

## Staying Healthy Abroad: Supporting Migrant Workers through Nutrition and Health Screening

<sup>1</sup>Herlin Ajeng Nurrahma\*, <sup>2</sup> Fitria Endah Janitra

<sup>1</sup>Fakultas Kedokteran, Universitas Islam Sultan Agung, Semarang, Indonesia

<sup>2</sup>Fakultas Ilmu Keperawatan, Universitas Islam Sultan Agung, Semarang, Indonesia

\*Corresponding Author

Jl. Kaligawe Raya KM 4, Terboyo Kulon, Kecamatan Genuk, Kota Semarang, Jawa Tengah, 50112

E-mail: [herlinajengn@unissula.ac.id](mailto:herlinajengn@unissula.ac.id)

### Abstract

*Indonesian migrant workers in Taiwan, particularly those employed in domestic caregiving roles, are at risk of developing undiagnosed metabolic conditions due to long working hours, limited access to nutritious food, and insufficient health information. This community service program aimed to promote nutritional awareness and conduct early screening for metabolic risks among Indonesian migrant workers in Taipei. Implemented in June 2025 in collaboration with the Indonesian Muslim community (PCINU Taiwan), the program engaged 38 participants aged 25–55 years. Activities included anthropometric assessments, blood pressure measurements, random blood glucose testing, and a brief nutrition education session in Bahasa Indonesia. The results showed that 42.1% of participants had elevated blood glucose levels (140–199 mg/dL), and 5.3% reached the diabetes threshold ( $\geq 200$  mg/dL). Blood pressure screening revealed that 28.9% were in the pre-hypertensive range and 7.9% had hypertension. Body mass index data indicated that 44.8% of participants were either overweight or obese. The culturally tailored education session was well-received, improving participants' understanding of nutrition and practical steps for disease prevention. This program demonstrated the feasibility and impact of combining basic health screening with targeted health education for underserved migrant populations. It underscores the importance of early detection and culturally sensitive health promotion in preventing chronic diseases among migrant workers. Future efforts should expand such initiatives and integrate mental health and follow-up components to ensure sustainable community health support.*

**Keywords:** Indonesian migrant workers; metabolic risk screening, nutrition education

### INTRODUCTION

Indonesia ranks among the top countries in terms of the number of international migrant workers, driven by economic instability, limited formal employment, and demographic shifts (Deng et al., 2021; IOM, 2020). Many Indonesians seek employment abroad to improve their living conditions (Leong, 2006; Maksum et al., 2020). Taiwan is one of the primary destinations for Indonesian migrant workers, particularly in the domestic care sector, due to the country's rapidly aging population (Asri & Chuang, 2023; Khairizka Citra et al., 2019). As of October 2024, there were 192,471 Indonesian nationals working in Taiwan, with the majority employed in social and domestic services (Ministry of Labor, 2024).

These Indonesian Migrant Workers (IMWs) play essential roles in caring for elderly individuals, persons with disabilities, and managing household duties (Kuei-Fen et al., 2014; Kuo et al., 2023). However, they often work long hours under physically and emotionally demanding conditions, with limited access to nutritious food, health services, or culturally appropriate health information (Deng et al., 2021; Kuo et al., 2024). These

constraints increase their vulnerability to undetected metabolic conditions such as malnutrition, obesity, and diabetes (Liang, 2023).

Preliminary observations and informal discussions with community leaders at Pengurus Cabang Istimewa Nahdatul Ulama (PCINU) Taiwan revealed that many Indonesian migrant workers were unaware of their own health status, particularly related to nutrition and non-communicable disease risks. Prior to the program, there were no routine health checks or accessible educational sessions tailored to their language and cultural context. Most participants had never received blood pressure or blood glucose screenings, and nutritional knowledge was generally limited to anecdotal advice from peers. This lack of early detection and health awareness significantly increased the risk of undiagnosed conditions progressing silently over time, highlighting the urgent need for a culturally relevant and accessible health intervention.

In response to this issue, a community service initiative was designed to strengthen nutritional awareness and screen for early signs of metabolic risk among Indonesian migrant workers in Taipei. The program combined anthropometric assessments, blood glucose testing, and blood pressure measurement with brief nutrition education sessions delivered in Bahasa Indonesia. This integrative approach aimed to promote self-awareness, preventive health practices, and early risk identification within this vulnerable population.

## METHODS

This community service program was conducted in June 2025 in collaboration with the Indonesian Muslim community, PCINU in Taipei, Taiwan. The activity focused on Indonesian migrant workers, particularly those employed in the domestic sector, who often face long working hours, limited rest, and restricted access to health services. A total of 38 participants (33 women and 5 men), aged between 25 and 55 years, took part in the program.

