Available online at: https://wartaandalas.lppm.unand.ac.id/

Warta Pengabdian Andalas

Jurnal Ilmiah Pengembangan dan Penerapan Ipteks

ISSN (Print) 0854-655X | ISSN (Online) 2797-1600

The Efforts in Increasing Awareness and Identifiying Risk Factors of Cardiovascular Disease in Women

Mulyanti Roberto Muliantino*, Yuanita Ananda, Yelly Herien, Bobby Febri Krisdianto, Esi Afiyanti, Leni Merdawati

Faculty of Nursing, Universitas Andalas, Kampus Limau Manis, Padang, 25163. Indonesia

*Corresponding author: **mulyantiroberto@nrs.unand.ac.id**

Submitted: November 5, 2024 Accepted: March 15, 2025 Published: March 28, 2025

ABSTRACT

Cardiovascular disease is the primary cause of mortality among women on a global scale. However, the awareness among women regarding the risks associated with cardiovascular disease remains limited, leading to a delay in prevention, treatment, and, ultimately, mortality. This activity is intended to raise awareness and to identify those at high risk of developing cardiovascular diseases. The method uses an educational program and health screening involved 21 women in RT 02 RW 06 Pasar Ambacang, Padang City. The ABCD risk questionnaire was used to measure awareness. The result showed that respondents' awareness score prior to the educational intervention was 37.5, which increased to 49.5 following the intervention. The health screening results indicated the presence of respondents with obesity (33.3%), overweight (19.1%), and non-ideal abdominal circumference (85.8%). Furthermore, the data revealed that 14.2% of respondents had stage 2 hypertension, 19.1% had stage 1 hypertension, 47.6% had pre-hypertension, 57.1% had high cholesterol levels, and 19.1% had high blood sugar levels. Educational efforts have been proven to increase awareness; moreover, health screening is effective in identifying the risk of cardiovascular disease in women. It is imperative that the female community is provided educational program to enhance their knowledge and awareness regarding disease risk.

Keywords: awareness, education, heart disease, hypertension, screening

INTRODUCTION

Cardiovascular disease represents a significant global and national health challenge (Lucà et al., 2022). In Indonesia, cardiovascular disease has been identified as the leading cause of death, as evidenced by data from the Global Burden of Disease and Institute of Health Metrics and Evaluation (OHME) for the period 2014-2019. Furthermore, a 1.5% increase in heart disease trends was observed in 2018 (Riskesdas, 2018). Notably, cardiovascular disease has been identified as the leading cause of mortality among women on a global scale (Garcia et al., 2016). Data from the American College of Cardiology (2021) suggests that the global prevalence of heart disease in women is 275 million. Ischemic heart disease is the leading cause of death in women (47%) (Rajendran et al., 2023). In Indonesia, the prevalence of ischemic heart disease in women is 31.72%, and the incidence of coronary heart disease is higher in women (1.6%) than in men (1.3%). The prevalence of hypertension reached 34.11%, with a higher incidence observed among women (40%) compared to men (29%). The prevalence of hypertension in West Sumatra was found to be 25.16% (Riskesdas, 2018).

DOI: **https://doi.org/10.25077/jwa.32.1.38-45.2025**

The elevated prevalence of cardiovascular disease in women is associated with a multitude of risk factors. In addition to conventional risk factors such as hypertension, diabetes mellitus, obesity, smoking, physical inactivity, a high-fat and high-cholesterol diet, stress, and a family history of heart disease, women also face gender-specific risk factors including menopause, hormonal use, contraception, a history of gestational hypertension, gestational diabetes, and pre-eclampsia. According to the National Heart, Lung and Blood Institute (2023), 80% of women aged 40 to 60 years have one or more risk factors for heart disease (Mulvagh et al., 2024). This elevated risk is a crucial factor in understanding the potential for women to develop heart disease. Consequently, it is imperative for women to be cognizant of the risks associated with heart disease. However, research findings indicate that awareness of heart disease risk is low among women, particularly among younger demographics. Among these groups, there is a tendency to associate heart disease with older age groups, males, and the elderly. Consequently, young women are more likely to prioritize factors such as weight, pregnancy, and depression (Bertomeu-Gonzalez et al., 2023; Garcia et al., 2016; O'Kelly et al., 2022).

