

ORIGINAL ARTICLE

Sex-specific risk factor awareness, covert misogyny and long-term cardiovascular risk management: pilot study

✉ Biljana Parapid¹, Zaklina Grujic¹, Ognjen Bisenic¹, Milica Djurovic¹, Petar Simic², Bosiljka Djikanovic Tetikovic³, Sonja Petrovic¹, Jovana Vuković Banjanac¹, Kristina Simatovic¹, Dijana Djikic¹, Ivana Petrovic Djordjevic¹, Ana Mladenovic Markovic⁴, Zlatibor Loncar⁵, Slavica Djukic Dejanovic⁶, Dragan Simic¹, Nanette Kass Wenger⁷, Vladimir Kanjuh⁸

¹University Clinical Centre of Serbia, Division of Cardiology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

²Obstetrics and Gynecology Clinic Narodni Front, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

³School of Public Health, Faculty of Medicine, University of Belgrade, Serbia

⁴University Clinical Centre of Serbia, Division of Radiology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

⁵Emergency Center, University Clinical Center of Serbia, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

⁶University of Kragujevac, Faculty of Medical Sciences, Department of Psychiatry, Kragujevac, Serbia

⁷Emory University School of Medicine, Emory Women's Heart Center, Atlanta, Georgia, USA

⁸Serbian Academy of Sciences and Arts, Belgrade, Serbia.

Received: 26 November 2024

Revised: 03 December 2024

Accepted: 13 December 2024



Check for updates

Funding information:

This research did not receive a specific grant from any public, commercial, or not-for-profit funding agency.

Copyright: © 2025 Medicinska istraživanja

Licence:

This is an open access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Competing interests:

The authors have declared that no competing interests exist

✉ Correspondence to:

Biljana Parapid

University Clinical Centre of Serbia, Division of Cardiology

Faculty of Medicine, University of Belgrade

13 Dr Subotica Street, 11000 Belgrade, Serbia

Email: biljana_parapid@yahoo.com

Summary

INTRODUCTION: Health literacy is a cornerstone of prevention, while sex specific prevention of cardiovascular disease, a leading cause of death of women worldwide, remains less addressed and is still more a matter of local cultural habits than guideline-directed management.

METHODS: A validated multiple-choice questionnaire (MCQ) designed to both educate patients and help the healthcare team learn about their traditional and sex specific modern risk factors (RF) management, including opting for comprehensive personalized long term follow up (FU) was offered to all in-patients.

RESULTS: Out of 130 patients hospitalized at our department (Jan 1, 2024 – Feb 24, 2024) who were offered to fill in the MCQ, 37.7% accepted to do so, while 11.5% were excluded on ethical grounds. Women (49%) were older than men, had a more significant burden of traditional RF and possessed higher levels of knowledge and interest in RFs of both sexes, while men – especially those who declined to participate without a clear reason – even stated having no interest in their female relatives' risk profiles. Men, unlike women, showed no particular interest in a personalized and tech-savvy options of FU, although they equally use hand-held devices.

CONCLUSION: These results confirm the findings obtained from a similar study conducted on an all-female sample in the same setting a year ago. However, results in men were surprising for the hostility exhibited towards junior and mid-career women which was absent when approached by a senior male member of the healthcare team. This confirms that misogyny needs to be actively suppressed.

Key words: health literacy, heart disease, cardiovascular risk, sex specific risk factors, misogyny

Cite this article as: Parapid B, Grujic Z, Bisenic O, Djurovic M, Simic P, Djikanovic Tetikovic B, Petrovic S, Vukovic Banjanac J, Simatovic K, Djikic D, Petrovic Djordjevic I, Mladenovic Markovic A, Loncar Z, Djukic Dejanovic S, Simic D, Kass Wenger N, Kanjuh V. Sex-specific risk factor awareness, covert misogyny and long-term cardiovascular risk management: pilot study; Medicinska istraživanja 2025; 58(1):25-32 DOI: 10.5937/medi58-55012



INTRODUCTION

Cardiovascular disease remains the leading cause of morbidity and mortality in women and men, worldwide. Most precise statistics are offered annually by the American Heart Association (1) that recently started addressing not only United States' statistics, but also global statistics linked to both cardiovascular and cerebrovascular diseases. This report also highlights the status of the AHA's "Essential Eight" risk factors (2), which include traditional factors – glycemia, cholesterol, and blood pressure levels – as well as lifestyle factors such as smoking, physical activity, diet, weight, and sleep habits, all of which collectively shape cardiovascular health. Risk factors were first identified based on findings from two major epidemiological registries. The **Seven Countries Study (SCS)** included only men from seven countries across three continents – the United States, Japan, Finland, the Netherlands, Italy, Greece, and former Yugoslavia (with Serbia's three cohorts continuing follow-up for up to 55 years). At the time, in the post-WWII era, women were believed to be protected from heart disease until well into menopause. The **Framingham Heart Study (FHS)**, in contrast, included both men and women, though primarily of Caucasian descent. Notably, while maternal morbidity and mortality data were collected for SCS participants, this later proved to be both insightful and valuable. A 40-year follow-up revealed that men whose mothers had hypertension and/or heart disease experienced worse cardiovascular outcomes in terms of both morbidity and mortality (3). However, it was the **Nurses' Health Study (NHS)** that first established a link between night shift work and an increased risk of developing diabetes (4) and obesity (5) – both of which, over time, contribute to a higher incidence and progression of cardiovascular and cerebrovascular disease. This association was further reinforced by findings from a 24-year follow-up, which demonstrated poorer overall health outcomes with aging (6). Sex specific risk factors, however, reached the guidelines only in the 21st century with the American guidelines being the first to include them in 2019 (7), while European ones followed 2 years later (8). Locally, despite coordinated efforts from all stakeholders (9) to provide comprehensive cardiovascular care for women in Serbia based on established global models (10, 11), a major barrier persists: a form of covert misogyny that has yet to be quantified in national samples. Clinically, it closely resembles the systemic racism faced by women of color in accessing reproductive care and in experiencing higher peri- and postpartum morbidity and mortality – disparities that persist even among those with no barriers to healthcare access or insurance (12, 13). This stems from the misperception that sex-specific care beyond reproductive and oncological health is an extension of militant feminism rather than a medical necessity. The global need for a comprehensive approach is the central theme of *The Lancet Women and Cardiovascular Disease*

