

## Early Detection And Health Education Initiatives At The Agriculture Office Of Kendari City

<sup>1</sup>Sri Resky Mustafa, <sup>2</sup>Julianti Isma Sari Usma, <sup>3</sup>Desty Triyaswati, <sup>4</sup>Ahmat Rediansyah Putra

<sup>1</sup>Department of Nursing, Poltekkes Kemenkes Kendari, Kendari, Indonesia

<sup>2,3,4</sup> Medical Laboratory Technology Study Program, Poltekkes Kemenkes Kendari, Kendari, Indonesia

### ARTICLE INFO

#### Article history :

Received 2025- November-18

Received in revised form 2025-December-05

Accepted 2025- December-23

#### Keywords :

Screening

Non-Communicable Diseases

Hypertension

Health Education

#### Kata Kunci :

Deteksi Dini

Penyakit Tidak Menular

Hipertensi

Edukasi Kesehatan

#### Correspondence :

Email : ismas1727@gmail.com

### ABSTRACT

Non-Communicable Diseases (NCDs) such as hypertension, diabetes mellitus, and obesity have become major public health challenges, including in workplace settings. High workload, unhealthy lifestyles, and low awareness of routine health check-ups often cause employees to be unaware of their health conditions, increasing the risk of NCD-related complications. This Community Service activity aimed to conduct early detection of NCD risk factors and provide health education to employees of the Kendari City Fisheries Office as a preventive and promotive effort. The methods included blood pressure measurement, body mass index (BMI) assessment, and random blood glucose testing, followed by direct and interactive health education based on individual screening results. A total of 45 employees participated in this activity. The screening results showed that 49% of participants were identified with hypertension and 46.8% were classified as overweight. Most participants (92.8%) had normal blood glucose levels, while 3.6% were categorized as prediabetic and 3.6% as diabetic. These findings indicate that the prevalence of NCD risk factors remains relatively high in the workplace environment. The activity successfully increased employees' awareness of their health status and the importance of NCD prevention. Continuous and comprehensive interventions, including health education, stress management, and regular health monitoring, are needed to support a healthy and productive work environment and to improve employees' quality of life through cross-sector collaboration.

### ABSTRAK

Penyakit Tidak Menular (PTM) seperti hipertensi, diabetes melitus, dan obesitas merupakan masalah kesehatan yang prevalensinya terus meningkat dan menjadi tantangan dalam peningkatan derajat kesehatan masyarakat, termasuk di lingkungan kerja. Faktor beban kerja yang tinggi, pola hidup kurang sehat, serta rendahnya kesadaran terhadap pemeriksaan kesehatan rutin menyebabkan banyak pegawai tidak menyadari kondisi kesehatannya. Kegiatan Pengabdian kepada Masyarakat ini bertujuan untuk melakukan deteksi dini faktor risiko PTM sekaligus memberikan edukasi kesehatan kepada pegawai Dinas Perikanan Kota Kendari sebagai upaya pencegahan dan pengendalian PTM. Metode pelaksanaan meliputi pemeriksaan tekanan darah, pengukuran indeks massa tubuh (IMT), dan pemeriksaan gula darah sewaktu. Selain itu, dilakukan penyuluhan kesehatan secara langsung dan interaktif berdasarkan hasil screening masing-masing peserta. Kegiatan ini diikuti oleh 45 pegawai. Hasil screening menunjukkan bahwa 49% peserta mengalami hipertensi dan 46,8% berada pada kategori overweight. Sebagian besar peserta (92,8%) memiliki kadar gula darah dalam batas normal, sedangkan 3,6% teridentifikasi pradiabetes dan 3,6% diabetes. Temuan ini menunjukkan bahwa faktor risiko PTM masih cukup tinggi di lingkungan kerja. Kegiatan ini mampu meningkatkan kesadaran pegawai terhadap kondisi kesehatannya serta pentingnya penerapan pola hidup sehat. Diperlukan upaya berkelanjutan berupa edukasi kesehatan, manajemen stres, dan pemantauan kesehatan rutin untuk mendukung terciptanya lingkungan kerja yang sehat, produktif, dan berorientasi pada pencegahan PTM.

