

Hypertension and Heart: Are We Aware? Hypertension Awareness and Cardiovascular Risk Profile in Health Care Professionals

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Abstract

Objectives: Coronary artery disease (CAD) is a leading cause of mortality and morbidity worldwide, and hypertension (HT) is a chronic condition characterized by high blood pressure. Early diagnosis and treatment are the most important goals in CAD and HT. The SCORE2 estimates 10-year risk of fatal and non-fatal cardiovascular events. Although the number of patients receiving treatment for HT and CAD has increased in recent years, awareness of these diseases has not yet reached satisfactory levels. We aimed to assess awareness of HT and CAD among healthcare professionals.

Materials and Methods: The study covered topics related to HT awareness, cardiovascular disease (CVD) prevention, diet, nutritional habits, and lifestyle. Blood pressure was measured with a standard, calibrated sphygmomanometer after participants rested for at least 5 minutes and was repeated 10 minutes after the survey. Cardiovascular risk scores were calculated using SCORE2.

Results: Among the 169 healthcare professionals included in the study, 40.2% (68) were male, and 59.8% (101) were female. The median age was 40 years. 13.6% of healthcare professionals had a diagnosis of HT. The rate of newly diagnosed HT was found to be 4.1%. The median SCORE2 was 2.4 in the night-shift group and 1.7 in the non-night-shift group ($p=0.024$).

Conclusion: Regular blood pressure measurement among healthcare professionals was insufficient. While shift work does not increase CVD risk, this finding is thought to be due to the younger age of healthcare professionals who perform it.

Keywords: Hypertension, healthcare professionals, cardiovascular risk, awareness, lifestyle



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Introduction

Hypertension (HT) is considered one of the most common and preventable risk factors for cardiovascular diseases (CVD) and related mortality^(1,2). According to World Health Organization 2024 data, approximately 36.9% of individuals living in Europe are diagnosed with HT⁽³⁾. Epidemiological studies conducted in Türkiye have determined the prevalence of HT to be 31.8%, with only 40.7% of individuals reported to be aware of the disease and 31.1% receiving treatment^(4,5). In a study conducted on healthcare workers in Türkiye, the prevalence of HT was reported as 14.8%⁽⁶⁾.

CAD is a leading cause of mortality and morbidity in Türkiye and worldwide. Early diagnosis, treatment, and cardiac rehabilitation are the most important goals in CAD⁽⁷⁾. To estimate the 10-year fatal and non-fatal CV risk, SCORE2 is recommended for patients aged 40–69 years, and SCORE2-OP for those aged ≥ 70 years^(8–10). The SCORE2 risk calculation is based on age, gender, systolic blood pressure (BP), total cholesterol, high-density lipoprotein (HDL) cholesterol, smoking status, and regional cardiovascular mortality data^(9,10). The guidelines recommend calculating SCORE2/SCORE2-OP for the management of HT in patients with high BP, and antihypertensive treatment is recommended for patients with a SCORE2 $\geq 10\%$ ^(2,8). According to Global Burden data, risk areas are divided into four categories: low, moderate, high, and very high risk. Türkiye is included in the high-risk area in this classification⁽¹¹⁾.

Despite their medical background, healthcare professionals frequently face high occupational stress, irregular working hours, and lifestyle constraints, which can paradoxically increase their vulnerability to chronic conditions and lead to lower adherence to personal preventive health behaviors. Healthcare workers serve a pivotal role not only in managing public health but also in acting as role models for their patients; therefore, assessing their personal awareness and control regarding major cardiovascular risk factors and HT is of paramount clinical importance^(12,13).

Although the proportion of patients receiving treatment for HT and CAD has increased in recent years, awareness of these diseases has not yet reached the desired level. Our study aimed to assess healthcare professionals' awareness of HT and CAD and to determine the prevalence of HT and of CV risk profiles.

Materials and Methods

This study is a descriptive and analytical cross-sectional study involving healthcare professionals working at Dokuz Eylül University Hospital. Prior to the study, the necessary ethical approval was obtained from the Dokuz Eylül University Ethics Committee (decision no: 2025/08-13). The study was conducted among healthcare professionals between 06/03/2025 and 30/06/2025. Written informed consent was obtained from all participants in accordance with ethical standards. The 17-question survey was designed to assess HT awareness, CV protection, dietary and nutritional habits, lifestyle behaviors, and knowledge of coronary artery disease.