Commission (14), which, in its latest revision, highlighted the impact of discrimination that endangers over 50% of the world's population. This issue has also been recently emphasized by leading experts in the field (15) and is the focus of the latest call to action (16), which seeks to improve risk stratification for young women at higher risk of developing acute coronary syndrome. Beyond the growing burden of cardiovascular risk factors among women of childbearing age (17), ageism itself poses a significant threat to women of all racial backgrounds in the United States. However, systematic efforts to address this issue have only emerged in the past decade (18). Conversely, Serbia's annual statistical reports (19) do not provide precise data on differences in non-communicable disease morbidity and mortality rates between men and women in the Roma population, despite their well-documented vulnerability due to social determinants of health (SDOH). Additionally, the ongoing migrant crisis, which began in 2015, is not accounted for – despite *United Nations High Commissioner for Refugees (UNHCR)* reports (20) indicating that Serbia has taken in far more refugees from African countries than initially deemed feasible, even before the influx from Ukraine and Russia in February 2022. Currently, no reports are available on health status of women refugeeed in Serbia, whether they are still displaced and live in camps or are in process of integration, although the generous universal coverage makes follow up exams possible for both groups.

Sex-specific risk factors, i.e., adverse pregnancy outcomes, early menopause irrelevant of mechanism, mental health, violence with an emphasis on intimate partner violence, are defined in the last State-of-the-Art Review for Primary Prevention of Cardiovascular Disease in Women (21). However, the window of opportunity – often referred to as the "fourth trimester" (13) – remains largely overlooked, not only among African American women but across populations more broadly (22). Fortunately, awareness of this critical period is increasing, as long-term health risks are now being recognized globally, including in Scandinavia (23).

The emergence of the SARS-CoV-2 virus and the COVID-19 pandemic exposed yet another layer of sub-optimal care for women. Initially, misinformation suggesting that women were less susceptible to infection led to their disproportionate placement on the frontlines, increasing their exposure to patients more than men (24). This was followed by numerous reports highlighting higher mortality rates, more complex clinical presentations, and increased morbidity among women. Finally, the lingering effects of *long COVID*, along with its cardiovascular complications and the confounding impact of vaccines, have further underscored these disparities (9, 25-29). All of the above has not only driven the need for more sex-specific research designs but also highlighted the importance of addressing the infodemic and the role of health literacy in its lingering detrimental effects.

Aims

Given the limited national data on this topic, we aimed to assess not only hospitalization rates among women and men but also their awareness of risk factors for both themselves and the opposite sex. Additionally, we sought to explore preferred methods of communication with the healthcare system and their willingness to engage with telemedicine options.

METHODS

Our prospective research protocol was conducted at the Division of Cardiology of the University Clinical Center of Serbia from January 1st, 2024 to February 24th, 2024 with the ethical approval obtained from the Institutional Review Board of the Faculty of Medicine, University of Belgrade (December 2023).

During the specified timeframe, all patients hospitalized in two departments of our Division were systematically invited to participate in an educational interview and complete a multiple-choice questionnaire (MCQ). The questionnaire focused on patients' demographics, the presence and awareness of risk factors, preferred communication modalities for follow-up, and interest in telemedicine options. All patients signed an informed consent and provided contact information in case they wished to pursue follow up or refer family members they identified as unaware of cardiovascular burden.

The limitations of this pilot study included several factors: variations in local academic deadlines tied to the research protocol, which resulted in a two-week shortening of the study timeline; the holiday season, which added five days of complexity to patient inclusion, as well as the 14 weekend days; PCR positivity results for seasonal infections (COVID-19, Influenza A, Influenza B) led to mandatory immediate discharge by the hospital's infection control protocols, requiring follow-up and treatment at secondary or primary healthcare levels (as a result, patients not already included could not be retained for same-day participation or discharge); patients who underwent coronary angiography through the Day Hospital often stayed less than 12 hours in our department and were less motivated to engage with the local healthcare team providing post-catheterization care, resulting in early discharge the following day; denial of participation for various reasons; difficulty in understanding the questions posed; patients' critical condition, dementia, or psychiatric status at the time of screening.

STATISTICAL ANALYSIS

Due to the size, statistical analyses were limited to central tendency measures (mean), dispersion (SD, minimum and maximum), and absolute and relative frequency

measurements, with a χ^2 test considered significant at a $p < 0.05$ or Fisher's exact test.

RESULTS

Out of a total of 130 patients of both sexes hospitalized between January 1st, 2024 and February 24th, 2024, 49 patients accepted to participate, 66 refused, while 15 had medically and ethically justified reasons for non-inclusion.