**Table 1. Participant Demography**

Variable	n	%
Gender		
Female	33	86.8
Male	5	13.2
Mean Weight (kg)		56 ± 8.6
Mean Height (cm)		154 ± 11.4
Age Group		
25-35 years	12	31.5
36-45 years	15	39.4
46-55 years	11	28.9
Random Blood Glucose Level (mg/dl)		
<140	20	52.6
140-199 (elevated)	16	42.1
≥200 (diabetes threshold)	2	5.3
Blood Pressure		
Normal	24	63.1
Pre-Hypertension	11	28.9
Hypertension grade 1	2	5.3
Hypertension grade 2	1	2.7

The program was carried out using a community-based, participatory approach. It consisted of two main components: (1) basic health screening and (2) nutrition education and counseling (Figure 1). The health screening included anthropometric measurements (body weight and body composition), blood pressure assessment, and random capillary blood glucose testing.



**Figure 1.** Anthropometric and Blood Pressure Screening during the Community Health Service Activity

Body weight and body composition were measured using the TANITA BC-545 Body Composition Monitor, a validated device that applies bioelectrical impedance analysis (BIA) to estimate fat mass, fat-free mass, body fat percentage, and total body water. Based on the World Health Organization (WHO, 2024) classification, nutritional status was determined using Body Mass Index (BMI), with the following cut-off points: underweight ( $<18.5 \text{ kg/m}^2$ ), normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ ), overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ ), and obese ( $\geq30.0 \text{ kg/m}^2$ ).

Random blood glucose levels were assessed using the Accu-Chek Instant Pack (Roche Diagnostics), a portable glucometer widely used in field-based screenings. The interpretation of blood glucose followed the American Diabetes Association (ADA) criteria: normal ( $<140 \text{ mg/dL}$ ), impaired glucose tolerance ( $140\text{--}199 \text{ mg/dL}$ ), and diabetes threshold ( $\geq200 \text{ mg/dL}$ ) (ElSayed et al., 2022). Blood pressure was measured using a digital automatic sphygmomanometer OMRON HEM-7124, Japan), a clinically validated device commonly used for field screening, and classified according to the Seventh Report of the Joint National Committee (JNC 7) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (Chobanian et al., 2003): normal ( $<120/80 \text{ mmHg}$ ), prehypertension ( $120\text{--}139/80\text{--}89 \text{ mmHg}$ ), stage 1 hypertension ( $140\text{--}159/90\text{--}99 \text{ mmHg}$ ), and stage 2 hypertension ( $\geq160/\geq100 \text{ mmHg}$ ).

All measurements were conducted by trained healthcare volunteers and nursing students, supervised by faculty members. Participants received immediate explanations of their health results, along with individualized advice regarding follow-up and lifestyle improvement.

**Table 2. Body Mass Index Reported During Counseling**

<b>Body Mass Index</b>	<b>n</b>	<b>%</b>
Underweight	1	2.7
Normal	20	52.6
Overweight	16	42.1
Obesity	1	2.7

In the second component, participants joined a brief interactive counseling session in Bahasa Indonesia. The session covered the importance of balanced nutrition, the risks of high sugar and salt intake, physical activity, and early signs of metabolic diseases such as hypertension, obesity, and diabetes. Culturally tailored nutrition messages and illustrated educational materials were used to improve understanding and engagement.

At the end of the session, participants were encouraged to ask questions, reflect on their eating patterns and health routines, and were provided with simple health tips to implement in their daily lives, despite their busy caregiving schedules. The program emphasized practical, accessible strategies for health maintenance within the constraints of migrant workers' living and working conditions.

## RESULT AND DISCUSSION

The community service activity was attended by 38 Indonesian migrant workers in Taipei, consisting of 33 women (86.8%) and 5 men (13.2%), aged between 25 and 55 years. The mean body weight was  $56 \pm 8.6$  kg and the mean height was  $154 \pm 11.4$  cm. Most participants were employed in domestic caregiving roles, often under long working hours and irregular rest schedules. Figure 2 below shows documentation of the activity conducted at the PCINU Taiwan community center. It captures the involvement of both participants and facilitators during the health education and screening event, illustrating the collaborative and community-based nature of the program.