### INTRODUCTION

Non-Communicable Diseases (NCDs), such as hypertension, diabetes, stroke, and cancer, have become major public health problems in many countries, including Indonesia. NCDs often do not present noticeable symptoms in their early stages, causing many individuals to be unaware of their health conditions until the disease progresses to a more severe stage. One of the main factors contributing to the increasing prevalence of NCDs is unhealthy lifestyle behaviors, including poor dietary habits, lack of physical activity, and excessive stress (World Health Organization, 2022). Data from the World Health Organization

(WHO) indicate that the prevalence of hypertension in Indonesia remains high. It is estimated that approximately 51.3 million adults aged 30–79 years are living with hypertension, defined as systolic blood pressure (SBP)  $\geq 140$  mmHg and/or diastolic blood pressure (DBP)  $\geq 90$  mmHg, or currently receiving antihypertensive treatment (WHO, 2023c).

Recent statistics on NCDs in Indonesia show an alarming trend, particularly regarding hypertension, obesity, and diabetes. According to the 2023 Indonesian Health Survey, the prevalence of hypertension among individuals aged 18 years and above reached 30.8%, while the prevalence of diabetes was reported at 11.7%. These figures represent an increase compared to previous data from the 2018 Basic Health Research (Riskesdas), which reported hypertension and diabetes prevalence rates of 34.1% and 10.9%, respectively (Kemenkes BKKBN, 2023). Obesity further exacerbates this condition. Evidence suggests that individuals with hypertension and diabetes who also experience central obesity have a higher prevalence of complications, and sedentary lifestyles significantly contribute to the rising incidence of these diseases. This highlights the importance of preventive and control efforts for hypertension and diabetes through behavioral modification and increased physical activity (Kemenkes BKKBN, 2023).

Several risk factors increase the likelihood of developing NCDs such as hypertension, obesity, and diabetes, including unhealthy dietary patterns, physical inactivity, smoking, excessive alcohol consumption, and obesity (P2PTM, 2024). These factors significantly contribute to the growing burden of NCDs. To prevent and manage these risks, the adoption of a healthy lifestyle characterized by a balanced diet, regular physical activity, and avoidance of smoking and excessive alcohol consumption is strongly recommended (Kemenkes RI, 2023; WHO, 2023a).

The importance of early detection and prevention of NCDs in the workplace, including among employees of the Kendari City Fisheries Office, has become increasingly evident. Health screening activities, including measurements of body weight, blood pressure, and blood glucose levels, can help identify NCD risk factors at an early stage, enabling timely interventions before health conditions worsen (Maedah et al., 2023; Roza, S. H., et al., 2024). By involving employees in routine health screening programs, individuals become more aware of the importance of maintaining their health and are encouraged to adopt preventive measures, such as healthier lifestyle choices. NCD prevention is not only essential for improving individual quality of life but also for supporting employee productivity and performance. Effective workplace health programs can reduce absenteeism, enhance work motivation, and lower long-term healthcare costs.

The involvement of the Health Office is also crucial in the implementation of health screening activities. They are responsible for providing trained healthcare personnel to conduct health assessments, such as body weight and blood pressure measurements, and for ensuring the sustainability and effectiveness of health programs aimed at improving employee well-being. The management of NCDs remains a major challenge, particularly in low- and middle-income countries. This challenge is driven by the dual burden of communicable and non-communicable diseases, limited human and material resources, and competing economic priorities (Yifter H, Omer A, Gugsa S, et al., 2021). Therefore, in accordance with Health Law Number 36 of 2009, NCD control should be implemented through comprehensive approaches that include health promotion, early detection, treatment, and rehabilitation. These approaches must be tailored to community conditions to ensure effective and integrated NCD management. The need for health promotion and early detection forms the basis for implementing community service activities, particularly health screening programs for employees at the Kendari City Fisheries Office.

## METHODS

This community service activity employed a health screening approach combined with targeted health education to facilitate early detection of risk factors for Non-Communicable Diseases (NCDs) among employees of the Kendari City Fisheries Office. A total of 45 participants were involved in this activity. The implementation of the program was divided into three main stages: preparation, implementation, and evaluation.

During the preparation stage, the team coordinated with the relevant institution, prepared the necessary instruments, and ensured the availability of screening equipment, including sphygmomanometers, weighing scales, and glucometers. The implementation stage began with participant registration, followed by health screening activities, which included blood pressure measurement, body mass index (BMI) assessment, and random blood glucose testing. After the screening process, each participant received individualized health education based on their examination results. The educational content focused on healthy dietary patterns, physical activity, stress management, and strategies for preventing NCDs.

The evaluation stage consisted of process evaluation to assess the conformity of the implementation with the planned activities, as well as output evaluation to measure participant involvement and analyze the results of the health screening. This

activity also involved the Kendari City Health Office as a partner to ensure that all health examinations were conducted in accordance with established health standards.

