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Strengthening Community Knowledge to Reduce the Incidence of Hypertension in Bekasi City

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Abstrak

Hipertensi merupakan masalah kesehatan yang memerlukan Upaya promotif dan preventif di lingkungan kerja maupun masyarakat. Kegiatan ini bertujuan meningkatkan pengetahuan tentang hipertensi dan mendukung deteksi dini faktor risiko hipertensi di Kelurahan Pekayon Jaya, Kota Bekasi. Kegiatan dilaksanakan melalui Upaya Kesehatan Kerja (UKK) pada pekerja SPPG Karakter Dahsyat Mulia dan penyuluhan hipertensi pada masyarakat RW 01. Kegiatan meliputi edukasi, pemeriksaan tekanan darah, serta evaluasi pengetahuan melalui pretest dan posttest. Pada 15 peserta UKK, hipertensi derajat 1 merupakan kategori yang paling banyak ditemukan (40,0%). Pengetahuan kategori baik meningkat dari 26,7% menjadi 40,0% dan sangat baik dari 13,3% menjadi 40,0%. Pada 74 peserta penyuluhan masyarakat, pengetahuan kategori baik meningkat dari 35,1% menjadi 59,5% dan sangat baik dari 17,6% menjadi 31,1%, sedangkan kategori cukup dan kurang menurun. Edukasi dan skrining mendukung peningkatan pengetahuan serta deteksi dini faktor risiko hipertensi. Edukasi kesehatan dapat menjadi upaya promotif dan preventif dalam pencegahan serta pengendalian hipertensi.

Kata kunci: ***Hipertensi, Edukasi kesehatan, Pengetahuan, Skrining tekanan darah, Pengabdian kepada masyarakat***

Abstract

Hypertension was a health problem that required promotive and preventive efforts in both workplaces and communities. This community engagement activity aimed to improve knowledge about hypertension and support the early detection of hypertension risk factors in Pekayon Jaya Sub-District, Bekasi City. The activity was conducted through the UKK among workers at SPPG Karakter Dahsyat Mulia and hypertension education for the community in Pekayon Jaya Sub-District. The activities included health education, blood pressure screening, and knowledge evaluation using pretests and posttests. Among 15 UKK workers, grade 1 hypertension was the most frequently identified blood pressure category (40.0%). The proportion of participants with good knowledge increased from 26.7% to 40.0%, while excellence knowledge increased from 13.3% to 40.0%. Among 74 community education participants, good knowledge increased from 35.1% to 59.5% and excellence knowledge from 17.6% to 31.1%, while the proportions with fair and poor knowledge decreased. The education and screening activities supported increased knowledge and early detection of hypertension risk factors. Health education could serve as a promotive and preventive effort to support hypertension prevention and control.

Keywords*: *Hypertension, Health education, Knowledge, Blood pressure screening, Community engagement

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Introduction

Non-Communicable Diseases (NCDs) have emerged as a global health threat in the 21st century. Unlike communicable diseases, which are caused by microorganisms, NCDs develop slowly over an extended period and often go unnoticed by affected individuals. The rise in NCD cases is driven by modern lifestyle changes, such as unhealthy dietary habits, physical inactivity, stress, smoking, and other unhealthy behaviors(Budreviciute et al., 2020).

According to the World Health Organization (WHO, 2021), Non-Communicable Diseases (NCDs) account for more than 43 million deaths worldwide. Globally, the burden of NCDs is projected to increase annually. The vast majority of NCD cases (approximately 80%) occur in low- and middle-income countries, including Indonesia. National health survey results also demonstrate an upward trend in the prevalence of NCDs year over year. In 2023, the prevalence of diabetes mellitus was recorded at 10.9%, hypertension at 34.1%, stroke at 12.1%, and coronary heart disease at 13.4% (Kemenkes, 2025).

Hypertension remains an unresolved public health issue to date. This persists largely because a significant proportion of affected individuals are unaware of their condition, or fail to adhere to recommended healthy lifestyle behaviors (Akhmad, 2023). As a common health disorder in the general population, hypertension is characterized by abnormal blood pressure, specifically a measured systolic blood pressure exceeding 140 mmHg and/or a diastolic blood pressure exceeding 90 mmHg (Sudirman & Monoarfa, 2024).