A decline in the awareness of heart disease risk among women in the United States has been observed, from 65% in 2009 to 44% in 2019 (Wenger et al., 2022). The majority of women appear to lack awareness of their risk factors, instead focusing on factors such as body shape, breasts or weight (Ferreira et al., 2024; Kim et al., 2022; Kostis et al., 1522; Mulvagh et al., 2024; Regitz-Zagrosek, 2018). This can have repercussions for prevention efforts, care-seeking measures and disease management, resulting in delays in hospitalization and fatalities (Kim et al., 2022).

RT 06 RW 02 Pasar Ambacang is a recently developing area in Kuranji Sub-district, Padang City. The population of the area consists of more than two hundred families, the majority of which fall within the beginner and early adult stages of life. The majority of women are homemakers, not engaged in paid employment. A community screening programme previously conducted in RT 06 RW 02 Pasar Ambacang revealed that 13 out of 41 individuals had hypertension, 13 exhibited abnormal Ankle Brachial Index (ABI) values (mild obstruction and severe calcified vessels), 23 had high cholesterol levels, and 3 had elevated blood sugar levels. The majority of these cases were observed among individuals aged 30-50 years, predominantly women (Muliantino et al., 2024). This finding suggests that women residing in RT 06 RW 02 Pasar are disproportionately susceptible to degenerative diseases, particularly those affecting the cardiovascular system. Consequently, the implementation of preventive measures is imperative to mitigate the prevalence of these diseases. In addition, interviews with seven female residents revealed a lack of awareness regarding specific risk factors for heart disease in women. Instead, there was a general understanding that factors such as consuming fatty foods, coconut milk, and fried food, as well as smoking, contributed to the development of heart and blood vessel diseases. The focus on body shape as the ideal for women is also of significance. This finding serves to reinforce the notion that there is a conspicuous absence of optimal knowledge and literacy among women with regard to the risk factors associated with cardiovascular disease, thereby underscoring the inadequacy of awareness initiatives. The objective of this activity is to raise awareness and to identify the risk of cardiovascular disease among women in RT 02 RW 06 Pasar Ambacang, Padang city.

METHOD

The method of implementation of the activity is education and health screening for women health in RT 02 RW 06 Pasar Ambacang, Padang city. The educational component of the programme encompasses risk factor identification for cardiovascular disease in

women, utilizing focus group discussions as a method for knowledge dissemination (Figure 2a). The health checks encompass a range of parameters, including anthropometric indices such as weight, height, and body mass index; abdominal circumference; blood pressure; cholesterol levels; and blood glucose levels (Figure 2b & 2c). The instruments utilized for data collection included demographic data sheets, leaflets, and the ABCD Risk questionnaire, which was employed to assess women's awareness concerning the risk of cardiovascular disease. Prior to and following the implementation of the test, measurements were obtained. The health screening tools employed included tension meters, glucometers, blood sugar and cholesterol test strips, lancets, gloves, and alcohol swabs. Prior to conducting the health check, participants were requested to complete a data sheet encompassing details such as age and any pre-existing medical conditions. Subsequent to this, health checks were conducted. The results of these assessments have been meticulously documented, and those participants exhibiting risk factors or abnormality in their results will undergo further review. The implementation team conveyed the results of the examination and recommendations for subsequent action to the participants. The data obtained were analyzed and presented in the form of descriptive statistics (frequency distribution).