## RESULTS AND DISCUSSION

This community service activity was conducted at the Kendari City Fisheries Office on October 23, 2024, in the form of workplace health screening for employees of the Kendari City Fisheries Office.



This activity was conducted by a team of lecturers from the Department of Nursing and the Medical Laboratory Technology Program, in collaboration with the Kendari City Health Office. A total of 45 participants were involved in this activity. The implementation consisted of health screening activities, including measurements of blood pressure, body weight, and blood glucose levels. In addition, face-to-face health education was provided to participants based on the results of their respective health examinations or screening outcomes.

According to Ad'nisa, 2023; Ohio State Health & Discovery (2024) health education activities aim to achieve the following objectives:

### 1. Prevention of Chronic Diseases

Health education aims to reduce the risk of chronic diseases such as hypertension, type 2 diabetes, and obesity. By understanding screening results, individuals can promptly identify high-risk conditions and take preventive measures, including adopting healthier dietary patterns and increasing physical activity.

### 2. Health Promotion and Healthy Lifestyle Adoption

Health education encourages the adoption of healthy lifestyles by teaching individuals how to manage risk factors such as excess body weight or elevated blood glucose levels. For example, a high-fiber and low-sugar diet, regular physical exercise, and effective stress management are essential components of this effort.

### 3. Early Detection and Prompt Intervention

Screening results provide initial information about an individual's health status, enabling early detection of conditions such as hypertension or diabetes. This allows healthcare providers and individuals to plan appropriate interventions, including medical treatment, therapy, or lifestyle modifications.

### 4. Optimal Disease Management



For individuals with previously diagnosed health conditions, health education plays a crucial role in helping them understand the importance of treatment adherence, regular health monitoring, and lifestyle adjustments that support effective disease control.

##### 5. Increased Awareness and Empowerment

Health education aims to provide individuals with a deeper understanding of their health conditions, thereby increasing their awareness, and empowers them to actively participate in making better and more responsible decisions related to disease prevention and management.

This community service activity was conducted over a duration of 120 minutes. Participants' responses to the health screening results and the health education provided reflected a range of emotions and varying levels of understanding. Participants who received favorable screening results generally felt relieved and were motivated to maintain healthy lifestyles. In contrast, those whose results indicated potential health risks often expressed feelings of anxiety, concern, or even initial denial of their health conditions. However, health education delivered with empathy and simple, easy-to-understand language helped participants recognize the importance of follow-up actions and lifestyle modifications. Health education also motivated participants to take preventive measures or improve health management practices, although some participants faced challenges such as time constraints, economic limitations, or lack of social support. A personalized approach, the use of visual media, and emotional support were found to be effective in increasing awareness and motivating participants to implement the recommended health behaviors. The results of the health screening are presented as follows:

Table 4.1. Frequency Distribution of Characteristics of Employees at the Kendari City Fisheries Office

Characteristics	Frequency	Percentage (%)
<b>Age (years)</b>		
20-39	11	24,5
40-59	34	75,5
≥ 60	0	0
<b>Total</b>	<b>45</b>	<b>100</b>
<b>Gender</b>		
Female	24	53,3
Male	21	46,7
<b>Total</b>	<b>45</b>	<b>100</b>

Source: Primary Data, 2024

The distribution of employee characteristics in Table 4.1 shows that the majority of participants were in the 40–59-year age group, accounting for 75.5% of the total sample. This age group is considered a productive yet vulnerable period, as individuals in this range are at an increased risk of developing non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, and cardiovascular disorders (World Health Organization [WHO], 2022). Age-related physiological changes, combined with prolonged exposure to occupational stress, sedentary work patterns, and unhealthy lifestyle behaviors, may contribute to the higher susceptibility to NCDs observed in this group (WHO, 2023b; Ministry of Health of the Republic of Indonesia, 2023).

Regarding gender distribution, female employees constituted a slightly higher proportion (53.3%) compared to male employees (46.7%). This finding may reflect the workforce composition within the institution; however, it also highlights the importance of considering gender-specific health promotion strategies. Previous studies have shown that women tend to be more receptive to health education and preventive health programs, which may positively influence health-seeking behavior and adherence to healthy lifestyle practices (WHO, 2022; Ohio State Health & Discovery, 2024). Nevertheless, both male and female employees remain at risk for NCDs, emphasizing the need for inclusive and gender-sensitive workplace health interventions.

