

## Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly in Gubeng District, Surabaya

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### Abstrak

Penyakit jantung merupakan penyebab utama kematian pada lansia, terutama akibat pola makan tidak sehat dan faktor risiko metabolik seperti hipertensi dan diabetes. Program edukasi gizi dan konsultasi diet ini bertujuan meningkatkan pemahaman dan perubahan perilaku lansia dalam menerapkan pola makan sehat guna mencegah penyakit jantung. Kegiatan dilakukan selama satu bulan di Kecamatan Gubeng, Surabaya, dengan melibatkan 125 lansia, dosen, dan mahasiswa. Metode intervensi mencakup edukasi interaktif, simulasi, serta konsultasi gizi personal. Hasil evaluasi menunjukkan peningkatan signifikan dalam skor pengetahuan, perubahan sikap positif, serta adopsi pola makan lebih sehat berdasarkan analisis statistik Paired t-Test dan Wilcoxon Test ( $p < 0.05$ ). Peningkatan Pengetahuan: Skor pengetahuan rata-rata meningkat dari  $65,2 \pm 10,1$  menjadi  $82,7 \pm 8,5$ , mencerminkan peningkatan 26,9% ( $p < 0,05$ ). Peningkatan Sikap: 85% peserta beralih ke pandangan yang lebih positif dalam mengadopsi diet sehat jantung, dengan peringkat skala Likert meningkat dari  $3,2 \pm 0,8$  menjadi  $4,5 \pm 0,6$  ( $p < 0,05$ ). Program ini secara efektif meningkatkan pengetahuan, sikap, dan perilaku diet di kalangan lansia di Kabupaten Gubeng. Keberlanjutan program disarankan melalui edukasi berbasis teknologi dan keterlibatan keluarga untuk meningkatkan kualitas hidup lansia secara berkelanjutan.

**Kata kunci:** edukasi gizi; konsultasi diet; pola makan sehat; penyakit jantung; lansia

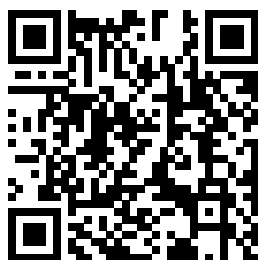
### Abstract

Heart disease is the leading cause of death in the elderly, mainly due to unhealthy diets and metabolic risk factors such as hypertension and diabetes. This nutrition education and dietary consultation program aims to increase the understanding and change of behavior of the elderly in implementing a healthy diet to prevent heart disease. The activity was held for one month in Gubeng District, Surabaya, involving 125 seniors, lecturers, and students. Intervention methods include interactive education, simulations, and personalized nutrition consultations. The evaluation results showed a significant increase in knowledge scores, changes in positive attitudes, and adoption of a healthier diet based on statistical analysis of the Paired t-Test and Wilcoxon Test ( $p < 0.05$ ). Knowledge Improvement: The average knowledge score increased from  $65.2 \pm 10.1$  to  $82.7 \pm 8.5$ , reflecting an increase of 26.9% ( $p < 0.05$ ). Improved Attitudes: 85% of participants switched to a more positive outlook on adopting a heart-healthy diet, with the Likert scale rating increasing from  $3.2 \pm 0.8$  to  $4.5 \pm 0.6$  ( $p < 0.05$ ). This program effectively improves dietary knowledge, attitudes, and behaviors among the elderly in Gubeng Regency. The sustainability of the program is advised through technology-based education and family involvement to improve the quality of life of the elderly sustainably.

**Keywords:** Nutrition Education; Dietary Consultations; Healthy Diet; Heart Disease; Elderly

### Pesan Utama:

- Education and consultation help the elderly manage a healthy diet to prevent and control heart disease



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## GRAPHICAL ABSTRACT

### Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly in Gubeng District, Surabaya

- Nutrition education and dietary consultation programs for the elderly in Gubeng District, Surabaya, are effective in increasing understanding of healthy behaviors related to diet to prevent heart disease.
- Through interactive methods and personalized consultations, the elderly gained insights on reducing salt and fat consumption and increasing fiber and antioxidant intake.



**Nutrition Education  
Dietary Consultations**

Knowledge Improvement :  
From 65.2 to 82.7

↑ (26.9%  
increase)

Attitude Enhancement :  
From 3.2 to 4.5 on the  
Likert scale (85% positive  
shift).