The clinical manifestations most frequently experienced by individuals with hypertension include headaches, nosebleeds, shortness of breath, and fainting resulting from sudden spikes in blood pressure (Wicaksono & Handoko, 2021). Hypertension is a critical health concern requiring serious attention, as it significantly elevates the risk of developing various cardiovascular diseases. This condition increases susceptibility to heart disease, stroke, aneurysms, impaired renal function, and hypertensive retinopathy, which can lead to visual impairment or total vision loss. Consequently, early detection, blood pressure management, and the adoption of a healthy lifestyle are vital to preventing complications and enhancing patients' quality of life (Riyada et al., 2024).

The incidence rate of hypertension in Indonesia exhibits an alarming trend. This is evidenced by reports indicating that hypertension has become a critical health issue, with a prevalence of 34.1% across 38 provinces. Data show that the total number of hypertension cases in 2023 reached 3,212,072 individuals. In 2018, West Java Province recorded the highest incidence of hypertension at 39.6% (BPS, 2021). Within Bekasi City, 546,283 hypertensive patients over the age of 15 were documented in 2020. This figure slightly decreased to 525,162 patients in 2022 (Dinkes, 2023).

In line with this phenomenon, a community assessment conducted in RW 001 of Pekayon Jaya Sub-District among 84 respondents revealed that hypertension was also the predominant illness. A total of 49 respondents (58.3%) had a history of hypertension, whereas 35 respondents (41.7%) suffered from other medical conditions. The high prevalence and chronic nature of hypertension impose a significant burden on the community healthcare system, triggering a surge in demand for both primary and referral healthcare services (WHO, 2025). Consequently, addressing hypertension through the active role of primary health centers (*puskesmas*), which are responsible for delivering health promotion and disease prevention efforts, must be strengthened. Based on these considerations,

enhancing public knowledge to reduce the incidence of hypertension represents a critical strategy to implement. This community engagement was undertaken to strengthen public knowledge regarding hypertension in Pekayon Jaya Sub-District, Bekasi City.

The Primary reason for selecting RW 001 of Pekayon Jaya Sub-District as the focus of this community engagement is the high prevalence of hypertension identified during the initial assessment, combined with the need to prevent associated long-term cardiovascular risks and reduce of this community engagement activity was to enhance public and worker knowledge regarding hypertension and to support the early detection of hypertension risk factors through structured health education and screening Pekayon Jaya Sub-District, Bekasi City.

Implementation Method

The implementation process of this Community engagement in Pekayon Jaya sub-district, was carried out through an educational, participatory approach alongside the application of the community empowerment-based nursing process (using Community as Partner model). To ensure that the intervention wa executed effectively, the implementation methods were systematically structured to be clear and on target across both workplace and community settings. The execution phase of this activity was divided into four main stages:

1. Enhancing Health Knowledge within the UKK



Figure 1. Implementation of the UKK Activities for Workers at SPPG KarakterDahsyat Mulia

Enhancing knowledge within the UKK was conducted for workers and staff at *SPPG Karakter Dahsyat Mulia*. This initiative commenced with official coordination and approval from the home industry owner. Implementation focused on improving occupational health literacy, enabling the early detection of risk factors for Non-Communicable Diseases (NCDs) associated with sedentary work habits or physical fatigue, and delivering education on hypertension prevention as well as the adoption of Clean and Healthy Lifestyle Behaviors in the workplace. Educational media utilized included leaflets, flip charts, and interactive lecture sessions that facilitated two-way discussion.

2. Enhancing Community Health Knowledge



Figure 2. Blood Pressure Screening Implementation among the Community in Pekayon Jaya Sub-District

Enhancing knowledge within the general community targeted individuals with hypertension, older adults, housewives, and community health volunteers (*kader kesehatan*) in Pekayon Jaya Sub-District. Health education was delivered in a structured manner through group counseling sessions and individual health consultations held during integrated health post (*Posyandu*) activities. The instructional content focused on: awareness of hypertension risks and complications, adherence to routine medication regimens, adoption of a low-sodium Dietary Approaches to Stop Hypertension (DASH) diet, lifestyle modification and stress management, smoking cessation.