The predominance of middle-aged employees underscores the importance of implementing regular health screening and targeted health education programs in the workplace. Early identification of NCD risk factors among this

age group is essential to prevent disease progression and reduce long-term health complications (Maedah et al., 2023). Furthermore, promoting healthy lifestyle behaviors within the work environment can help maintain employee productivity, reduce absenteeism, and improve overall quality of life (Yifter et al., 2021). These findings support the integration of routine health screening and continuous health education as part of a comprehensive workplace health promotion strategy.

Table 4.2. Frequency Distribution of Health Screening Results among Employees of the Kendari City Fisheries Office

Screening Variable	Frequency	Percentage (%)
<b>Tekanan Darah</b>		
- Hypotension (<120 / <80 mmHg)	7	15,5
- Normal (120–129 / 80 mmHg)	16	35,5
- Hypertension (≥130 / >80 mmHg)	22	49
<b>Total</b>	<b>45</b>	<b>100</b>
<b>Body Mass Index (BMI)</b>		
- Underweight (<18.5 kg/m <sup>2</sup> )	3	6.6
- Normal (18.5–24.9 kg/m <sup>2</sup> )	21	46.6
- Overweight (25.0–29.9 kg/m <sup>2</sup> )	21	46.8
- Obesity (≥30 kg/m <sup>2</sup> )	0	0.0
<b>Total</b>	<b>45</b>	<b>100</b>
<b>Blood Glucose Level</b>		
- Normal (<140 mg/dL)	41	92.8
- Prediabetes (140–199 mg/dL)	2	3.6
- Diabetes (≥200 mg/dL)	2	3.6
<b>Total</b>	<b>45</b>	<b>100</b>

Source: Primary Data, 2024

The health screening results presented in Table 4.2 indicate that a substantial proportion of employees exhibited risk factors for non-communicable diseases (NCDs). Blood pressure measurements showed that 49.0% of participants were classified as hypertensive, while 35.5% had normal blood pressure and 15.5% were categorized as hypotensive. The high prevalence of hypertension among employees reflects a significant public health concern within the workplace setting. Hypertension is often asymptomatic and is closely associated with cardiovascular disease, stroke, and renal complications when not adequately controlled (Kemenkes RI, 2019; WHO, 2023b). Factors such as occupational stress, sedentary work patterns, and unhealthy dietary habits are likely contributors to the increased prevalence of hypertension in this population.

Based on body mass index (BMI) assessment, 46.8% of participants were classified as overweight, 46.6% had a normal BMI, and 6.6% were underweight. No participants were identified as obese. Excess body weight is a major risk factor for hypertension and type 2 diabetes mellitus due to its association with insulin resistance and increased cardiovascular workload (WHO, 2022). The high proportion of employees with overweight status highlights the need for workplace-based interventions that promote physical activity and healthy dietary practices.

The proportions of participants with normal body weight (46.6%) and overweight status (46.8%) were nearly equal; however, the elevated prevalence of overweight serves as an early warning of a potential increase in obesity risk. Overweight and obesity are strongly associated with various chronic conditions, including type 2 diabetes mellitus, cardiovascular disease, and hypertension (Hu, F.B, 2016; Bray, G. A & Frühbeck, G., 2020). Interventions focusing on healthy diet promotion and regular physical activity are therefore essential to prevent progression to obesity.

Regarding blood glucose screening, the majority of participants (92.8%) had normal random blood glucose levels. Nevertheless, 3.6% of participants were identified as having prediabetes, and 3.6% were classified as diabetic. Although the prevalence of abnormal blood glucose levels was relatively low, these findings remain clinically significant, as prediabetes can progress to type 2 diabetes mellitus in the absence of appropriate lifestyle modification and medical intervention (American Diabetes Association, 2023; Kemenkes RI, 2023). For participants diagnosed with diabetes,

targeted education on glucose management through dietary regulation, physical activity, and adherence to prescribed medication is required.

Overall, these screening results underscore the importance of early detection and continuous monitoring of NCD risk factors in the workplace. The integration of routine health screening with individualized health education can facilitate behavioral change, prevent disease progression, and support the development of a healthier and more productive workforce (Maedah et al., 2023; Yifter et al., 2021).

## CONCLUSION

The health screening and education activities conducted among employees of the Kendari City Fisheries Office successfully identified a high prevalence of hypertension and overweight as the main health concerns, while the majority of participants had blood glucose levels within normal ranges. These findings indicate that risk factors for non-communicable diseases (NCDs) remain relatively high in the workplace setting and require focused attention.

The provision of health education proved effective in increasing participants' awareness and understanding of the importance of early detection of NCDs and the adoption of healthy lifestyle changes, including dietary regulation, increased physical activity, and stress management. Through a personalized education approach based on individual screening results, participants became more aware of their health status and were motivated to engage in preventive health behaviors.