Dietary Modifications : 30%  
reduction in unhealthy foods  
and 78% increase in fiber  
intake.



the elderly can maintain a healthy  
diet, improve their quality of life,  
and sustainably reduce the risk of  
heart disease

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## INTRODUCTION

Heart disease is one of the leading causes of death, especially in the elderly group (Wu & Zhou, 2024). Data from the Ministry of Health shows that the prevalence of heart disease in Indonesia continues to increase, with major risk factors such as hypertension, diabetes mellitus, high cholesterol levels, and unhealthy diets (Munira et al., 2023). The elderly are a vulnerable group to this disease due to physiological changes, decreased organ function, and an unhealthy lifestyle. Therefore, efforts to prevent and manage heart disease through nutrition education and dietary consultation are very important in improving the quality of life of the elderly (Shuremu et al., 2023).

In Gubeng District, Surabaya City, there is a significant number of elderly people, most of whom have health conditions that require special attention, including heart disease. Based on data from the Puskesmas Pucang Sewu many elderly people experience high blood pressure and metabolic disorders that contribute to an increased risk of heart disease. Unfortunately, their awareness and understanding of healthy eating is still low, so there is a need for appropriate interventions to help them live a healthy lifestyle.

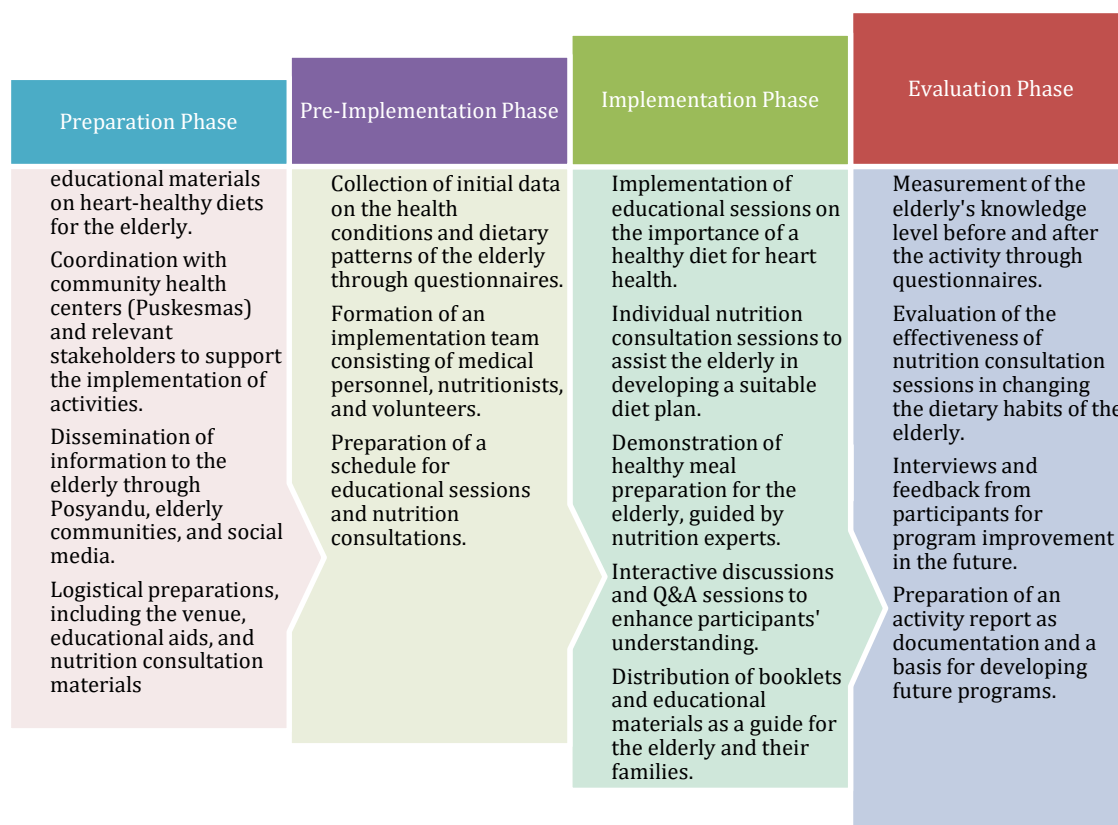
A healthy diet that is by the nutritional needs of the elderly plays a vital role in preventing and managing heart disease (Eriksen et al., 2024). Recommended heart diets include consuming foods low in salt (Anirudh et al.,