RESULTS AND DISSCUSSION

The activity was conducted in RT 02 RW 06 Pasar Ambacang, Padang City, to 21 women health cadres on 6 October 2024. The team responsible for implementing this activity comprised five academic staff members from the Faculty of Nursing, Andalas University, and four students enrolled in the Bachelor of Nursing programme and Ners profession (Figure 1). As demonstrated in Table 1, the majority of respondents fell within the 31-40 age demographic, accounting for 47.6% of the total. Furthermore, the data indicates that 14.2% of respondents had a history of hypertension, 19.1% had a history of diabetes mellitus, and 4.8% had a history of heart disease. As demonstrated in Table 2, the mean awareness score pertaining to the risk of cardiovascular disease in women prior to educational intervention was 37.5, increasing to 49.5 following the educational programme.

Table 1. Respondent characteristics (n=21)

Characteristics	n	%
Total of participants	21	
Age		
31 – 40 years	10	47.6
40 – 50 years	5	23.8
51 – 60 years	6	28.6
Medical history		
Hypertension	3	14.2
Diabetes mellitus	4	19.1
Heart disease	1	4.8
None	13	61.9

According to the findings of the health screening survey (see Table 2), 33.3% of participants were classified as obese (BMI >27) and 19.1% as overweight (BMI 25-27). Furthermore, 85.8% of respondents exhibited non-ideal abdominal circumference, with a measurement greater than 80 cm. The results of the blood pressure examination indicated that 14.2% of respondents were in the stage 2 hypertension range (>160 mmHg), 19.1%

were in stage 1 hypertension, and 47.6% were in pre-hypertension. The examination of cholesterol levels revealed that 57.1% of respondents had high cholesterol, which was above 200 mg/dl. Moreover, the results of the examination of blood glucose levels revealed that 19.1% of respondents had blood sugar levels above 200 mg/dl.

Table 2. The awareness of heart disease risk score among women in location area (n=21)

Awareness Score	Mean	Range
Pre-test	37.52	0-80
Post-test	49.05	0-80

Table 3. Health screening results among women in location area (n=21)

Variable	n	%
Body Mass Index (BMI)		
Under weight (<18,5)	1	4.8
Normal range (18,5-25)	9	42.8
Overweight (25 -27)	4	19.1
Obese (>27)	7	33.3
Abdominal circumference		
Ideal (< 80 cm)	3	14.2
No (>80 cm)	18	85.8
Blood pressure		
Normal (< 120 mmHg)	4	19.1
Pre hypertension (120 - 139 mmHg)	10	47.6
Stage 1 hypertension (140 - 159 mmHg)	4	19.1
Stage 2 hypertension (>160 mmHg)	3	14.2
Cholesterol levels		
< 200 mg/dl	9	42.9
> 200 mg/dl	12	57.1
Blood glucose levels		
< 200 mg/dl	17	80.9
> 200 mg/dl	4	19.1

Educational activities have been demonstrated to enhance women's awareness regarding the risk of cardiovascular disease. The findings indicated that the average awareness of respondents before education was low and after education increased to a moderate level. The findings of this study demonstrate that health education utilizing the focus group discussion method is an effective medium for enhancing awareness concerning the risk of cardiovascular disease in women. Mulvagh et al. (2024) emphasized the importance of health campaigns in increasing women's awareness of the risks of heart disease, both starting at a young age, middle age, towards menopause and after menopause. This may contribute to a reduction in the incidence of cardiovascular disease in women. Focused education has been shown to enhance women's knowledge and awareness, thereby empowering them to adopt a healthier lifestyle and mitigate the risk of cardiovascular disease (Ramachandran et al., 2016). Furthermore, Minissian et al. (2022) emphasized the necessity of enhancing women's knowledge and awareness concerning the risk of heart and blood vessel disease, particularly among young women, to minimize the occurrence of heart attacks and mortality among this demographic.



