had their blood pressure under control; however, this difference was also not statistically significant (p=0.141) (Table 2).

Among the 367 patients diagnosed with type 2 diabetes mellitus, 134 (36.5%) sought care for medication report renewal, and 86 (23.4%) sought care for control purposes. Similar to hypertensive patients, a higher proportion of diabetes patients sought care for medication report renewal. A total of 137 patients (37.3%) who

presented for other reasons and 10 patients (2.7%) with missing data were excluded from the study.

When demographic characteristics were examined, the proportion of female patients was almost the same in both groups (medication report renewal 60.9%, control 60.5%; $p=0.99$). However, a significant difference was found between the groups in terms of age. Patients in the medication report renewal group were older (62.0 ± 9.7 years) and had an average age difference of 4 years compared to the control group (58.0 ± 10.6 years) ($p<0.05$).

When glycemic control parameters were evaluated, the mean HbA1c was 7.96 ± 1.56 in the medication report renewal group and 8.23 ± 2.29 in the control group. The median values were 7.8 and 7.35, respectively. There was no statistically significant difference in HbA1c between the groups ($p=0.72$). Fasting blood glucose levels also did not differ significantly between the groups (medication report renewal 174.6 ± 65.2 mg/dL, control 195.8 ± 106.0 mg/dL; $p=0.728$).

When evaluated in terms of diabetes control, the proportion of patients with HbA1c $\leq 7\%$ was 30.6% in the report update group and 39.5% in the control group. Although a better glycemic control rate was observed in the control group, this difference was not statistically significant ($p=0.172$) (Table 3).

4. Discussion

Our study draws attention to an important problem in chronic disease management. The current healthcare system requires evaluation because most patients with hypertension and diabetes visit medical facilities only to receive medication instead of scheduled check-ups.

The disease control rates in both patient groups fell below expectations which shows major problems exist in managing chronic diseases. The low rate of home blood pressure measurement among hypertensive patients demonstrates the need for increased patient education and awareness programs.

Patients from our country frequently visit hospitals because

they need to update their medical reports. The situation needs statistics and research findings that are particular to our country. Our research represents the initial statistical investigation of hypertensive and diabetic patients who need to visit hospitals for medication report renewal. The future implementation of multiple-center studies about this topic will help patients follow their treatments better and control their chronic diseases while reducing their chances of getting sick or dying.

The solution to this problem can be achieved by using patient information cards with target treatment values and control times and by organizing disease-specific education days and media-based public awareness campaigns.

The study revealed that hypertensive patients measured their blood pressure at home in 34.3% of the medication refill group and 54.8% of the control group ($p<0.05$). The measured rates match different patterns when compared to international research findings. McManus and colleagues found that the HOME BP study¹⁰ showed home blood pressure measurement rates of approximately 50% in the control group, and our control group matched this result with a 54.8% measurement rate. The general population shows low rates of home blood pressure measurement. Andraos and colleagues reported that doctors advised 30.1% of hypertensive patients to measure their blood pressure at home, and 82% of patients who received this advice followed it.¹¹ Our report update group showed a 34.3% home blood pressure measurement rate, which seems to indicate both patient education and healthcare provider recommendation shortcomings.

As Choudhry and colleagues also noted, home blood pressure measurement is effective in improving medication adherence and blood pressure control.¹² In our study, hypertension control levels were found to be 28.7% in the medication report renewal group and 27.5% in the control group, with no significant difference between the groups ($*p=0.85$).

Table 3

Type 2 Diabetes Mellitus Patients – Reasons for Admission and Demographic Data

Parameter	Report Renewal (RR) (n=134)	Routine Control (C) (n=86)	Other Reasons (n=137)	Missing Data (n=10)	p-value	Test Statistic
Distribution of admissions (%)	36.5	23.4	37.3	2.7	–	–
Female	81 (60.9%)	52 (60.5%)	–	–	0.99	χ^2 minimal
Male	53 (39.1%)	34 (39.5%)	–	–		
Age (mean $\pm$ SD, years)	62.0 ± 9.7	58.0 ± 10.6	–	–	$<0.05^*$	$t = 2.858^{**}$
HbA1c (mean $\pm$ SD, %)	7.96 ± 1.56	8.23 ± 2.29	–	–	0.72	$U = 5615.500^{***}$
HbA1c (median [min–max], %)	7.8 (5.4–13.5)	7.35 (5.5–17.0)	–	–	0.75	$Z = -0.318$
FPG (mean $\pm$ SD, mg/dL)	174.6 ± 65.2	195.8 ± 106.0	–	–	0.728	$U = 5601.500^{***}$
FPG (median [min–max], mg/dL)	156 (61–361)	151 (79–678)	–	–		$Z = -0.348$
HbA1c $\leq 7\%$ (under control)	41 (30.6%)	34 (39.5%)	–	–	0.172	$\chi^2 = 1.862$
HbA1c $> 7\%$ (not under control)	93 (69.4%)	52 (60.5%)	–	–		Fisher's $p = 0.191$