**Figure 2. Community Service Activity at PCINU Taiwan**

The basic health screening revealed that 16 participants (42.1%) had elevated random blood glucose (RBG) levels ranging from 140–199 mg/dL, indicating a potential risk for impaired glucose tolerance. Additionally, 2 participants (5.3%) had RBG values  $\geq 200$  mg/dL, meeting the diagnostic threshold for diabetes mellitus if confirmed with further clinical assessment. This finding aligns with global data that show migrant workers are increasingly affected by metabolic risks due to changes in diet, stress, and physical inactivity.

In terms of blood pressure, 24 participants (63.1%) had normal readings, while 11 (28.9%) fell into the pre-hypertension category. Three participants (7.9%) presented with elevated blood pressure levels classified as grade 1 (5.3%) and grade 2 hypertension (2.7%). Although the majority were still within the normal range, the presence of early-stage hypertension highlights the need for preventive education and routine monitoring.

Furthermore, nutritional status based on BMI (Table 2) was assessed during individual counseling sessions. Results showed that 16 participants (42.1%) were overweight and 1 participant (2.7%) was categorized as obese, bringing the total proportion with excess body weight to 44.8%. Meanwhile, 52.6% were within the normal BMI range and only one participant (2.7%) was underweight. These findings illustrate the presence of a double burden of malnutrition, with both under- and overnutrition existing within the same group (Ankomah et al., 2022). The high prevalence of overweight may be attributed to factors such as irregular eating patterns, reliance on processed or calorie-dense foods, low physical activity, and work-related stress conditions commonly experienced by live-in domestic caregivers.

These results are consistent with findings from previous studies highlighting the health vulnerability of migrant workers, especially those in live-in caregiving roles. Several factors such as irregular mealtimes, emotional stress, lack of physical activity, and limited autonomy over food choices contribute to increased metabolic risk, including impaired glucose tolerance and hypertension (Dharod et al., 2013). A study conducted among Southeast Asian migrants in Taiwan found that long working hours and caregiving burden were significantly associated with poorer dietary quality and reduced sleep, which are both predictors of metabolic syndrome (Kuo et al., 2024).

The elevated prevalence of prediabetes (42.1%) and pre-hypertension (28.9%) found in this activity emphasizes the importance of regular health monitoring, even among individuals who appear clinically well. These early warning signs can progress into chronic conditions if left unaddressed, potentially reducing work capacity and increasing long-term healthcare burdens (IOM, 2020).

Furthermore, the positive reception of culturally tailored nutrition education indicates the value of delivering health messages in the native language of migrant communities. Language-congruent communication improves health literacy and self-efficacy, especially among workers with low formal education (Asri & Chuang, 2023). The use of simple visuals, interactive discussion, and relatable examples enhanced the learning experience and may contribute to behavioral change.

This community service activity underscores the importance of early screening and culturally tailored health promotion among migrant worker populations. The integration of screening and education provides a low-cost yet impactful model for identifying at-risk individuals and promoting healthier behaviors in underserved communities. This program contributes to the growing evidence that integrating basic health screening with targeted education is a practical and effective approach to reducing health disparities among migrant populations (IOM, 2020). It also aligns with global strategies to promote Universal Health Coverage (UHC) and the Sustainable Development Goals (SDG 3: Good Health and Well-being, and SDG 8: Decent Work and Economic Growth).

## **CONCLUSION**

This community service initiative successfully addressed its primary objectives: strengthening nutritional awareness and facilitating early detection of metabolic risk

among Indonesian migrant workers in Taiwan. Through basic health screening, the program identified that 42.1% of participants had elevated blood glucose levels and 28.9% were in the pre-hypertensive range, indicating the presence of undiagnosed metabolic risk factors. These findings highlight the importance of early intervention in preventing the progression of chronic conditions.

The nutrition education sessions, delivered in Bahasa Indonesia using culturally relevant materials, effectively increased participants' understanding of key health concepts such as balanced diets, sugar and salt intake, and blood pressure management. Participants actively engaged in discussions and reported improved confidence in applying health knowledge to their daily routines. Overall, this initiative demonstrates that combining accessible screening with tailored health education is a feasible and impactful strategy to promote preventive health behaviors among vulnerable populations. To sustain its impact, future programs should strengthen partnerships with local communities and integrate follow-up mechanisms, including mental health support, to holistically address migrant worker health needs.

#### **ACKNOWLEDGMENT**

The authors would like to express sincere gratitude to PCINU Taiwan for providing facilities and support in organizing this community service activity. Special thanks are extended to the Indonesian migrant workers who participated and openly shared their experiences. The authors also acknowledge the valuable assistance of fellow volunteers and health educators who contributed during the implementation of this community service. This program was conducted with the support of Universitas Islam Sultan Agung (UNISSULA), Indonesia, whose encouragement and academic environment enabled the successful completion of this community service initiative.