Blood Pressure Evaluation Protocol

Systemic BP evaluations were carried out in strict accordance with the contemporary recommendations of the European Society of Cardiology and the European Society of Hypertension. Data collection took place within a quiet, climate-regulated setting. Following completion of the questionnaire and after a minimum five-minute stabilization period, participants were maintained in a relaxed seated posture with adequate lumbar support and uncrossed lower extremities. Prior to evaluation, individuals refrained from physical exertion, caffeine ingestion, and tobacco use for at least half an hour, with urinary bladder evacuation ensured when clinically indicated⁽⁸⁾.

The examined upper extremity was carefully supported at heart level to prevent pressure increases induced by isometric contraction, and clothing over the cuff application site was removed to avoid a tourniquet effect from rolled-up sleeves. Measurements were performed using a standard, calibrated automated oscillometric device

(Omron M2 Basic HEM-7121J-E) with appropriately sized cuffs. The inferior border of the cuff was secured a few centimeters proximal to the antecubital crease to avoid placing the stethoscope beneath the cuff.

During the measurements, at least two measurements were taken with at least two minutes between each reading, and the average of the obtained values was recorded for analysis⁽⁸⁾.

In the study, HT was diagnosed based on the 2024 ESC Guidelines for the Management of High Blood Pressure and Hypertension, using the criterion of systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg, confirmed by the average of consecutive measurements taken at least two minutes apart. Furthermore, the SCORE2 score was calculated for CV risk classification in individuals over 40 years of age using data on gender, age, smoking status, systolic BP, total cholesterol, HDL cholesterol, and regional CV mortality⁽⁸⁻¹⁰⁾.

Statistical Analysis

The obtained data were analyzed using SPSS 29.0. Descriptive data were reported as numbers and percentages (%) for categorical variables and as mean $\pm$ standard deviation or median (interquartile range: 25th–75th percentile) for continuous variables. The distribution of continuous variables was assessed using the Kolmogorov-Smirnov and/or Shapiro-Wilk tests; comparisons were made of normally distributed data using Student's t-test. Correlations between categorical variables were analyzed using the Pearson chi-square test. Fisher's exact test was used when the necessary assumptions were not met. In all statistical analyses, a two-sided $p < 0.05$ was considered the significance threshold.

Results

A total of 169 healthcare professionals were included in our study, and analysis of the demographic characteristics revealed that 40.2% ($n=68$) were male and 59.8% ($n=101$) were female. The median age was 40 years, and the median body mass index was 26.5 kg/m². Detailed data on

the participants' demographic characteristics are provided in Table 1.

13.6% ($n=23$) of the healthcare professionals were previously diagnosed with HT. Based on standard BP measurements taken before and 10 minutes after the survey, 4.1% ($n=7$) of participants were newly diagnosed with HT. The rate of participants diagnosed with diabetes mellitus was 1.8% ($n=3$). The majority of the participants were nurses (27.8%, $n=47$). Among other occupational groups, 26% ($n=44$) worked as cleaning personnel, 17.2% ($n=29$) as physicians, and 18.9% ($n=32$) as medical secretaries; additionally, 66.3% ($n=112$) of healthcare workers actively worked shifts (Table 1).

The majority of participants (48.5%) preferred a Mediterranean diet, which emphasizes vegetables. One of the striking findings of the study was that 92.3% ($n=156$) of participants reported believing their home BP was within the normal range; however, only 24.3% ($n=41$) reported regularly monitoring their BP. The proportion of participants with daily salt consumption above 5–6 grams was 39.6% ($n=67$). The responses to the 17 survey questions directed at healthcare professionals are presented in Tables 2 and 3.

A history of CAD was present in the first-degree relatives of 33.7% of participants ($n=57$). The prevalence of smoking and alcohol consumption among healthcare workers were 37.3% and 40.8%, respectively. When the participants' lipid profiles were examined, the median low-density lipoprotein (LDL) cholesterol level was 124 mg/dL. Additionally, the SCORE2 risk assessment was used to determine the 10-year CVD risk in individuals aged 40 and older. In the analysis of data from 79 participants in this age group, the median SCORE2 was 1.9. The findings are detailed in Table 3. This group comprised shift workers ($n=49$) and non-shift workers ($n=30$) (Table 4). The median age of the shift group was 37, while that of the non-shift group was 44; this difference was statistically significant ($p=0.0159$). No statistically significant differences were found between the two groups for the other parameters.