2023), low in saturated fat, high in fiber, and rich in antioxidants. However, implementing this healthy diet is often constrained by a lack of accurate information, eating habits that are difficult to change, and limited access to proper nutrition consultation. Therefore, a nutrition education and consultation program is needed that can provide a better understanding for the elderly in regulating their diet (Duran et al., 2023; Meriç & Yabancı Ayhan, 2025; Mukherjee et al., 2023; Scariot et al., 2023; Yeon et al., 2022).

In addition to dietary factors, lifestyle also plays an important role in heart health (Moyad, 2025). Adequate physical activity (Bavis et al., 2024; Ruku & Chen, 2024; Salas-Reguera et al., 2024; Shilton et al., 2024), stress management, and medication adherence are also aspects that need to be considered in maintaining the heart health of the elderly. This community service program aims to provide education and nutrition consultation to the elderly in Gubeng District so that they have adequate knowledge in managing the heart diet independently and sustainably.

## METHOD

Nutrition consultation activities are carried out. This activity will be carried out within one month and culminates on February 5, 2025, at the Nutrition Department of the Ministry of Health Surabaya, Kertajaya Village, Gubeng District, Surabaya City. Involving 125 participants consisting of: lecturers, students, the Elderly community of Kertajaya village. Starting with preparation, pre-implementation, implementation, and evaluation activities, with several sessions held regularly to ensure the active involvement of participants.



**Figure 1 Flowchart of the Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly in Gubeng District, Surabaya**

Knowledge Measurement Instrument: The questionnaire consists of 15 multiple-choice questions about nutrition and a healthy diet for the heart. Attitudes: Likert Scale (1-5) to measure the acceptance of the elderly towards a healthy diet. Behavior: Daily journal of food consumption for 7 days as well as semi-structured interviews.

Data Collection Procedure: A Pre-test is carried out before education. The intervention was in the form of

education sessions and dietary consultations for one month. The post-test is carried out one week after the program ends. Data was collected through questionnaires, observations, and interviews. The activities included:

**Nutrition Education Sessions:** Through interactive workshops covering topics such as heart-healthy dietary choices, sodium reduction strategies, and portion control. **Dietary Consultations:** Individualized consultations with nutritionists to tailor dietary recommendations based on participants' health conditions and preferences. **Educational Materials:** Distribution of printed guides and visual aids for sustained learning. **Measurement and Analysis Pre-test and Post-test:** Knowledge was assessed using a 15-item multiple-choice questionnaire, while attitudes were measured using a 5-point Likert scale. **Behavioral Changes:** Evaluated through a 7-day dietary journal and semi-structured interviews. **Statistical Analysis:** Paired t-tests and Wilcoxon signed-rank tests were conducted to determine significant differences ( $p < 0.05$ ).

## RESULTS AND DISCUSSION

**Changes in Knowledge and Attitudes, Knowledge Improvement:** The average knowledge score increased from  $65.2 \pm 10.1$  to  $82.7 \pm 8.5$ , reflecting a 26.9% increase ( $p < 0.05$ ). **Attitude Enhancement:** 85% of participants shifted to a more positive outlook on adopting a heart-healthy diet, with Likert scale ratings improving from  $3.2 \pm 0.8$  to  $4.5 \pm 0.6$  ( $p < 0.05$ ). **Dietary Behavior Modifications; Reduced Salt and Fat Intake:** Participants' food journals recorded a 30% decrease in high-sodium and high-fat food consumption. **Increased Fiber Intake:** 78% of participants reported a higher consumption of fruits and vegetables post-intervention.

Heart disease is one of the leading causes of death among the elderly, mainly due to physiological changes that occur with age. Risk factors such as hypertension, diabetes mellitus, high cholesterol, and an unhealthy diet further worsen the condition of the elderly, who are prone to cardiovascular diseases. Therefore, nutrition education and dietary consultation are essential steps in helping the elderly manage their health better. The community service program in Gubeng District, Surabaya, aims to increase the knowledge, attitudes, and behaviors of the elderly in implementing a healthy diet to prevent and manage heart disease. Through a systematic and evidence-based approach, these activities not only provide information but also teach practical skills that can be applied in daily life.