Men comprised 51.0% (25) and women 49.0% (24) of the included patients. The average age was 64.24 ± 12.35 years, with the youngest patient being 28 and the oldest 91. The age distribution is shown in [Figure 1](#).

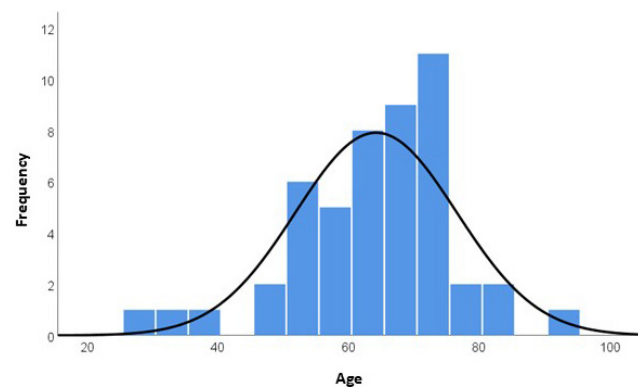


Figure 1. Age distribution of the study population

In regard to risk factors' presence (detailed in [Table 1](#)) only dyslipidemia was significantly more present in women.

Table 1. Frequency of risk factors according to sex

The presence of risk factors	Sex		p-value
	Men (n=25)	Women (n=24)	
Hypertension	18 (72.0)	16 (66.7)	0.686
Type 2 diabetes	10 (40.0)	15 (62.5)	0.115
Dyslipidemia	6 (24.0)	16 (66.7)	0.003
Obesity	12 (48.0)	13 (54.2)	0.666
Smoking	4 (16.0)	4 (16.7)	1.000
Migraine	1 (4.0)	5 (20.8)	0.098
Prior cancer treatment	1 (4.0)	5 (20.8)	0.098
Burnout	8 (32.0)	12 (50.0)	0.200
Physical activity	12 (48.0)	11 (45.8)	0.879
Alcohol	6 (24.0)	1 (4.2)	0.098

Data were presented as n (%)

On the other hand, awareness levels for traditional and modern risk factors were low in both sexes and with no significant difference between the two groups, as show in [Table 2](#).

Phone calls and text messages were the preferred modes of contact with the healthcare team, with no statistically significant difference between the sexes. As expected, women primarily served as household caregivers for the included men ([Table 3](#)).

Table 2. Frequency of risk factors' awareness according to sex

The presence of risk factors	Sex		p-value
	Men (n=25)	Women (n=24)	
Hypertension	23 (92.0)	23 (95.8)	1.000
Type 2 diabetes	22 (88.0)	22 (91.7)	1.000
Dyslipidemia	20 (80.0)	20 (83.3)	1.000
Obesity	21 (84.0)	24 (100.0)	0.110
Smoking	23 (92.0)	21 (87.5)	0.667
Migraine	22 (88.0)	22 (91.7)	1.000
Family history	9 (36.0)	10 (41.7)	0.684
Early menarche	0 (0.0)	4 (16.7)	1.000
Late menarche	0 (0.0)	3 (12.5)	1.000
Infertility	0 (0.0)	3 (12.5)	1.000
In vitro fertilization	0 (0.0)	5 (20.8)	1.000
Adverse pregnancy outcomes	0 (0.0)	5 (20.8)	1.000
Peripartum complications	0 (0.0)	6 (25.0)	1.000
Prior cancer treatment	13 (68.4)	13 (54.2)	0.342
Burnout	20 (80.0)	14 (58.3)	0.100

Data were presented as n (%)

Table 3. Frequency of preferential contact with the healthcare team and follow up according to sex

Telemedicine options	Sex		p-value
	Men (n=25)	Women (n=24)	
Phone call	19 (76,0)	18 (75,0)	1,000
Text message	15 (60,0)	11 (45,8)	0,321
Apps	6 (24,0)	7 (29,2)	0,682
Email	7 (28,0)	9 (37,5)	0,478
Social media engagement	3 (12,0)	3 (12,5)	1,000
Telemedicine, in general	1 (4,0)	2 (8,3)	0,609
Choice of healthcare team member for telemedicine	1 (4,2)	2 (8,7)	0,609
Societal support			
No one/Almost no one	12 (48,0)	16 (66,7)	0,187
Average/Maximum Support	13 (52,0)	8 (33,3)	

Data were presented as n (%)

DISCUSSION

In our pilot study sample, we observed a lower hospitalization rate among women, who were older and had more comorbidities than men. These findings align with global data indicating a lower level of awareness regarding sex-specific risk factors and disease presentation, as well as delayed contact with the nearest healthcare service or emergency number, as noted in guidelines from both sides of the Atlantic (30-32). Despite existing discrimination in the diagnostic and treatment approaches for conditions like MINOCA/INOCA, SCAD, and myocardial bridges (9, 16, 33-37), recent reports confirming a two-fold higher mortality in patients presenting with MINOCA during acute coronary syndrome (38) may help reduce the stigma surrounding these conditions, even in the face of ongoing appeals (14, 16, 33, 35) and the challenges posed by the COVID-19 pandemic on interventional cardiology services(24, 39, 40).