Figure 1. The Health Education and Screening Team

The health screening revealed that a number of respondents exhibited risk factors for cardiovascular disease, including overweight (defined as obesity, overweight, and non-ideal abdominal circumference), hypertension, hypercholesterolemia, and diabetes mellitus. Excess weight can cause the heart to work harder in pumping blood. Furthermore, the presence of overweight or obesity is often associated with dyslipidemia and hyperglycemia, which, in turn, can lead to accelerated atherosclerotic plaque formation, vascular endothelial damage, and heightened systemic vascular pressure (Kris-Etherton et al., 2021). Elevated cholesterol levels are recognised as a significant risk factor for the development of vascular disease, with the accumulation of cholesterol within the arterial walls contributing to the formation of atherosclerotic plaque (Susanti et al., 2024). This condition can lead to hypertension, diabetes mellitus, coronary heart disease, heart failure, stroke and peripheral vascular disease (Bilal et al., 2015; Powell-Wiley et al., 2021). Research conducted by (Miko Lenzu et al., 2022), suggests a heightened prevalence of hypertension in individuals with high blood cholesterol levels. Hypertension has been demonstrated to be a contributing factor to the development of cardiovascular diseases. The sustained and excessive workload on the heart, consequent to hypertension, is a significant risk factor for the development of cardiovascular diseases (Naomi et al., 2021).



a. Cardiovascular health education | b. Blood pressure monitoring | c. Cholesterol and blood glucose monitoring

Figure 2. Health education and screening activities in Pasar Ambacang

Early identification of risks through health screening can enhance women's awareness of the threat posed by cardiovascular disease. This can also increase women's willingness to make healthy lifestyle modifications, thereby reducing the risk cardiovascular disease in women (Mulvagh et al., 2024). Empowerment has been identified as a key factor in the efforts to prevent disease (Muliantino et al., 2021; Wenger et al., 2022).

CONCLUSSION

Health education can be considered as a strategy for enhancing societal awareness regarding the risk factors associated with cardiovascular diseases in female demographics. Health screening is a pivotal step in identifying the risk of cardiovascular disease, facilitating early prevention. Continuous health promotion is imperative in enhancing awareness, knowledge, and controlling the incidence of cardiovascular disease in the female population. It is imperative that the female community is provided with targeted educational initiatives to enhance their knowledge, awareness, and self-management skills regarding disease risk.

ACKNOWLEDGEMENT

The researchers would like to express their gratitude to the Research Centre of Faculty of Nursing, Universitas Andalas, PKK RT 02 RW 06 Pasar Ambacang and all of participants who supported this activity. This work was supported by grant from Research Centre of Faculty of Nursing Universitas Andalas (grant numbers: T/024/SPK/PTN-BH/FKep/Unand-2024).

REFERENCES

Bertomeu-Gonzalez, V., Cordero, A., Ruiz-Nodar, J. M., Sánchez-Ferrer, F., López-Pineda, A., & Quesada, J. A. (2023). Risk factors for major adverse cardiovascular events in postmenopausal women: UK Biobank prospective cohort study. *Atherosclerosis*, *386*. https://doi.org/10.1016/j.atherosclerosis.2023.117372

Bilal, M., Haseeb, A., Lashkerwala, S. S., Zahid, I., Siddiq, K., Saad, M., Dar, M. I., Arshad, M. H., Shahnawaz, W., Ahmed, B., & Yaqub, A. (2015). Knowledge, awareness and self-care practices of hypertension among cardiac hypertensive patients. *Global Journal of Health Science*, *8*(2), 9–19. https://doi.org/10.5539/gjhs.v8n2p9

Ferreira, R. M., Ferron, F. V. F., Borges, V. T. M., Peraçoli, J. C., Ferron, A. J. T., Roscani, M. G., Hueb, J. C., Bazan, R., Martin, L. C., & Bazan, S. G. Z. (2024). Association of cardiovascular risk factors and myocardial hypertrophy in women with preeclampsia history. *Life Sciences*, *346*. https://doi.org/10.1016/j.lfs.2024.122646

Garcia, M., Mulvagh, S. L., Merz, C. N. B., Buring, J. E., & Manson, J. A. E. (2016). Cardiovascular disease in women: Clinical perspectives. In *Circulation Research* (Vol. 118, Issue 8, pp. 1273–1293). Lippincott Williams and Wilkins. https://doi.org/10.1161/CIRCRESAHA.116.307547