To ensure the sustainability of the program's outcomes, follow-up activities such as regular health monitoring, continuous health education, and strengthened cross-sector collaboration are needed, particularly between workplace institutions and health authorities. These efforts are expected to contribute to effective NCD prevention and control and to support the development of a healthier and more productive work environment.

## ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to the Kendari City Fisheries Office and the Kendari City Health Office, as well as all parties who contributed to this study, both directly and indirectly.

## REFERENCES

Ad'nisa, R. T. (2023). Perancangan Video Edukasi Kesehatan sebagai Upaya Penerapan Pola Hidup Bersih dan Sehat di Lingkungan Sekolah Menengah Atas Negeri Kota Bandung [Universitas Pendidikan Indonesia]. In *Universitas Pendidikan Indonesia*. <https://repository.upi.edu/88605/>

American Diabetes Association. (2023). Standards of Medical Care in Diabetes. In *American Diabetes Association*. <https://diabetes.org/>

F.B., H. (2016). Obesity Epidemiology. Oxford University Press., 11(1), 1–14. [https://doi.org/10.1002/cphc.201200549](http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI</a></p><p>G. A. B., & G. F. (2020). Obesity: Pathophysiology, Diagnosis, and Treatment. <i>Journal of Clinical Endocrinology & Metabolism</i>, 13(11), 2635–2635. <a href=)

Kemenkes BKPK. (2023). Prevalensi, Dampak, serta Upaya Pengendalian Hipertensi & Diabetes di Indonesia. *Kementerian Kesehatan*, 1–2. <https://p2ptm.kemkes.go.id/uploads/cEdQdm1WVXZuRXhad3FtVXduOW1WUT09/2024/09/factsheet PTM 24april07.30.pdf>

Kemenkes RI. (2019). *Hipertensi: Pedoman Teknis Pencegahan dan Pengendalian*. Kementerian Kesehatan RI.

Kemenkes RI. (2023). *Profil Kesehatan Indonesia 2023*. Kementerian Kesehatan RI. <https://www.kemkes.go.id>

Kementerian Kesehatan Republik Indonesia. (2024). *Profil Pengendalian Penyakit Tidak Menular (P2PTM)*. Jakarta: Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular.

Maedah, A. L., Sitoayu, L., Melani, V., Nuzrina, R., & Kuswari, M. (2023). Status Gizi, Kebiasaan Sarapan Dengan Produktivitas Kerja Karyawan Startup Jakarta. *Jurnal Gizi Kerja Dan Produktivitas*, 4(2), 206–215. <https://doi.org/10.52742/jgkp.v4i2.239>

Ohio State Health & Discovery. (2024). Health screenings by age , and why they ' re not worth skipping. *Health Screenings by Age*. <https://health.osu.edu/health/family-health/health-screenings-by-age>

Pusat Promosi Kesehatan (P2PTM). (2024). Faktor Risiko Penyakit Tidak Menular (PTM). *Kementerian Kesehatan Republik Indonesia*.

Roza, S. H., Putri, R. M., & Handayani, D. (2024). Workplace-based screening for non-communicable disease prevention: A community service approach. *Indonesian Journal of Community Engagement in Health*, 6(1), 45–52.

WHO. (2023a). *Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks*. World Health Organization. [http://www.who.int/healthinfo/global\\_burden\\_disease/GlobalHealthRisks\\_report\\_full.pdf](http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf)

World Health Organization. (2022). Noncommunicable Diseases. In *World Health Organization*. <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>

World Health Organization. (2023a). *Physical activity*. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>

WHO. (2023b). Hypertension. In *World Health Organization*. [https://doi.org/10.1007/978-1-137-00426-0\\_3](https://doi.org/10.1007/978-1-137-00426-0_3)

WHO. (2023c). Hypertension Indonesia 2023 Country Profile. In *World Health Organization*. WHO. [https://cdn.who.int/media/docs/default-source/country-profiles/hypertension/hypertension-2023/hypertension\\_idn\\_2023.pdf?sfvrsn=b7530330\\_4&download=true](https://cdn.who.int/media/docs/default-source/country-profiles/hypertension/hypertension-2023/hypertension_idn_2023.pdf?sfvrsn=b7530330_4&download=true)

Yifter, H., Omer, A., Gugsa, S., & Alemu, S. (2021). Challenges in the management of non-communicable diseases in low- and middle-income countries. *BMC Public Health*, 21(1), 1–9. <https://doi.org/10.1186/s12889-021-11025-6>