Regrettably, when comparing the health literacy levels on both traditional and modern risk factors for the devel-

opment and progression of cardiovascular disease in our unit's post-pandemic setting, the awareness levels were not significantly improved compared to the previous year (41). However, women – particularly those over 60 years of age – were more informed about the link between reproductive and cardiovascular health, recognizing that reproductive history serves as a window into later cardiovascular and cerebrovascular risks, morbidity, and mortality. These connections are well-established (7, 21, 42-44), but it is up to all stakeholders and policymakers to raise societal awareness about cardiovascular health beyond the reproductive health focus, which has been traditionally promoted through the “bikini medicine” approach (9, 15, 45), to ultimately improve long-term cardiovascular health (45, 46).

All modern risk factors were poorly recognized, highlighting a pervasive low level of health literacy that appears to be thriving in the era of the COVID-19 infodemic, despite well-established medical (47-53) and obstetric (12, 49, 54-57) knowledge on conditions that increase long-term cardiovascular risk in pregnant individuals – a term still absent from the Serbian medical lexicon, despite recommendations from international medical societies dedicated to gynecology and obstetrics. This gap in understanding also extends to the offspring, regardless of the method of conception.

What was surprising was the high level of resistance encountered when attempting to engage in educational conversations with men, particularly those who showed little interest in understanding or addressing their own risk factors. None of these individuals took the opportunity to schedule follow-up exams for themselves or for family members they recognized as having suboptimally controlled risk factors, across any level of prevention – from primordial to quaternary. Additionally, an interesting observation was made by two mid-career male team members: hospitalized men exhibited a culturally typical familiarity that bordered on rudeness in their communication with the healthcare team, particularly in interactions with junior female team members (one fellow, three residents, and one student). However, they tended to avoid engaging in similar behavior with mid-career female professionals (three attendings). This pattern was later confirmed by nursing staff. The described hostility, which could be interpreted as misogyny, was not quantified and could be considered a secondary outcome. This was not anticipated initially, and the research protocol did not include a specific questionnaire to capture such experiences among the various existing ones. Additionally, a comparison of these experiences with those from international studies in different settings was not deliberately made to avoid potential bias. A larger, more targeted study on this issue should be conducted in future.

In contrast to the denialists, men who agreed to participate in completing the MCQ reported female household members as their primary source of social support. This aligns with a global phenomenon, irrespective of cultural

context (24, 39), where women are often responsible for well-established forms of unpaid work, a situation further exacerbated by the COVID-19 pandemic (24, 39, 58).

Although telemedicine implementation in Serbia was derailed by COVID19, modest national attempts in the domain of cardiovascular health of women have been made (59, 60), so our seeking to understand better the needs of the patients of both sexes led us to conducting the MCQ part on willingness to embrace new technologies that are still not used in medical practice regionally. In our current sample, the motivation to use various existing technologies – ranging from text messages and phone calls to health-focused mobile apps and social media – was low for both women and men. While no statistical significance was found, this motivation was notably higher in women just one year ago (41). These results are not surprising, as previous studies have shown that university students in France, in general, use health-related websites and apps (61). However, our own study of final-year medical and sports medicine students (62) revealed that sex-specifically being female – was a predictor for using health apps, but only for the sports medicine group, not the medical students. Alarming, only 30% of female medical students reported using menstrual apps, considered helpful for reproductive health, compared to 41.4% of female sports medicine students. The national results, gathered within a similar timeframe at Belgrade University, underscore the critical importance of women's heart centers and programs (9-11), such as the one launched at the University Clinical Center of Serbia (9, 63). These centers provide interdisciplinary and multidisciplinary diagnostic services, along with timely treatment for women throughout their lifespan, aiming to protect the most vulnerable populations. Additionally, they play a crucial role in optimizing health literacy across all social strata, with a focus on local logistical considerations (9, 16, 64-66). These results highlight the need to modernize the core curriculum, extending beyond workshops for biomedicine students (67) to include tailored sessions for general practitioners (59) and cardiologists (60, 68-70). Modest efforts have already been made, such as the introduction of the concept of preventive measures across a woman's lifespan in the cardiology fellowship program since 2023, included in one of the Belgrade University Faculty of Medicine's "Q & A" manuals (71). Furthermore, from a public health perspective, where low health literacy impacts expenditures within our still-solidari-

ty-based universal coverage health insurance model, further research of this kind could offer valuable educational interviews with patients, while gathering essential data to optimize care standards and necessary metrics, moving us a step closer to improving healthcare outcomes.

CONCLUSION

Despite the numerous limitations of our snapshot pilot research, our findings revealed a modest level of health literacy when patients were questioned about both their own and the opposite sex's cardiovascular disease risk factors. As expected, the social support system predominantly relied on female household and family members. Although not initially planned, researchers – regardless of gender, sex, or age – encountered a level of misogyny that remains to be quantified. Additionally, our results emphasize the importance of leveraging telemedicine and social media as sources of healthcare information, particularly for women, who showed a higher interest in using handheld devices to improve their own health and that of their family members.

Acknowledgments

The authors wish to express their gratitude to Dr Nina Rajović (Department of Medical Statistics and Informatics, Faculty of Medicine, University of Belgrade) for her help with the statistical analysis presented in this paper.

Conflicts of interest

None to declare pertaining to the conducted pilot study

Author contributions

Conception or design of the work: BP, NKW, ZL, SDjD, DS, VK.

Acquisition: ZG, OB, MDj, PS, JVB, SP, DDj, IPDj, BP.

Analysis and interpretation of data: AMM, BP.

Preparing the draft of the manuscript: BP, PS, AMM, MDj.