Table 1. Demographic characteristics

Age	40 [30-46]*	
Height cm	169 [162-174]*	
Weight kg	78 [65-85]*	
BMI kg/m ²	26.5 [23.6-30.05]*	
Clinical characteristics		N (%)
Gender	Male	68 (40.2)
	Female	101 (59.8)
Marital status of participants	Single	65 (38.5)
	Married	104 (61.5)
Occupational distribution of participants	Environmental services staff	44 (26)
	Nurse	47 (27.8)
	Doctor	29 (17.2)
	Medical secretaries	32 (18.9)
	Medical technicians	12 (7.1)
	Academicians	2 (1.2)
	Student	3 (1.8)
Presence of a previous diagnosis of hypertension	Previously diagnosed with hypertension	23 (13.6)
	No prior hypertension diagnosis	146 (86.4)
Frequency of newly identified hypertension cases		7 (4.1)
Presence of diabetes mellitus DM	Previously diagnosed with diabetes mellitus DM	3 (1.8)
	No prior diagnosis of diabetes mellitus DM	166 (98.2)
Presence of hyperlipidemia	Previously diagnosed with hyperlipidemia	3 (1.8)
	No prior diagnosis of hyperlipidemia	166 (98.2)
Institution of employment	Inpatient clinic	
	Angiography	71 (42)
	Intensive care and emergency department	30 (7.8)
	Outpatient clinic	50 (29.6)
	Operating room	17 (10.1)
	Other	1 (0.6)
Educational status	Primary school	5 (3)
	Middle school	4 (2.4)
	High school	3 (21.9)
	University degree	123 (72.8)
Night shift status	I don't work night shifts	57 (33.7)
	I work night shifts	112 (66.3)

*medians [interquartile range, IQR (Q1-Q3) (25-75)], BMI: Body mass index, DM: Diabetes mellitus

The median SCORE2 value was 2.4 in the non-shift group and 1.7 in the shift group; the difference was statistically significant ($p=0.024$) (Table 4).

Discussion

The study covered topics related to CV risk, HT awareness, CVD prevention, nutritional habits, and lifestyle. The rate of regular BP measurements among healthcare professionals is low. New cases of HT were identified in 4% of healthcare workers, even though they worked in a hospital environment. One of the

striking findings of the study was that 92.3% ($n=156$) of participants stated that they believed their home BP was within the normal range; however, only 24.3% ($n=41$) reported regularly monitoring their BP.

According to the ESC 2021 CVD Prevention Guidelines, following a Mediterranean-type or equivalent diet, replacing saturated fats with unsaturated fats, and reducing salt intake are strongly recommended for the prevention of CVD, with a Class I recommendation⁽¹⁴⁾. The majority of healthcare workers (48.5%) adhere to a diet primarily focused on vegetables, similar to a

Table 2. Answers given to the questionnaire items

	Answer	N (%)
Have you been diagnosed with hypertension?	Previously diagnosed with hypertension No prior hypertension diagnosis	23 (13.6) 146 (86.4)
Do you think your blood pressure measurements at home are within the normal range?	Yes No	156 (92.3) 13 (7.7)
Is your daily salt intake more than 5–6 grams?	Yes No	67 (39.6) 102 (60.4)
Do you measure your blood pressure at regular intervals?	Yes No	41 (24.3) 128 (75.7)
Do you know the values that define normal blood pressure?	Yes No	130 (76.9) 39 (23)
Do you think hypertension can lead to heart attack and heart failure?	Yes No	158 (92.7) 11 (6.3)
In your opinion, what is the frequency of hypertension in the population?	Between 10–20% Between 20–40% Between 40–60% 60% and above	28 (16.6) 72 (42.6) 51 (30.2) 18 (10.7)
Is there a history of hypertension among your first-degree relatives?	Yes No	110 (65.1) 59 (34.9)
In your opinion, is taking medication alone enough to control blood pressure in individuals with hypertension?	Yes No	23 (13.6) 146 (86.4)
How would you describe your current diet?	Vegetable-based mediterranean diet carbohydrate-dominant diet rich in pastries meat-based, protein-rich diet	82 (48.5) 31 (18.3) 56 (33.1)
How significant do you think the Mediterranean diet is in managing blood pressure?	Important Not important I don't know	126 (74.6) 4 (2.4) 39 (23.1)
How significant do you think regular physical activity is in managing blood pressure?	Important Not important I don't know	154 (91.1) 2 (1.2) 13 (7.7)
What is the appropriate time for hypertensive patients to take their medications?	Regularly every day Only when blood pressure exceeds 140/90 mmHg	162 (95.9) 7 (4.1)
In your opinion, under what circumstances should blood pressure be measured?	I don't know Dizziness Routine check without symptoms Palpitations Feeling unwell Blackout/vision dimming All of the above	11 (6.5) 4 (2.4) 9 (5.3) 1 (0.6) 5 (3) 1 (0.6) 138 (81.7)
Do you have a blood pressure monitor at home?	Yes No	90 (53.3) 79 (46.7)