**The Role of Nutrition Education in Heart Disease Prevention.** Nutrition education is the primary strategy in this program to increase the understanding of the elderly about healthy foods that can help maintain heart health. The elderly are taught about the basic principles of healthy eating, such as: Reduce the consumption of foods high in salt to control blood pressure (Chang et al., 2023; Lee et al., 2022; McGrattan et al., 2020). Limiting saturated and trans fats can help reduce LDL cholesterol levels. Increase fiber intake from fruits and vegetables to maintain the body's metabolic balance. Adjust portions and diet to be more balanced and in accordance with daily calorie needs.

The importance of an interactive approach in education is one of the factors for the success of this program. Seniors receive the material passively and engage in discussions, simulations, and hands-on practice. This aims to ensure that they truly understand the concepts being taught and can apply them in their daily lives. Dietary Consultation as Personal Assistance, in addition to group education, this program also provides individual dietary consultation sessions that help the elderly adjust their diet to their respective health conditions. This consultation was carried out by nutritionists from the Surabaya Ministry of Health Polytechnic, with a personal approach that considers: The health history of the elderly, including hypertension, diabetes, or other metabolic disorders. Food preferences and daily eating habits. The level of physical activity carried out by the elderly. Economic ability and access to healthy foodstuffs. A personalized approach to diet consultation provides more benefits because the elderly can get a solution that is more suitable for their needs. For example, for the elderly with hypertension, they are given recommendations for low-salt menus and cooking methods that still maintain the taste of food. For the



elderly with diabetes, education is provided about regulating the glycemic index of food to keep blood sugar levels stable.

**Evaluation of Program Effectiveness:** To assess the effectiveness of this program, a pre-test and post-test were conducted that measured changes in participants' knowledge levels, attitudes, and behaviors. The results of the evaluation showed significant improvements in various aspects, including Knowledge improvement: The average score of participants in the knowledge test increased by 25% after participating in education and consultation. Positive attitude change: As many as 80% of the elderly showed a more positive attitude change towards a healthy diet based on the Likert scale.

**Changes in eating behavior:** Older adults who previously frequently consumed foods high in salt and fat showed a 30% decrease in consumption based on their daily food journal. Statistical analysis with the Paired t-Test showed that there was a significant difference between the pre- and post-program scores ( $p < 0.05$ ), indicating that the intervention was successful in increasing the awareness of the elderly about healthy eating.

**Challenges in Program Implementation;** Although this program has succeeded in improving the understanding and skills of the elderly in managing a healthy diet, there are several challenges faced during the implementation, including: Limited access to healthy food ingredients – Some elderly people face difficulties in obtaining healthy food due to financial limitations or availability in the local market. Eating habits that are difficult to change – Many seniors have become accustomed to eating foods high in salt and fat, so it takes longer to adopt a new diet. Lack of support from family – Seniors who live alone or without family support often have difficulty preparing healthy meals as recommended.

**Program Sustainability Strategy,** for the benefits of this program to remain sustainable, several strategies have been prepared, including Forming an elderly assistance group consisting of health cadres and nutrition students to provide regular assistance. Develop digital-based educational materials, such as video tutorials and e-books, to make information more accessible to the elderly and their families. Increase family involvement, by organizing special education sessions for elderly family members so that they can better support the healthy diet implemented.



Figure 2. The Head of the Nutrition Department of the Ministry of Health Surabaya provided material on Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly



Figure 3. The Head of the Nutrition Department of the Ministry of Health Surabaya provided material on Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly



Figure 4. Lecturers and Staff of the Department of Nutrition of the Ministry of Health of Surabaya on Nutrition Education and Dietary Consultation for Heart Disease Management in the Elderly





Figure 5. Nutrition Educator Provides Dietary Consultation to Heart Disease Patients in the Elderly in Gubeng District, Surabaya.

**Persistent Unhealthy Habits:** Some participants found it difficult to abandon long-standing dietary habits.  
**limited Food Access:** Financial constraints and availability issues hindered dietary modifications. **Family Support Deficiency:** Elderly individuals without family support struggled to maintain dietary adherence.