3. Implementation of Health Education Interventions



Figure 3. Hypertension Education Session Conducted in Pekayon Jaya Sub-District

The implementation of health education interventions was carried out in a planned manner over a one-month period. The distribution schedule across the target areas was customized based on mutual agreements with local RT/RW officials and residents to maximize participant attendance:

a. RT 001: The implementation of health education interventions in RT 001 took place on Friday evening of the third week. This time frame was specifically selected to accommodate residents and household heads who work during the day. Activities included blood pressure screenings, education on hypertension prevention, and interactive discussions regarding

healthy lifestyle management.

b. RT 002: Activities in RT 002 were conducted on Tuesday of the fourth week, focusing on blood pressure screenings, distribution of educational leaflets, and counseling on medication adherence and strategies for blood pressure reduction.
c. RT 003: Activities in RT 003 were conducted on Tuesday afternoon of the fourth week at a different location from RT 002. The activities included health education on preventing hypertension complications, distribution of educational leaflets, and blood pressure screenings.
d. RT 004: The implementation in RT 003 was conducted on Wednesday of the fourth week, encompassing health education on preventing hypertension complications, distribution of educational leaflets, and blood pressure screenings.

4. Program Evaluation and Sustainability



Figure 4. Evaluation Phase of the Hypertension Education Activity in Pekayon Jaya Sub-District

The effectiveness and achievement level of the activities were evaluated using both formative and summative assessments via a pretest-posttest design, alongside tracking active community participation. Success criteria were evaluated based on the Indonesian Nursing Outcome Standards (*Standar Luaran Keperawatan Indonesia / SLKI*) indicator, specifically, an increase in knowledge level. Program sustainability is ensured through the distribution of educational media and ongoing, routine monitoring conducted by community health volunteers (*kader Posyandu*) and Pekayon Jaya Primary Health Center (*Puskesmas*).

Result and Discussion

Result

The implementation of community engagement activities is presented based on the two executed programs: UKK initiatives for workers at *SPPG Karakter Dahsyat Mulia*, and hypertension health education for the general community in Pekayon Jaya Sub-District. The presentation of results encompasses participant characteristics, blood pressure screening outcomes from the UKK implementation, and the distribution of participant knowledge levels prior to and following the delivery of educational interventions across both programs.

a. Implementation of Occupational Health Unit

The outcomes of the UKK implementation encompass participant demographic characteristics, blood pressure screening results, and participant knowledge levels prior to and following the delivery of health education.

1) Participant Characteristics

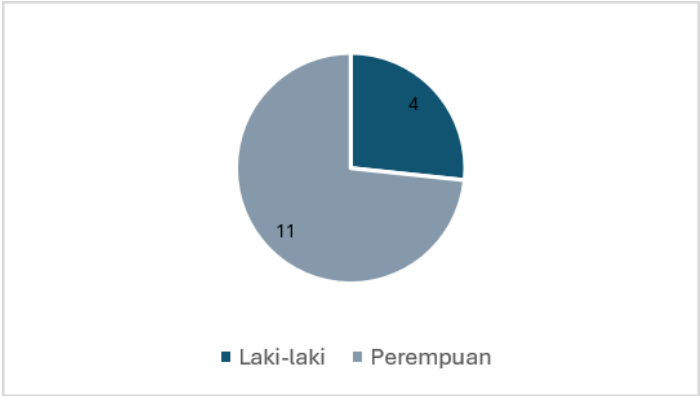


Figure 5. Participant Distribution by Sex (n = 15)

Figure 5 illustrates the distribution of participants in the UKK categorized by sex. Out of a total of 15 participants, the majority were female, accounting for 11 individuals (73.3%), while male participants comprised 4 individuals (26.7%).



Figure 6. Participant Distribution by Age Group (n = 15)

Figure 6 depicts the age distribution of participants involved in the UKK. The age groups of 20–29 years and 40–49 years each consisted of 6 participants (40.0%), whereas the 30–39 age group comprised 3 participants (20.0%). Participant ages ranged from 25 to 49 years, with a mean age of 36.6 years.