Mediterranean-type diet. While the alcohol consumption rate in Türkiye as of 2023 was reported to be 10.2%⁽¹⁵⁾, our study determined that the alcohol consumption rate among healthcare workers was quite high, reaching 40.82%. Especially among individuals under 50 years, the risk of CVD is approximately five times higher in smokers compared to non-smokers^(16,17). While the smoking rate in

Türkiye was reported to be 34.8% in 2023⁽¹⁵⁾, our study found that this rate was slightly higher among healthcare workers, reaching 37.3%.

Results from randomized controlled trials show that lowering LDL levels safely reduces the risk of CVD even at low levels^(18,19). Current literature clearly demonstrates that low HDL levels (<30–35 mg/dL) increase the risk of

atherosclerotic CVD; it has also been shown that very high HDL levels (>90 mg/dL) may be paradoxically associated with an increased risk^(20,21). In a study conducted among nurses working in a hospital, the median LDL level was reported as 114.02 mg/dL, the HDL level as 55.86 mg/

dL, and the total cholesterol level as 189.63 mg/dL⁽²²⁾. Similarly, in our study, when evaluating the lipid profiles of healthcare workers, the median LDL was 124 mg/dL, HDL was 54.7 mg/dL, and total cholesterol was 207 mg/dL.

Table 3. Cardiovascular risk assessment

	Answer	N (%)
Do you use tobacco products?	Yes No	63 (37.3) 100 (59.2)
Do you consume alcohol?	Yes No	69 (40.8) 100 (59.2)
Do any of your family members (mother, father, siblings) have coronary artery disease?	Yes No	57 (33.7) 112 (66.3)
Basic lipid profile		
LDL (mg/dL)	124 [104.3-146.6]*	
HDL (mg/dL)	54.7 [48.0-64.1]*	
Total cholesterol (mg/dL)	207 [175.5-238.5]*	

*medians [interquartile range, IQR (Q1-Q3) (25-75)], HDL: High-density lipoprotein, LDL: Low-density lipoprotein

Table 4. Comparison based on night shift work status

	Participants not working night shifts (n=57)	Participants working night shifts (n=112)	p-value
Age	44 [35-47]*	37 [29-45]*	0.015
Initial pulse measurement	80 [71.5-83.5]*	76 [71-84.75]*	0.351
Second pulse measurement	79 [72-85]*	77.5 [70.25-77.5]*	0.331
Initial systolic blood pressure measurement	119 [105-127.5]*	115.5 [106-115.5]*	0.443
Initial diastolic blood pressure measurement	77 [72-82]*	76 [69-83]*	0.448
Second systolic blood pressure measurement	116 [106-130]*	111 [105-125.5]*	0.269
Second diastolic blood pressure measurement	77 [70-85]*	75.5 [69-81]*	0.649
Height (cm)	170 [160.5-174.5]*	168.5 [163-174]*	0.592
Weight (kg)	25.7 [64.5- 83.5]	78 [65.5-87.75]*	0.419
BMI (kg/m ²)	30.89 [46.6-66.32]	26.75 [23.32-30.47]*	0.621
LDL (mg/dL)	128.15 [108.2-148.4]	121.6 [100.4-144.4]*	0.315
HDL (mg/dL)	56.650[46.6-66.3]	54 [48.6-63.1]*	0.927
Total cholesterol (mg/dL)	207.5 [177.2- 241]	205.0 [173.5-205]*	0.524
SCORE2	2.4 [1.40-4.67]* (n=30)	1.7 [1.0-3.15]* (n=49)	0.024
	n (%)	n (%)	
Existence of hypertension	10 (17.5)	13 (11.6)	0.287
Frequency of newly diagnosed hypertension	3 (5.3)	4 (3.69)	0.689