Note: RR: Report renewal; C: Routine control; HbA1c: Glycated hemoglobin; FPG: Fasting plasma glucose. $*p < 0.05$ indicates statistical significance.

$^{**}t$ -test ($df = 218$, Levene's $F = 2.228$, $p = 0.137$; mean difference = 3.977 years, 95% CI: 1.23–6.72). *** Mann-Whitney U test was used as data did not conform to normal distribution. Percentages are based on each subgroup. Only main admission categories and patients with complete data are shown.

In our study, the habit of monitoring blood pressure at home was significantly higher in the control group compared to the medication report renewal group. However, the rate of disease control was similar. This may be due to insufficient education about hypertension in patients, even when they monitor their blood pressure at home and come for check-ups. It may also indicate that many patients do not know their target values for hypertension.

The low control rates show that hypertension management is not being done properly. The control rate was 31.3% among patients who measured their blood pressure at home, compared to 26.2% among those who did not. Mahmood and colleagues found that patients who attend their treatment follow-up appointments regularly have a higher chance of achieving blood pressure control.¹³ This result supports the higher control rates that were observed in our control group. Huang and colleagues found that ambulatory blood pressure monitoring is cost-effective for assessing blood pressure control and optimizing treatment adjustments.¹⁴ Gondi and colleagues also noted that home blood pressure measurement facilitates more reliable decision-making,¹⁵ and the numerical increase observed in patients who measured their blood pressure at home in our findings supports this view. The importance of regular follow-up and patient education is highlighted by Dhungana and colleagues¹⁶ in their discussion of the contribution of non-pharmacological interventions to blood pressure control.

The study revealed HbA1c $\leq 7\%$ control rates of 30.6% in the medication report renewal group and 39.5% in those who sought treatment for control purposes (* $p=0.172$). The obtained data shows similar difficulties in comparison with international literature. The study by Bh Rakhi and colleagues contained a systematic review that found Ethiopian research showed 70.8% of patients with HbA1c $> 7\%$ had inadequate glycemic control,¹⁷ which is similar to our study findings showing low glycemic control rates. The study by Zhao and colleagues demonstrated that patients with high follow-up rates achieved better HbA1c reductions, and 26% of patients with initial HbA1c $< 7\%$ reached glycemic control.¹⁸ Our findings support the necessity of frequent monitoring, as seen in the control group with a follow-up rate of 39.5%. The MUSCLES-DM study by Sugimoto and colleagues reported that HbA1c averages dropped to $7.1 \pm 1.0\%$ from $7.3 \pm 1.2\%$,¹⁹ which confirms the positive effects of regular monitoring and treatment optimization on glycemic control. The obtained data confirm that routine monitoring serves as an essential factor for effective glycemic management.

The medication report renewal group participants had a significantly higher mean age than control group participants (62.0 ± 9.7 years and 58.0 ± 10.6 years, * $p < 0.05$). The research findings about the relationship between patient age and blood glucose management results are inconsistent according to these results. The study by Hurst and colleagues in Thailand found that participants with HbA1c $> 7\%$ were 63.13 ± 10.83 years old, whereas those with HbA1c $\leq 7\%$ were 67.40 ± 10.63 years old, and age increased by 10 years enhanced the chance of glycemic control by 39%.²⁰ The study indicates that older patients demonstrate better potential for achieving glycemic control. Koo and colleagues investigated the relationship between patient age and glycemic control outcomes but found no significant age differences between worsening and maintained control groups.²¹ Kocjerina and colleagues studied elderly diabetic patients and observed similar cardiovascular results throughout all age groups from 74.1 to 76.4 years.²² The research data suggest that age affects glycemic control differently among patients based on their individual characteristics and follow-up quality. One reason for the lack of control in patients who came for a report renewal may

be the automatic extension of medication reports for chronic diseases during the COVID-19 pandemic in our country. The removal of treatment processes from physician supervision may have led to the formation of patient groups who continued treatment with the same medications without control.