2) Blood Pressure Screening Outcomes

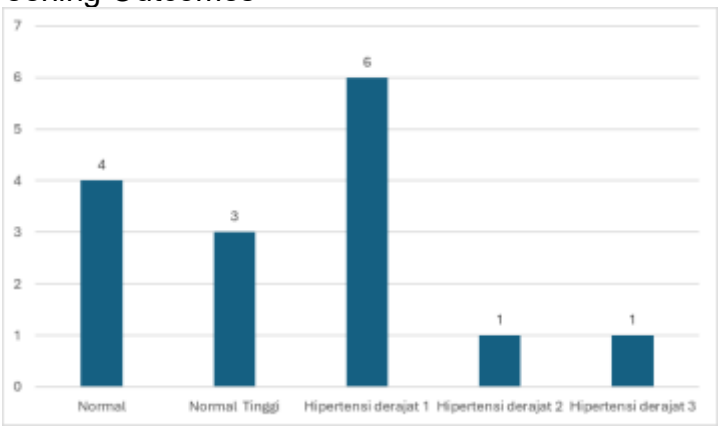


Figure 7. Distribution of Occupational Health Unit Participants by Blood Pressure Category (n=15)

Figure 7 illustrates the distribution of blood pressure screening results among participants in the UKK. The majority of participants were classified under Grade 1 hypertension, totaling 6 individuals (40.0%), followed by the normal blood pressure category with 4 individuals (26.7%), and high-normal blood pressure with 3 individuals (20.0%). Additionally, Grade 2 hypertension and Grade 3 hypertension each accounted for 1 individual (6.7%).

3) Outcomes of Hypertension Health Education among Workers

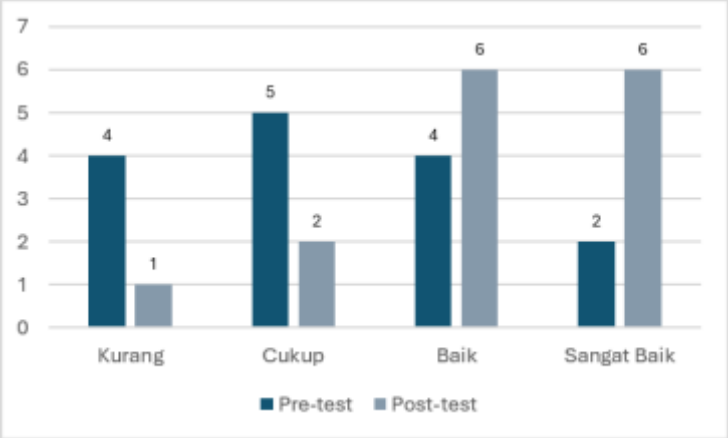


Figure 8. Comparison of Participant Knowledge Levels Pre- and Post-Education in the Occupational Health Unit Implementation (n=15)

Figure 8 illustrates the comparison of participant knowledge levels prior to and following the educational intervention within the UKK. Subsequent to the delivery of health education, there was an increase in the proportion of participants in the "Good" knowledge category, rising from 4 individuals (26.7%) to 6 individuals (40.0%), as well as in the "Excellent" category, which increased from 2 individuals (13.3%) to 6 individuals (40.0%). Conversely, the number of participants categorized under "Fair" knowledge declined from 5 individuals (33.3%) to 2 individuals (13.3%), while those in the "Poor" category decreased from 4 individuals (26.7%) to 1 individual (6.7%).

b. Outcomes of Community-Based Hypertension Education Implementation

The outcomes of the community-based hypertension education program are presented based on participant demographic characteristics as well as participant knowledge levels prior to and following the delivery of health education.

1) Participant Characteristics

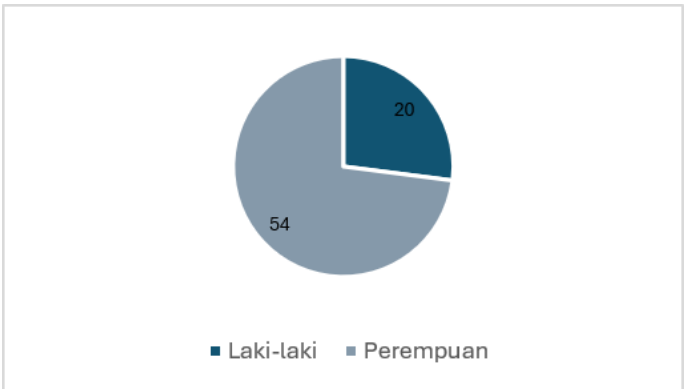


Figure 9. Participant Distribution by Sex (n=74)

Figure 9 illustrates the distribution of community hypertension education participants categorized by sex. Out of a total of 74 participants, the vast majority were female, accounting for 54 individuals (73.0%), while male participants comprised 20 individuals (27.0%). The age of participants ranged from 30 to 65 years.