*medians [interquartile range, IQR (Q1-Q3) (25-75)], BMI: Body mass index, HDL: High-density lipoprotein, LDL: Low-density lipoprotein

According to the SCORE2 risk score, if the 10-year fatal and non-fatal CV disease risk is below 2.5%, it is defined as low to moderate CV risk, if it is between 2.5% and <7.5%, it is defined as high CV risk, and if it is $\geq 7.5\%$, it is defined as very high CV risk⁽⁸⁻¹⁰⁾. In our study, SCORE2 was calculated for CV risk assessment in 79 participants over the age of 40. The median SCORE2 value was 1.9, indicating that the participants were generally in the low-to-moderate risk group. In strict accordance with the current European Society of Cardiology (ESC) guidelines, SCORE2 and SCORE2-OP calculations were restricted to participants aged 40 years and older, as these risk-estimation models are specifically calibrated and validated for individuals aged 40–69 years and ≥ 70 years, respectively. Applying this algorithm to younger cohorts is not clinically recommended since 10-year short-term risk calculations are not designed for individuals under 40, in whom lifetime cardiovascular risk remains the primary consideration⁽⁸⁻¹⁰⁾. The observed low SCORE2 values in our cohort primarily reflect the age distribution and demographic profile of the participating healthcare professionals. Although short-term calculated risks appear low, contemporary guidelines emphasize that early identification and management of modifiable risk factors, such as BP control and lifestyle modifications, remain essential to mitigate cumulative lifetime cardiovascular burden in professional populations. In this study, the median age of the shift group is younger than that of the non-shift group. The median SCORE2 value was 2.4 in the non-shift group and 1.7 in the shift group, and the difference was statistically significant ($p=0.024$). These findings indicate that shift work in hospitals does not have a significant effect on the CV risk profile; however, this may be related to the younger age of individuals working shifts.

Study Limitations

Limitations of this study include its single-center design, relatively small total sample size ($n=169$), and the limited number of participants over the age of 40 included in the SCORE2 risk calculations ($n=79$). Due

to these methodological constraints and the single-center setting, the findings cannot be fully generalized to all healthcare professionals across different institutions or broader healthcare systems; therefore, the results should be interpreted within this specific context. Additionally, several parameters, including daily salt consumption, dietary habits, and perceptions of home BP measurements, were obtained via questionnaires, which inherently limits the ability to rely solely on self-reported information. Despite these limitations, this study provides preliminary and clinically relevant data on HT awareness and cardiovascular risk profiles among healthcare professionals.

Conclusion

The rate of regular BP measurement among healthcare workers is low. The rate of newly diagnosed HT was 4.1%. In this cohort, shift work was not associated with a higher SCORE2-estimated cardiovascular risk; however, this finding should be interpreted cautiously because shift workers were significantly younger than non-shift workers. Healthcare workers have higher rates of smoking and alcohol use than the general population.

Ethics

Ethics Committee Approval: Prior to the study, the necessary ethical approval was obtained from the Dokuz Eylül University Ethics Committee (decision no: 2025/08-13).

Informed Consent: This study is a descriptive and analytical cross-sectional study involving healthcare professionals working at Dokuz Eylül University Hospital

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Footnotes

Authorship Contributions

Surgical and Medical Practices: Yılmaz MB, Concept: Kış M, Yılmaz MB, Design: Kış M, Yılmaz MB, Data Collection and/or Processing: Oktay Ç, Analysis and/ or Interpretation: Şentürk B, Literature Search: Kış M, Oktay Ç, Writing: Kış M.