Ethical approval

Faculty of Medicine University of Belgrade IRB approval (Dec 2023)

REFERENCE

1. Martin SS, Aday AW, Almarzooq ZI, Anderson CAM, Arora P, Avery CL, et al. 2024 Heart Disease and Stroke Statistics: A Report of US and Global Data From the American Heart Association. *Circulation*. 2024;149(8):e347-e913.
2. Lloyd-Jones DM, Allen NB, Anderson CAM, Black T, Brewer LC, Foraker RE, et al. Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory From the American Heart Association. *Circulation*. 2022;146(5):e18-e43.
3. Parapid B. Metabolic Syndrome and Cardiovascular Morbidity and Mortality In the National Cohorts of The Seven Countries Study - The 40 Years' Follow Up Results. Belgrade, Serbia: Belgrade University - Faculty of Medicine; 2014.

4. Shan Z, Li Y, Zong G, Guo Y, Li J, Manson JE, et al. Rotating night shift work and adherence to unhealthy lifestyle in predicting risk of type 2 diabetes: results from two large US cohorts of female nurses. *Bmj*. 2018;363:k4641.
5. Fujishiro K, Lividoti Hibert E, Schernhammer E, Rich-Edwards JW. Shift work, job strain and changes in the body mass index among women: a prospective study. *Occup Environ Med*. 2017;74(6):410-6.
6. Shi H, Huang T, Schernhammer ES, Sun Q, Wang M. Rotating Night Shift Work and Healthy Aging After 24 Years of Follow-up in the Nurses' Health Study. *JAMA Netw Open*. 2022;5(5):e2210450.
7. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, et al. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*. 2019;140(11):e596-e646.
8. Visseren FLJ, Mach F, Smulders YM, Carballo D, Koskinas KC, Böck M, et al. 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice: Developed by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association of Preventive Cardiology (EAPC). *European Heart Journal*. 2021;42(34):3227-337.
9. Parapid B, Kanjuh V, Kostić V, Polovina S, Dinić M, Lončar Z, et al. Women's Health in Serbia - Past, Present, and Future. *Srpski Arhiv za Celokupno Lekarstvo*. 2021;149(11-12):745-54.
10. Lundberg GP, Mehta LS, Sanghani RM, Patel HN, Aggarwal NR, Aggarwal NT, et al. Heart Centers for Women: Historical Perspective on Formation and Future Strategies to Reduce Cardiovascular Disease. *Circulation*. 2018;138(11):1155-65.
11. Gulati M, Hendry C, Parapid B, Mulvagh SL. Why We Need Specialised Centres for Women's Hearts: Changing the Face of Cardiovascular Care for Women. *Eur Cardiol*. 2021;16:e52.
12. Bond RM, Phillips K, Ivy KN, Ogueri V, Parapid B, Miller SC, et al. Cardiovascular Health of Black Women Before, During, and After Pregnancy: A Call to Action and Implications for Prevention. *Current Cardiovascular Risk Reports*. 2022.
13. Bond RM, Gaither K, Nasser SA, Albert MA, Ferdinand KC, Njoroge JN, et al. Working Agenda for Black Mothers: A Position Paper From the Association of Black Cardiologists on Solutions to Improving Black Maternal Health. *Circ Cardiovasc Qual Outcomes*. 2021;14(2):e007643.
14. Vogel B, Acevedo M, Appelman Y, Bairey Merz CN, Chieffo A, Figtree GA, et al. The Lancet women and cardiovascular disease Commission: reducing the global burden by 2030. *Lancet*. 2021;397(10292):2385-438.
15. Wenger NK. The Feminine Face of Heart Disease 2024. *Circulation*. 2024;149(7):489-91.
16. Manzo-Silberman S, Hawranek M, Banerjee S, Kaluzna-Oleksy M, Alasnag M, Paradies V, et al. Call to action for acute myocardial infarction in women: international multi-disciplinary practical roadmap. *Eur Heart J Open*. 2024;4(6):oeae087.
17. Manzo-Silberman S, Chabbert-Buffet N, Roux E, Parisi M, Regidor PA, Mounier-Vehier C. Prevalence of cumulative cardiovascular risk factors among women of childbearing age in France: Results of the GYNRISK® survey. *J Gynecol Obstet Hum Reprod*. 2024;54(1):102859.
18. Alexander KP, Rich MW, Forman DE, Wenger NK, Dodson JA, Alpert JS, et al. Top 10 List for the Cardiovascular Care of Older Adults. *Am J Med*. 2016;129(9):901-2.
19. INSTITUTE OF PUBLIC HEALTH OF SERBIA DMJB. HEALTH STATISTICAL YEARBOOK OF REPUBLIC OF SERBIA 2022. Beograd, Serbia.; 2023.
20. UNHCR. The Balkan Migrant Crisis 2016 [Available from: <https://data2.unhcr.org/en/documents/download/46801>].
21. Cho L, Davis M, Elgendy I, Epps K, Lindley KJ, Mehta PK, et al. Summary of Updated Recommendations for Primary Prevention of Cardiovascular Disease in Women: JACC State-of-the-Art Review. *J Am Coll Cardiol*. 2020;75(20):2602-18.