The main drawback of our research is the ability to generalize its findings because it was conducted at a single centre using a retrospective study design. The study did not assess variables that could influence the level of control including medication adherence and lifestyle factors. The study has several strengths including a sufficient sample size, standard laboratory protocols, and real-life data. Future studies should include multicentre prospective designs, evaluate the effectiveness of patient education interventions, and investigate the impact of socioeconomic factors on disease control.

5. Conclusions

The high number of patients with hypertension and type 2 diabetes who visit healthcare facilities only to renew their medication prescriptions and the low disease control rates in both groups demonstrate that systemic problems exist in chronic disease management.

The study results show that home blood pressure measurement remains uncommon among hypertensive patients because only a few patients in the study practiced this habit. The control of chronic diseases such as hypertension and diabetes requires patients to visit for control purposes during asymptomatic periods and to establish specific follow-up intervals to prevent complications. The study analyzed past data to demonstrate how patients who came to the hospital for medication report renewal showed poor disease control rates. The study aims to enhance patient knowledge and treatment adherence by strengthening primary care education programs and developing better follow-up systems and promoting home blood pressure monitoring for hypertensive patients.

Statement of ethics

This study was approved by the Adana City Training and Research Hospital Clinical Research Ethics Committee (Approval date: 06.03.2025; Meeting No: 11, Decision No: 386). All procedures were conducted in accordance with the ethical standards of the institutional research committee and with the principles of the Declaration of Helsinki.

genAI

No artificial intelligence-based tools or generative AI technologies were used in this study. The entire content of the manuscript was originally prepared, reviewed, and approved by both authors.

Author Contributions:

Concept, Design, Data Collection or Processing M.E. ; Analysis or Interpretation Literature Review, Writing M.E., A.U