Kim, H. J., Kim, H. Y., Kim, H. L., Park, S. M., Cho, D. H., Kim, M., Yoon, H. J., Byun, Y. S., Park, S. M., Shin, M. S., Hong, K. S., & Kim, M. A. (2022). Awareness of cardiovascular disease among Korean women: Results from a nationwide survey. *Preventive Medicine Reports*, *26*. https://doi.org/10.1016/j.pmedr.2022.101698

Kostis, J. B., Zinonos, S., Kostis, W. J., & Ali, S. (2022). *Prevention and health promotion Gestational diabetes and risk of cardiovascular disease*. https://www.abstractsonline.com/pp8/#!/10461

Kris-Etherton, P. M., Petersen, K. S., Després, J. P., Anderson, C. A. M., Deedwania, P., Furie, K. L., Lear, S., Lichtenstein, A. H., Lobelo, F., Morris, P. B., Sacks, F. M., & Ma, J. (2021).

Strategies for promotion of a healthy lifestyle in clinical settings: pillars of ideal cardiovascular health: a science advisory from the american heart association. In *Circulation* (Vol. 144, Issue 24, pp. E495–E514). Lippincott Williams and Wilkins. https://doi.org/10.1161/CIR.0000000000001018

Lucà, F., Abrignani, M. G., Parrini, I., Di Fusco, S. A., Giubilato, S., Rao, C. M., Piccioni, L., Cipolletta, L., Passaretti, B., Giallauria, F., Leone, A., Francese, G. M., Riccio, C., Gelsomino, S., Colivicchi, F., & Gulizia, M. M. (2022). Update on management of cardiovascular diseases in women. In *Journal of Clinical Medicine* (Vol. 11, Issue 5). MDPI. https://doi.org/10.3390/jcm11051176

Miko Lenzu, H., Nurdan, J. H., Kando Sianipar, B., Ilmu, P., Masyarakat, K., & Kesehatan, I. (2022). Hubungan kadar kolesterol dan indeks masa tubuh terhadap kejadian hipertensi di laboratorium klinik prodia bengkulu tahun 2022 the relationship between cholesterol levels and body mass index on the incidence of hypertension at the prodia bengkulu clinical laboratory in 2022. In *Journal Hygea Public Health* (Vol. 1, Issue 1). https://doi.org/https://doi.org/10.37676/jhph.v1i1.3518

Minissian, M. B., Mehta, P. K., Hayes, S. N., Park, K., Wei, J., Bairey Merz, C. N., Cho, L., Volgman, A. S., Elgendy, I. Y., Mamas, M., Davis, M. B., Reynolds, H. R., Epps, K., Lindley, K., Wood, M., Quesada, O., Piazza, G., & Pepine, C. J. (2022). Ischemic heart disease in young women: jacc review topic of the week. In *Journal of the American College of Cardiology* (Vol. 80, Issue 10, pp. 1014–1022). Elsevier Inc. https://doi.org/10.1016/j.jacc.2022.01.057

Muliantino, M. R., Ananda, Y., & Sarfika, R. (2021). Edukasi kesehatan dan pengolahan obat tradisional untuk peningkatan imunitas pada masa pandemi di jorong Bansa kecamatan Kamang Magek kabupaten Agam. *Buletin Ilmiah Nagari Membangun*, *4*(4), 216–225. https://doi.org/10.25077/bina.v4i4.408

Muliantino, M. R., Ananda, Y., & Sarfika, R. (2024). Peripheral arterial disease detection efforts with ankle brachial index (ABI) examination. *Warta Pengabdian Andalas*, *31*(1), 162–168. https://doi.org/10.25077/jwa.31.1.162-168.2024