## CONCLUSION

Nutrition education and dietary consultation programs for the elderly in Gubeng District, Surabaya, are effective in increasing understanding of healthy behaviors related to diet to prevent heart disease. Through interactive methods and personalized consultations, the elderly gained insights on reducing salt and fat consumption and increasing fiber and antioxidant intake. After the program, the evaluation showed a significant improvement in knowledge, attitudes, and healthy eating habits. Statistical tests confirmed a meaningful difference between the pre-test and post-test, proving the success of the intervention. However, challenges such as limited access to healthy food and eating habits that are difficult to change remain a concern. Therefore, sustainability strategies such as technology-based education, family involvement, and community assistance are needed. With these efforts, the elderly can maintain a healthy diet, improve their quality of life, and sustainably reduce the risk of heart disease.

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## CONFLICT OF INTEREST

The authors state there is no conflict of interest.

## REFERENCE

- Anirudh, P., Waiel, A., Sowjanya, K., & Khagendra, D. (2023). Sodium Restriction In Heart Failure: A Meta-Analysis Of Randomized Trials. *Journal of the American College of Cardiology*, 81(8\_Supplement), 334. [https://doi.org/10.1016/S0735-1097\(23\)00778-7](https://doi.org/10.1016/S0735-1097(23)00778-7)
- Bavis, M., Wilbur, J., & Tracy, M. (2024). Physical Activity and Heart Health. In *Preventive Cardiovascular Nursing* (pp. 311–340). Springer International Publishing. [https://doi.org/10.1007/978-3-031-53705-9\\_11](https://doi.org/10.1007/978-3-031-53705-9_11)
- Beaupère, P. (2019). Effectiveness of a low-salt diet in the treatment of heart failure: Myth or reality? In *Revue Medicale Suisse* (Vol. 15, Issue 635, p. 228).
- Chan, A. (2018). An integrative review: Adherence barriers to a low-salt diet in culturally diverse heart failure adults. In *Australian Journal of Advanced Nursing* (Vol. 36, Issue 1, pp. 37–47). [https://api.elsevier.com/content/abstract/scopus\\_id/85060258242](https://api.elsevier.com/content/abstract/scopus_id/85060258242)
- Chang, A. Y., Rahman, M., Talukder, A., Shah, H., Mridha, M. K., Hasan, M., Sarker, M., & Geldsetzer, P. (2023). Effectiveness of a community health worker-led low-sodium salt intervention to reduce blood pressure in rural Bangladesh: protocol for a cluster randomized controlled trial. *Trials*, 24(1), 480. <https://doi.org/10.1186/s13063-023-07518-3>
- Duran, S., Çakar, H., Çağlar, N., & Dağasan, S. (2023). The Effects of Nutrition Education on the Handgrip Strength and Nutrition Status of Elderly Patients on Hemodialysis. *Topics in Clinical Nutrition*, 38(2), 173–179. <https://doi.org/10.1097/TIN.0000000000000312>
- Eriksen, A. K., Grand, M. K., Kyrø, C., Wohlfahrt, J., Overvad, K., Tjønneland, A., & Olsen, A. (2024). Whole-grain intake in mid-life and healthy ageing in the Danish Diet, Cancer and Health cohort. *European Journal of Nutrition*, 63(5), 1581–1591. <https://doi.org/10.1007/s00394-024-03357-3>
- Lee, S. S., McGrattan, A., Soh, Y. C., Alawad, M., Su, T. T., Palanisamy, U. D., Hussin, A. M., Kassim, Z. bin, Mohd Ghazali, A. N. bin, Christa Maree Stephan, B., Allotey, P., Reidpath, D. D., Robinson, L., Mohan, D., & Siervo, M. (2022). Feasibility and Acceptability of a Dietary Intervention to Reduce Salt Intake and Increase High-Nitrate Vegetable Consumption in Malaysian Middle-Aged and Older Adults with Elevated Blood Pressure: Findings from the DePEC-Nutrition Trial. *Nutrients*, 14(3), 430. <https://doi.org/10.3390/nu14030430>
- McGrattan, A., Mohan, D., Chua, P. W., Mat Hussin, A., Soh, Y. C., Alawad, M., bin Kassim, Z., bin Mohd Ghazali, A. N., Stephan, B., Allotey, P., Reidpath, D. D., Robinson, L., & Siervo, M. (2020). Feasibility and acceptability of a dietary intervention study to reduce salt intake and increase high-nitrate vegetable consumption among middle-aged and older Malaysian adults with elevated blood pressure: a study protocol. *BMJ Open*, 10(8), e035453. <https://doi.org/10.1136/bmjopen-2019-035453>
- Meriç, Ç. S., & Yabancı Ayhan, N. (2025). The effect of nutrition education intervention for caregivers on the nutrition status of the elderly receiving home care: A 1-year follow-up interventional trial. *Nutrition in Clinical Practice*. <https://doi.org/10.1002/ncp.11273>