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

References

1. Sosyal Güvenlik Kurumu. Sağlık Uygulama Tebliği. Resmî Gazete. 2013;(28597):17229. Erişim tarihi: 7 Haziran 2025. <https://mevzuat.gov.tr/mevzuat?MevzuatNo=17229&MevzuatTur=9&MevzuatTertip=5>
2. Satman I, Omer B, Tutuncu Y, Kalaca S, Gedik S, Dincag N, et al. Twelve-year trends in the prevalence and risk factors of diabetes and prediabetes in Turkish adults. *Eur J Epidemiol*. 2013;28(2):169-180. [Crossref](#)
3. Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: executive summary. *Hypertension*. 2018;71(6):1269-1324. [Crossref](#)
4. Türkiye Endokrinoloji ve Metabolizma Derneği. Hipertansiyon Tanı ve Tedavi Kılavuzu 2022. 6. baskı. Ankara: Türkiye Endokrinoloji ve Metabolizma Derneği Obezite, Dislipidemi, Hipertansiyon Çalışma Grubu; 2022.
5. McEvoy JW, McCarthy CP, Bruno RM, Brouwers S, Canavan MD, Ceconi C, et al. 2024 ESC guidelines for the management of elevated blood pressure and hypertension. *Eur Heart J*. 2024;45(38):3912-4018. [Crossref](#)
6. Sengul S, Akpolat T, Erdem Y, Derici U, Arici M, Sindel S, et al. Changes in hypertension prevalence, awareness, treatment, and control rates in Turkey from 2003 to 2012. *J Hypertens*. 2016;34(6):1208-1217. [Crossref](#)
7. Abaci A, Oguz A, Kozan O, Toprak N, Senocak H, Deger N, et al. Treatment and control of hypertension in Turkish population: a survey on high blood pressure in primary care (the TURKSAHA study). *J Hum Hypertens*. 2006;20(5):355-361. [Crossref](#)
8. T.C. Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü. Kronik Hastalıklar ve Yaşlı Sağlığı Daire Başkanlığı Dokümanlar. Erişim tarihi: 7 Haziran 2025. <https://hsgm.saglik.gov.tr/tr/dokumanlar-kronikhastaliklar.html>
9. Türkiye Endokrinoloji ve Metabolizma Derneği Diyabet Bilimsel Çalışma Grubu. Diabetes Mellitus ve Komplikasyonlarının Tanı, Tedavi ve İzlem Kılavuzu 2024. 16. baskı. Ankara: Türkiye Endokrinoloji ve Metabolizma Derneği; 2024. Erişim tarihi: 26 Haziran 2024. https://file.temd.org.tr/Uploads/publications/guides/documents/diabetes_mellitus2024.pdf
10. McManus RJ, Little P, Stuart B, Morton K, Raftery J, Kelly J, et al; HOME BP Investigators. Home and online management and evaluation of blood pressure (HOME BP) using a digital intervention in poorly controlled hypertension: randomised controlled trial. *BMJ*. 2021;372:m4858. [Crossref](#)
11. Andraos J, Munjy L, Kelly MS. Home blood pressure monitoring to improve hypertension control: a narrative review of international guideline recommendations. *Blood Press*. 2021;30(4):220-229. [Crossref](#)
12. Choudhry NK, Kronish IM, Vongpatanasin W, Ferdinand KC, Pavlik VN, Egan BM, et al; American Heart Association Council on Hypertension; Council on Cardiovascular and Stroke Nursing; Council on Clinical Cardiology. Medication adherence and blood pressure control: a scientific statement from the American Heart Association. *Hypertension*. 2022;79(1):e1-e14. [Crossref](#)
13. Mahmood S, Jalal Z, Hadi MA, Shah KU. Association between attendance at outpatient follow-up appointments and blood pressure control among patients with hypertension. *BMC Cardiovasc Disord*. 2020;20(1):458. [Crossref](#)
14. Huang QF, Yang WY, Asayama K, Zhang ZY, Thijs L, Li Y, et al. Ambulatory blood pressure monitoring to diagnose and manage hypertension. *Hypertension*. 2021;77(2):254-264. [Crossref](#)
15. Gondi S, Ellis S, Gupta M, Ellerbeck E, Richter K, Burns J, et al. Physician perceived barriers and facilitators for self-measured blood pressure monitoring: a qualitative study. *PLoS One*. 2021;16(8):e0255578. [Crossref](#)
16. Dhungana RR, Pedisic Z, de Courten M. Implementation of non-pharmacological interventions for the treatment of hypertension in primary care: a narrative review of effectiveness, cost-effectiveness, barriers, and facilitators. *BMC Prim Care*. 2022;23(1):298. [Crossref](#)
17. Bin Rakhis SA Sr, AlDuwayhis NM, Aleid N, AlBarrak AN, Aloraini AA. Glycemic control for type 2 diabetes mellitus patients: a systematic review. *Cureus*. 2022;14(6):e26180. [Crossref](#)
18. Zhao Q, Li H, Ni Q, Dai Y, Zheng Q, Wang Y, et al. Follow-up frequency and clinical outcomes in patients with type 2 diabetes: a prospective analysis

based on multicenter real-world data. *J Diabetes*. 2022;14(5):306-314.

[Crossref](#)

19. Sugimoto K, Ikegami H, Takata Y, Katsuya T, Fukuda M, Akasaka H, et al. Glycemic control and insulin improve muscle mass and gait speed in type 2 diabetes: the MUSCLES-DM study. *J Am Med Dir Assoc*. 2021;22(4):834-838.

[Crossref](#)

20. Hurst CP, Rakkapao N, Hay K. Impact of diabetes self-management, diabetes management self-efficacy and diabetes knowledge on glycemic control in people with type 2 diabetes (T2D): a multi-center study in Thailand. *PLoS One*. 2020;15(12):e0244692. [Crossref](#)

21. Koo BK, Moon S, Moon MK. Muscle strength, an independent determinant of glycemic control in older adults with long-standing type 2 diabetes: a prospective cohort study. *BMC Geriatr*. 2021;21(1):684. [Crossref](#)

22. Kosjerina V, Parsa M, Scheuer SH, Ankarfeldt MZ, Sørensen KK, Brock B, et al. Comparative cardiovascular effectiveness of newer glucose-lowering drugs in elderly with type 2 diabetes: a target trial emulation cohort study. *Lancet Reg Health Eur*. 2025;40:100923. [Crossref](#)