22. Lewey J, Beckie TM, Brown HL, Brown SD, Garovic VD, Khan SS, et al. Opportunities in the Postpartum Period to Reduce Cardiovascular Disease Risk After Adverse Pregnancy Outcomes: A Scientific Statement From the American Heart Association. *Circulation*. 2024;149(7):e330-e46.
23. Kvalvik LG, Skjærven R, Sulo G, Singh A, Harmon QE, Wilcox AJ. Pregnancy History at 40 Years of Age as a Marker of Cardiovascular Risk. *Journal of the American Heart Association*. 0(0):e030560.
24. Parapid B, Alasnag M, Hayes S, Samargandy S, Banerjee S, Alasnag M, et al. COVID-19 impact on women on both sides of the frontline - the American College of Cardiology Women in Cardiology Section & #039;s International Working Group perspective. *Srpski Arhiv Za Celokupno Lekarstvo*. 2020;148(9-10):637-43.
25. Parapid B, Bond RM. COVID-19: An Insult to Injury on Equity. *International Journal of Cardiovascular Sciences*. 2021;34(4):342-3.
26. Sakurada Y, Matsuda Y, Motohashi K, Hasegawa T, Otsuka Y, Nakano Y, et al. Clinical characteristics of female long COVID patients with menstrual symptoms: a retrospective study from a Japanese outpatient clinic. *J Psychosom Obstet Gynaecol*. 2024;45(1):2305899.
27. Maybin JA, Watters M, Rowley B, Walker CA, Sharp GC, Alvergne A. COVID-19 and abnormal uterine bleeding: potential associations and mechanisms. *Clin Sci (Lond)*. 2024;138(4):153-71.
28. Julio S, Takehiro T, Jamie W, Peiwen L, Sasha T, Jeffrey G, et al. Sex differences in symptomatology and immune profiles of Long COVID. *medRxiv*. 2024:2024.02.29.24303568.
29. Thaweethai T, Jolley SE, Karlson EW, Levitan EB, Levy B, McComsey GA, et al. Development of a Definition of Postacute Sequelae of SARS-CoV-2 Infection. *Jama*. 2023;329(22):1934-46.
30. Blankstein R, Gulati M, Jaber WA, Bullock-Palmer RP, Bhatt DL, Shaw LJ. The 2021 Chest Pain Guideline: A Revolutionary New Paradigm for Cardiac Testing. *JACC Cardiovasc Imaging*. 2022;15(1):140-4.
31. Byrne RA, Rossello X, Coughlan JJ, Barbato E, Berry C, Chieffo A, et al. 2023 ESC Guidelines for the management of acute coronary syndromes: Developed by the task force on the management of acute coronary syndromes of the European Society of Cardiology (ESC). *European Heart Journal*. 2023;44(38):3720-826.
32. Vrints C, Andreotti F, Koskinas KC, Rossello X, Adamo M, Ainslie J, et al. 2024 ESC Guidelines for the management of chronic coronary syndromes. *Eur Heart J*. 2024.
33. Alasnag M, Jelani Q-u-a, Johnson TW, Parapid B, Balghaith M, Al-Shaibi K. The Role of Imaging for MINOCA (Myocardial Infarction with No Obstructive Coronary Artery Disease): a Review of Literature and Current Perspectives. *Current Cardiovascular Imaging Reports*. 2020;13(7):21.
34. Alasnag M, Manzo-Silberman S. Women making waves Editorial: Impact of sex in the functional assessment of intermediate coronary lesions by instantaneous wave-free ratio. *Cardiovasc Revasc Med*. 2022.
35. Kunadian V, Chieffo A, Camici PG, Berry C, Escaned J, Maas A, et al. An EAPCI Expert Consensus Document on Ischaemia with Non-Obstructive Coronary Arteries in Collaboration with European Society of Cardiology Working Group on Coronary Pathophysiology & Microcirculation Endorsed by Coronary Vasomotor Disorders International Study Group. *EuroIntervention*. 2021;16(13):1049-69.
36. Donataccio MP, Puymirat E, Parapid B, Steg PG, Eltchaninoff H, Weber S, et al. In-hospital outcomes and long-term mortality according to sex and management strategy in acute myocardial infarction. Insights from the French ST-elevation and non-ST-elevation Myocardial Infarction (FAST-MI) 2005 Registry. *Int J Cardiol*. 2015;201:265-70.
37. Aleksandric S, Djordjevic-Dikic A, Beleslin B, Parapid B, Teofilovski-Parapid G, Stepanovic J, et al. Noninvasive assessment of myocardial bridging by coronary flow velocity reserve with transthoracic Doppler echocardiography: vasodilator vs. inotropic stimulation. *Int J Cardiol*. 2016;225:37-45.
38. Quesada O, Yildiz M, Henry TD, Bergstedt S, Chambers J, Shah A, et al. Mortality in ST-Segment Elevation Myocardial Infarction With Nonobstructive Coronary Arteries and Mimickers. *JAMA Network Open*. 2023;6(11):e2343402-e.