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References

- Brouwers S, Sudano I, Kokubo Y, et al. Arterial hypertension. *Lancet*. 2021;398:249-61.
- Mancia G, Kreutz R, Brunström M, et al. 2023 ESH Guidelines for the management of arterial hypertension. *J Hypertens*. 2023;41:1874-2071.
- World Health Organization. Action on salt and hypertension: reducing cardiovascular disease burden in the WHO European region. World Health Organization; 2024. <https://www.who.int/europe/publications/item/9789289060813>.
- Altun B, Arici M, Nergizoğlu G, et al. Turkish Society of Hypertension and Renal Diseases. Prevalence, awareness, treatment and control of hypertension in Turkey (the PatenTstudy) in 2003. *J Hypertens*. 2005;23:1817-23.
- Atik F, Aktas G, Kocak MZ, et al. Analysis of the factors related to the blood pressure control in hypertension. *J Coll Physicians Surg Pak*. 2018;28:423-6.
- Kurtul S, Ak FK, Türk M. The prevalence of hypertension and influencing factors among the employees of a university hospital. *Afr Health Sci*. 2020;20:1725-33.
- Hisam A, Haq ZU, Khan Z, et al. Effectiveness of cardiac rehabilitation on health-related quality of life in coronary artery disease patients in low and middle-income countries. *J Coll Physicians Surg Pak*. 2025;35:221-8.
- McEvoy JW, McCarthy CP, Bruno RM, et al. 2024 ESC Guidelines for the management of elevated blood pressure and hypertension. *Eur Heart J*. 2024;45:3912-4018.
- SCORE2 working group and ESC cardiovascular risk collaboration. SCORE2 risk prediction algorithms: new models to estimate 10-year risk of cardiovascular disease in Europe. *Eur Heart J*. 2021;42:2439-54.
- SCORE2-OP working group and ESC Cardiovascular risk collaboration. SCORE2-OP risk prediction algorithms: estimating incident cardiovascular event risk in older persons in four geographical risk regions. *Eur Heart J*. 2021;42:2455-67.
- GBD 2021 Causes of Death Collaborators. Global burden of 288 causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. *Lancet*. 2024;403:2100-32.
- Ezber R, Gülseven M, Koyuncu A, et al. Evaluation of cardiovascular disease risk factors in healthcare workers. *Family Medicine Primary Care Review*. 2023;25:150-4.
- Taşkın U, Fici F, Altin C, et al. Exploring hypertension awareness in physicians: a cross-sectional study from Turkey. *Postepy Kardiol Interwencyjne*. 2025;21:584-9.
- Visseren FLJ, Mach F, Smulders YM, et al. 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J*. 2021;42:3227-3337.
- Gökler ME, Bağcı HH, Keklik K, et al. Türkiye Hanehalkı Sağlık Araştırması: Bulaşıcı Olmayan Hastalıkların Risk Faktörleri Prevalansı 2025 (STEPS). <https://hsgm.saglik.gov.tr/media/attachments/2025/05/12/turkiye-hanehalki-saglik-arastirmasi-2023.pdf>. ISBN: 978-975-590-928-8.
- Prescott E, Hippe M, Schnohr P, et al. Smoking and risk of myocardial infarction in women and men: longitudinal population study. *BMJ*. 1998;316:1043-7.
- Tasdighi E, Yao Z, Dardari ZA, et al. Association between cigarette smoking status, intensity, and cessation duration with long-term incidence of nine cardiovascular and mortality outcomes: the cross-cohort collaboration (CCC). *PLoS Med*. 2025;22:e1004561.
- Ference BA, Ginsberg HN, Graham I, et al. Low-density lipoproteins cause atherosclerotic cardiovascular disease. 1. Evidence from genetic, epidemiologic, and clinical studies. A consensus statement from the European Atherosclerosis Society Consensus Panel. *Eur Heart J*. 2017;38:2459-72.
- Sepehrinia M, Homayounfar R, Farjam M. Aggressive low-density lipoprotein (LDL) lowering for primary prevention: still an elusive goal. *Lipids Health Dis*. 2024;23:285.
- Hashem C, Altin SE, Guyton JR, et al. Nonlinearity of the inverse relationship between high-density lipoprotein (HDL) cholesterol and incident cardiovascular risk: is it time to revisit the "HDL hypothesis"? *J Clin Lipidol*. 2025;19:238-46.
- Ryu HE, Jung DH, Heo SJ, et al. Extremely high HDL cholesterol paradoxically increases the risk of all-cause mortality in non-diabetic males from the Korean population: Korean genome and epidemiology study-health examinees (KoGES-HEXA) cohorts. *Front Med (Lausanne)*. 2025;12:1534524.
- Medeni V, Aygür R, Medeni İ, et al. Iron deficiency anemia and dyslipidemia among hospital nurses: a cross-sectional study in Turkey. *J Clin Med*. 2024;13:7042.