#### **REFERENCES**

Ankomah, A., Byaruhanga, J., Woolley, E., Boamah, S., & Akombi-Inyang, B. (2022). Double burden of malnutrition among migrants and refugees in developed countries: A mixed-methods systematic review [Review]. *PLoS One*, 17(8 August), Article e0273382. <https://doi.org/10.1371/journal.pone.0273382>

Asri, Y., & Chuang, K. Y. (2023). Prevalence of and Factors Associated with Depressive Symptoms among Indonesian Migrant Workers in Taiwan. *Int J Environ Res Public Health*, 20(5). <https://doi.org/10.3390/ijerph20054056>

Chobanian, A. V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., Jr., Jones, D. W., Materson, B. J., Oparil, S., Wright, J. T., Jr., & Roccella, E. J. (2003). Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension*, 42(6), 1206-1252. <https://doi.org/10.1161/01.HYP.0000107251.49515.c2>

Deng, J. B., Wahyuni, H. I., & Yulianto, V. I. (2021). Labor migration from Southeast Asia to Taiwan: issues, public responses and future development [Article]. *Asian Education and Development Studies*, 10(1), 69-81. <https://doi.org/10.1108/AEDS-02-2019-0043>

Dharod, J. M., Croom, J. E., & Sady, C. G. (2013). Food insecurity: its relationship to dietary intake and body weight among Somali refugee women in the United States. *J Nutr Educ Behav*, 45(1), 47-53. <https://doi.org/10.1016/j.jneb.2012.03.006>

ElSayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., Brown, F. M., Bruemmer, D., Collins, B. S., Hilliard, M. E., Isaacs, D., Johnson, E. L., Kahan, S., Khunti, K., Leon, J., Lyons, S. K., Perry, M. L., Prahalad, P., Pratley, R. E., Seley, J. J., Stanton, R. C.,...Association, o. b. o. t. A. D. (2022). Improving Care and Promoting Health in Populations: Standards of Care in Diabetes—2023. *Diabetes Care*, 46(Supplement\_1), S10-S18. <https://doi.org/10.2337/dc23-S001>

IOM, I. O. f. M. (2020). *World Migration Report 2020*. I. O. f. Migration.

Khairizka Citra, P., Jung-Su, C., & Chun-Kuang, S. (2019). *Dietary Pattern and Anemia among Indonesian Female Migrant Workers in Taiwan*

Kuei-Fen, C., Fell, D., & Ping, L. (2014). *Migration to and from Taiwan* [Book]. <https://doi.org/10.4324/9780203076866>

Kuo, P. C., Restinia, M., Lin, S. H., Jou, Y. H., & Chiu, C. J. (2024). Exploring the association between sleep and health performance of migrant home care workers and elderly care recipients in Taiwan. *Home Health Care Serv Q*, 43(4), 311-327. <https://doi.org/10.1080/01621424.2024.2375711>

Kuo, T. S., Chu, L. C., Kao, P. L., & Shih, C. L. (2023). The Effect of Job Satisfaction on Psychological Well-Being for Taiwanese Home-Care Workers, Mediated by Emotional Labor [Article]. *Healthcare (Switzerland)*, 11(18), Article 2514. <https://doi.org/10.3390/healthcare11182514>

Leong, C. C. (2006). Pre-Employment Medical Examination of Indonesian Domestic Helpers in a Private Clinic in Johor Bahru - An Eight Year Review. *Med J Malaysia*, 61(5), 592-598.

Liang, L. F. (2023). Managing Work and Care: Does Employing a Live-in Migrant Care Worker Fill the Gap? the Example of Taiwan [Article]. *Social Policy and Society*, 22(4), 581-593. <https://doi.org/10.1017/S1474746421000233>

Maksum, A., Tsay, C. L., & Muhammad, A. (2020). Indonesian migrant workers in Taiwan: The state dilemma and people's realities [Article]. *Jurnal Ilmu Sosial dan Ilmu Politik*, 24(1), 80-96. <https://doi.org/10.22146/jsp.51303>

Ministry of Labor, T. (2024). *Number of Foreign Workers by Industry*. Ministry of Labor, Republic of China (Taiwan). <https://statdb.mol.gov.tw/html/mon/c12050.htm>

WHO, W. H. O. (2024). *Malnutrition*. Retrieved 3 December from <https://www.who.int/news-room/questions-and-answers/item/malnutrition>