Mulvagh, S. L., Colella, T. J. F., Gulati, M., Crosier, R., Allana, S., Randhawa, V. K., Bruneau, J., Pacheco, C., Jaffer, S., Cotie, L., Mensour, E., Clavel, M. A., Hill, B., Kirkham, A. A., Foulds, H., Liblik, K., Van Damme, A., Grace, S. L., Bouchard, K., … Norris, C. M. (2024). The Canadian women's heart health alliance atlas on the epidemiology, diagnosis, and management of cardiovascular disease in women — chapter 9: summary of current status, challenges, opportunities, and recommendations. In *CJC Open* (Vol. 6, Issue 2, pp. 258–278). Elsevier Inc. https://doi.org/10.1016/j.cjco.2023.12.001

Naomi, W. S., Picauly, I., & Toy, S. M. (2021). Faktor risiko kejadian penyakit jantung koroner (studi kasus di RSUD Prof. Dr. W. Z. Johannes Kupang). *Media Kesehatan Masyarakat*, *3*, 99–107. https://doi.org/https://doi.org/10.35508/mkm

O'Kelly, A. C., Michos, E. D., Shufelt, C. L., Vermunt, J. V., Minissian, M. B., Quesada, O., Smith, G. N., Rich-Edwards, J. W., Garovic, V. D., El Khoudary, S. R., & Honigberg, M. C. (2022). Pregnancy and reproductive risk factors for cardiovascular disease in women. *Circulation Research*, *130*(4), 652–672. https://doi.org/10.1161/CIRCRESAHA.121.319895

Powell-Wiley, T. M., Poirier, P., Burke, L. E., Després, J. P., Gordon-Larsen, P., Lavie, C. J., Lear, S. A., Ndumele, C. E., Neeland, I. J., Sanders, P., & St-Onge, M. P. (2021). Obesity and cardiovascular disease a scientific statement from the American Heart Association. In

Circulation (Vol. 143, Issue 21, pp. E984–E1010). Lippincott Williams and Wilkins. https://doi.org/10.1161/CIR.0000000000000973

Rajendran, A., Minhas, A. S., Kazzi, B., Varma, B., Choi, E., Thakkar, A., & Michos, E. D. (2023). Sex-specific differences in cardiovascular risk factors and implications for cardiovascular disease prevention in women. In *Atherosclerosis* (Vol. 384). Elsevier Ireland Ltd. https://doi.org/10.1016/j.atherosclerosis.2023.117269

Ramachandran, H. J., Wu, V. X., Kowitlawakul, Y., & Wang, W. (2016). Awareness, knowledge and healthy lifestyle behaviors related to coronary heart disease among women: An integrative review. In *Heart and Lung: Journal of Acute and Critical Care* (Vol. 45, Issue 3, pp. 173–185). Mosby Inc. https://doi.org/10.1016/j.hrtlng.2016.02.004

Regitz-Zagrosek, V. (2018). Unsettled issues and future directions for research on cardiovascular diseases in women. In *Korean Circulation Journal* (Vol. 48, Issue 9, pp. 792–812). Korean Society of Cardiology. https://doi.org/10.4070/kcj.2018.0249

Riskesdas. (2018). *Laporan Riskesdas 2018 Nasional*. https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/

Susanti, S., Fusvita, A., Idris, S. A., Sernita, S., & Umar, A. U. (2024). Pemeriksaan kolesterol darah dan edukasi penyakit metabolik di desa rau-rau kecamatan rarowatu kabupaten Bombana Sulawesi Tenggara. *Bantenese : Jurnal Pengabdian Masyarakat*, *6*(1), 184–192. https://doi.org/10.30656/ps2pm.v6i1.8721

Wenger, N. K., Lloyd-Jones, D. M., Elkind, M. S. V., Fonarow, G. C., Warner, J. J., Alger, H. M., Cheng, S., Kinzy, C., Hall, J. L., & Roger, V. L. (2022). Call to action for cardiovascular disease in women: epidemiology, awareness, access, and delivery of equitable health care: a presidential advisory from the American Heart Association. *Circulation*, *145*(23), E1059–E1071. https://doi.org/10.1161/CIR.0000000000001071

@2025 Muliantino et al.
This is an open access article licensed under the terms of a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (http://creativecommons.org/licenses/by-nc-sa/4.0).