39. Öz TK, Cader FA, Dakhil ZA, Parapid B, Kadavath S, Bond R, et al. International consensus statement on challenges for women in cardiovascular practice and research in the COVID-19 era. *Minerva Cardiol Angiol.* 2022;70(6):641-51.
40. De Luca G, Manzo-Silberman S, Algowhary M, Uguz B, Oliveira DC, Ganyukov V, et al. Gender Difference in the Effects of COVID-19 Pandemic on Mechanical Reperfusion and 30-Day Mortality for STEMI: Results of the ISACS-STEMI COVID-19 Registry. *J Clin Med.* 2023;12(3).
41. Djapanović VP, A., editor Risk Factors for the Development of Early Cardiovascular Disease in Women: Results of the University Clinical Center of Serbia Pilot Study. 62 Kongres Studenata Biomedicinskih Nauka sa Internacionalnim Učešćem; 2023; Kopaonik, Srbija 24-28.04.2023. Belgrade, Serbia: Medicinski fakultet Univerziteta u Beogradu; 2023.
42. Bilen O, Wenger NK. Hypertension management in older adults. *F1000Res.* 2020;9.
43. Faulkner JL. Obesity-associated cardiovascular risk in women: hypertension and heart failure. *Clin Sci (Lond).* 2021;135(12):1523-44.
44. Flouris AD, Faught BE, Klentrou P. Cardiovascular disease risk in adolescent smokers: evidence of a 'smoker lifestyle'. *J Child Health Care.* 2008;12(3):221-31.
45. Wenger NK, Lorell BH, Bairey Merz CN. Recent Legislation, Public Policy Changes, and Women's Cardiovascular Health: Disproportionate Burden. *Circulation.* 2018;138(11):1082-4.
46. Kouvari M, Souliotis K, Yannakoulia M, Panagiotakos DB. Cardiovascular Diseases in Women: Policies and Practices Around the Globe to Achieve Gender Equity in Cardiac Health. *Risk Manag Healthc Policy.* 2020;13:2079-94.
47. Lee I, Vresilovic J, Irfan M, Gallop R, Dokras A. Higher Incidence of Metabolic Syndrome in Black Women With Polycystic Ovary Syndrome: A Longitudinal Study. *J Clin Endocrinol Metab.* 2021.
48. Woodward A, Klonizakis M, Lahart I, Carter A, Dalton C, Metwally M, et al. The effects of exercise on cardiometabolic outcomes in women with polycystic ovary syndrome not taking the oral contraceptive pill: protocol for a systematic review and meta-analysis. *Syst Rev.* 2019;8(1):116.
49. Gojnic M, Todorovic J, Stanisavljevic D, Jotic A, Lukic L, Milicic T, et al. Maternal and Fetal Outcomes among Pregnant Women with Diabetes. *Int J Environ Res Public Health.* 2022;19(6).
50. Elder P, Sharma G, Gulati M, Michos ED. Identification of female-specific risk enhancers throughout the lifespan of women to improve cardiovascular disease prevention. *American Journal of Preventive Cardiology.* 2020;2:100028.
51. Agarwala A, Michos ED, Samad Z, Ballantyne CM, Virani SS. The Use of Sex-Specific Factors in the Assessment of Women's Cardiovascular Risk. *Circulation.* 2020;141(7):592-9.
52. Osibogun O, Ogunmoroti O, Michos ED. Polycystic ovary syndrome and cardiometabolic risk: Opportunities for cardiovascular disease prevention. *Trends Cardiovasc Med.* 2020;30(7):399-404.
53. Parapid B, Rakić S. Oral Contraception: Beyond What Meets the Eye. Sorry, the Ovaries! *International Journal of Cardiovascular Sciences.* 2022;35(4):511-3.
54. Debbink MP, Ugwu LG, Grobman WA, Reddy UM, Tita ATN, El-Sayed YY, et al. Racial and Ethnic Inequities in Cesarean Birth and Maternal Morbidity in a Low-Risk, Nulliparous Cohort. *Obstet Gynecol.* 2022;139(1):73-82.
55. Catov JM, McNeil RB, Marsh DJ, Mercer BM, Bairey Merz CN, Parker CB, et al. Early Pregnancy Atherogenic Profile in a First Pregnancy and Hypertension Risk 2 to 7 Years After Delivery. *J Am Heart Assoc.* 2021;10(5):e017216.
56. Kuo CH, Kuo CC, Wu HY, Wu DC, Yang CY. Higher parity and earlier age at first birth are associated with lower risk of death from colon cancer. *Cancer Sci.* 2012;103(8):1553-7.
57. Sharma G, Zakaria S, Michos ED, Bhatt AB, Lundberg GP, Florio KL, et al. Improving Cardiovascular Workforce Competencies in Cardio-Obstetrics: Current Challenges and Future Directions. *J Am Heart Assoc.* 2020;9(12):e015569.
58. UN WOMEN. Facts and figures: Economic empowerment 2024 [Available from: <https://www.unwomen.org/en/what-we-do/economic-empowerment/facts-and-figures>].
59. Parapid B, editor Kardiovaskularno zdravlje žena. 11Kongres Lekara Opšte Medicine Srbije, pod okriljem Sekcije Opšte Medicine SLD; 2021 24.09.2021.; Zlatibor, Srbija.
60. Parapid BL, B., editor Žensko kardiovaskularno zdravlje – prikaz rezultata. . 21 Kongres Udruženja Kardiologa Srbije 2021 22.10.2021.; Beograd, Srbija.
61. Montagni I, Cariou T, Feuillet T, Langlois E, Tzourio C. Exploring Digital Health Use and Opinions of University Students: Field Survey Study. *JMIR Mhealth Uhealth.* 2018;6(3):e65.
62. Gazibara TC, M.; Cakić, J.; Zejnelagić, R.; Popović, A.; Grgurević, A. Factors associated with use of health websites and apps among students in medicine and sports. *Medicinska istraživanja.* 2023;57(1):83-91.
63. A. DVP, editor Risk Factors for the Development of Early Cardiovascular Disease in Women: Results of the University Clinical Center of Serbia Pilot Study. 62 Kongres Studenata Biomedicinskih Nauka sa Internacionalnim Učešćem; 2023; Kopaonik, Srbija 24-28.04.2023. 2023: Medicinski fakultet Univerziteta u Beogradu.
64. Wenger NK, Williams OO, Parashar S. SMARTWOMAN™: Feasibility assessment of a smartphone app to control cardiovascular risk factors in vulnerable diabetic women. *Clin Cardiol.* 2019;42(2):217-21.
65. Krishnaswami A, Beavers C, Dorsch MP, Dodson JA, Masterson Creber R, Kitsiou S, et al. Gerotechnology for Older Adults With Cardiovascular Diseases: JACC State-of-the-Art Review. *J Am Coll Cardiol.* 2020;76(22):2650-70.
66. Schorr EN, Gepner AD, Dolansky MA, Forman DE, Park LG, Petersen KS, et al. Harnessing Mobile Health Technology for Secondary Cardiovascular Disease Prevention in Older Adults: A Scientific Statement From the American Heart Association. *Circ Cardiovasc Qual Outcomes.* 2021;14(5):e000103.
67. Parapid B, editor Žensko kardiovaskularno zdravlje. 21 Kongres Studenata Biomedicine; 2022 25-29.04.2022.; Kopaonik, Srbija.
68. Parapid B, editor Gender disparities and coronary artery disease: Women's health. in Expert lectures 5. BASICS+ 7th (Belgrade Summit of Interventional Cardiologists); 2011 April 8-9, 2011; Belgrade, Serbia.
69. Parapid B, editor Women's Heart Programs: A Bare Necessity of Diversity & Inclusion, not a Fashion Accessory of Innovation NOVAK 2022 - Symposium of the Cardiology society of Serbia - Clinical update and perspectives of cardiology in Serbia; 2022 28-30.10.2022.; Novi Sad, Serbia.
70. Parapid B, editor ESC 2023: innovations in the treatment of cardiovascular diseases in women or not so much? Serbia Prevent 2023; 2023 28-29.09.2023.; Belgrade, Serbia.
71. Parapid B. LK, Gojnić-Dugalić M., Kanjuh V.I., Kass Wenger, N. Koje su specifičnosti KV prevencije kod žena? In: Beleslin B, editor. *Cardiologia preventiva: kroz 120 pitanja i odgovora.* Beograd.: Data status.; 2023.