- Moyad, M. A. (2025). Rapid Lifestyle Recommendations to Improve Urologic, Heart and Overall Health. *Current Urology Reports*, 26(1), 10. <https://doi.org/10.1007/s11934-024-01246-0>
- Mukherjee, U., Dawson, J. A., Chalwe, J. M., & Oldewage-Theron, W. (2023). Effectiveness of a short-term soy nutrition education intervention on nutrition knowledge and self-efficacy scores of rural elderly Zambian women. *Nutrition and Healthy Aging*, 8(1), 97–108. <https://doi.org/10.3233/NHA-210138>
- Munira, S., Puspasari, D., Trihono, Thaha, R., Musadad, A., Junadi, P., Kusnanto, H., Sugihantono, A., Witoelar, F., Siswanto, Ariawan, I., Lestary, H., Sulistyowati, Marsini, R., Syahroni, Puspasari, N., Lumbantoruan, M., Mujiati, M. D. S., Cahyorini, ... Purnama, R. (2023). Survei Kesehatan Indonesia (SKI). *Kementerian Kesehatan RI*, 1–964. <https://drive.google.com/file/d/1SAomJxUTXwLSzsRrGJfRPxzV3ZzypaRU/view>
- Ruku, D. M., & Chen, H. M. (2024). The performance of physical activity and health-related quality of life in patients with heart failure: a cross-sectional study. *Jurnal Ners*, 19(4), 452–458. <https://doi.org/10.20473/jn.v19i4.58156>
- Salas-Reguera, I., Rodríguez-Barbosa, J. I., Federolf, P. A., & Santos, L. (2024). Comparative Analysis of the Health Status of Heart Transplant Patients with Different Levels of Physical Activity. *Applied Sciences*, 14(18), 8379. <https://doi.org/10.3390/app14188379>
- Scariot, E. L., Lockmann, A. da S., & Buss, C. (2023). Nutrition Knowledge of Elderly Women: Effect of Two Food and Nutrition Education Programs. *Journal of the American Nutrition Association*, 42(8), 798–806. <https://doi.org/10.1080/27697061.2023.2182384>
- Shilton, T., Bauman, A., Beger, B., Chalkley, A., Champagne, B., Elings-Pers, M., Giles-Corti, B., Goenka, S., Miller, M., Milton, K., Oyeyemi, A., Ross, R., Sallis, J. F., Armstrong-Walenczak, K., Salmon, J., & Whitsel, L. P. (2024). More People, More Active, More Often for Heart Health – Taking Action on Physical Activity. *Global Heart*, 19(1). <https://doi.org/10.5334/gh.1308>
- Shuremu, M., Abate, K. H., & Belachew, T. (2023). Effect of nutrition education intervention to improve dietary diversity practice and nutritional status of the older people: A cluster randomized controlled trial. *Food Science & Nutrition*, 11(11), 7383–7395. <https://doi.org/10.1002/fsn3.3667>
- Wu, Y., & Zhou, M. (2024). Risk Factors for Death from Heart Disease in Elderly Colon Cancer Patients with Liver Metastasis. *Asian Pacific Journal of Cancer Prevention*, 25(12), 4217–4221. <https://doi.org/10.31557/APJCP.2024.25.12.4217>
- Yeon, J., Song, B., Yeum, K.-J., Kim, M., & Lee, M. (2022). Effects of nutrition and hygiene education program on healthy eating habits and behavior of the elderly in Chungbuk. *Journal of Nutrition and Health*, 55(3), 390. <https://doi.org/10.4163/jnh.2022.55.3.390>