SVEST O POLNO SPECIFIČNIM FAKTORIMA RIZIKA, PRIKRIVENA MIZOGINIJA I DUGOROČNA OPTIMIZACIJA KARDIOVASKULARNOG RIZIKA: REZULTATI PILOT STUDIJE

Biljana Parapid¹, Žaklina Grujić¹, Ognjen Bisenić¹, Milica Đurović¹, Petar Simić², Bosiljka Đikanović Tetiković³, Sonja Petrović¹, Jovana Vuković Banjanac¹, Kristina Simatović¹, Dijana Đikić¹, Ivana Petrović Đorđević¹, Ana Mladenović Marković⁴, Zlatibor Lončar⁵, Slavica Đukić Dejanović⁶, Dragan Simić¹, Nanette Kass Wenger⁷, Vladimir Kanjuh⁸

Sažetak

UVOD: Iako se zdravstvena pismenost smatra temeljem prevencije, polno specifičnoj prevenciji faktora rizika za razvoj kardiovaskularnih bolesti, vodećem uzroku mortaliteta žena globalno, i dalje se ne pridaje dovoljno značaja, a ustaljena kulturološka uverenja prednjače u odnosu na zvanične preporuke.

METODE: Validirani upitnik kreiran kako bi edukovao bolesnika, a sa druge strane pomogao zdravstvenom timu da uči o upravljanju tradicionalnim i polno specifičnim modernim faktorima rizika, uključujući mogućnost sveobuhvatnog individualnog dugoročnog praćenja, ponuđen je svim hospitalizovanim pacijentima.

REZULTATI: Od 130 pacijenata hospitalizovanih na odeljenju u periodu od 01.01. do 24.02.2024. kojima je upitnik ponuđen, 37.7% prihvatilo je da učestvuje, dok je 11.5% bilo isključeno iz različitih etičkih razloga. Ispitivane žene (49%) bile su starije od muškaraca, imale su viši stepen

opterećenja tradicionalnim faktorima rizika, ali su posedovale i viši stepen znanja i zainteresovanosti za faktore rizika kod oba pola, dok su muškarci, posebno oni koji su odbili da učestvuju u anketiranju iz nepoznatog razloga, pokazali nezainteresovanost za navedene faktore rizika čak i kod bliskih rođaka i ukućanki. Muškarci za razliku od žena nisu pokazali zainteresovanost za upotrebu savremenih modaliteta telemedicine, iako moderna sredstva komunikacije koriste u gotovo istoj meri kao žene.

ZAKLJUČAK: Dobijeni rezultati u skladu su sa onim dobijenim tokom pilot istraživanja sprovedenog samo na ženama prethodne godine. Međutim, ono što iznenađuje kada su u pitanju muški ispitanici jeste hostilnost iskazana prema kako mlađim, tako i doktorkama srednje generacije, koja nestaje kada im se obrati muškarac starije generacije kao član zdravstvenog tima. Ovakav rezultat potvrđuje da je mizoginiju potrebno aktivno suzbijati.

Ključne reči: zdravstvena pismenost, kardiovaskularna bolest, kardiovaskularni rizik, polno specifični faktori rizika, mizoginija

Primljen: 26.11.2024. | **Revizija:** 03.12.2024. | **Prihvaćen:** 13.12.2024.

Medicinska istraživanja 2025; 58(1):25-32