2) Outcomes of Community Hypertension Education

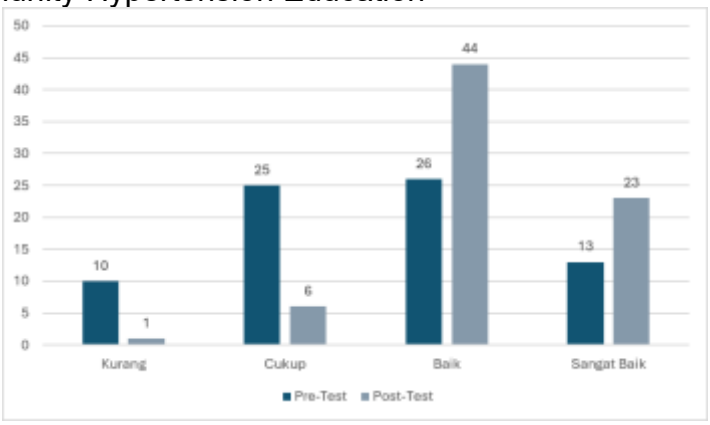


Figure 10. Comparison of Participant Knowledge Levels Pre- and Post-Hypertension Education (n=74)

Figure 10 depicts the comparison of participant knowledge levels prior to and following the community hypertension health education program. Subsequent to the intervention, there was a notable increase in the proportion of participants in the "Good" knowledge category, rising from 26 individuals (35.1%) to 44 individuals (59.5%), and in the "Excellent" category, which increased from 13 individuals (17.6%) to 23 individuals (31.1%). Conversely, the number of participants categorized under "Fair" knowledge marked a sharp decline from 25 individuals (33.8%) to 6 individuals (8.1%), while those in the "Poor" category decreased from 10 individuals (13.5%) to 1 individual (1.4%).

Discussion

The implementation outcomes of the Occupational Health Unit (*Upaya Kesehatan Kerja / UKK*) initiative at *SPPG Karakter Dahsyat Mulia* demonstrate that the majority of participants were female (73.3%), with a mean age of 36.6 years. Participants ranged in age from 25 to 49 years, with the 20–29 and 40–49 age groups constituting the largest proportions (40.0% each), whereas the 30–39 age group accounted for 20.0%.

Blood pressure screening outcomes among the UKK participants revealed that Grade 1 hypertension was the most prevalent category, accounting for 40.0% of individuals. Meanwhile, 26.7% of participants were classified under the normal blood pressure category, and 20.0% fell into the high-normal category. Additionally, Grade 2 and Grade 3 hypertension each accounted for 6.7% of participants. These findings demonstrate elevated blood pressure levels among a significant portion of participants, underscoring the need for structured follow-up care and periodic monitoring. This condition warrants critical attention, as hypertension is frequently asymptomatic, making regular blood pressure screening an indispensable method for early detection (WHO, 2025).

Several lifestyle factors are known to be associated with elevated blood pressure, including physical inactivity, an unhealthy diet, and sedentary behavior.

Inadequate physical activity constitutes a key risk factor for hypertension, whereas regular physical activity can help reduce hypertension risk (WHO, 2024). Furthermore, research among occupational groups indicates a significant relationship between work hours, occupational fatigue, and the incidence of hypertension; thus, factors related to working conditions and work patterns must be carefully considered in workplace hypertension prevention efforts (Hidayah et al., 2025).

The delivery of health education within the UKK demonstrated a marked improvement in workers' knowledge levels post-intervention. Prior to the educational session, participants were distributed across the following knowledge categories: Poor (26.7%), Fair (33.3%), Good (26.7%), and Excellent (13.3%). Following the intervention, the proportion of participants in both the Good and Excellent categories increased significantly to 40.0% each, while those categorized as Fair declined to 13.3% and Poor dropped to 6.7%. This shift in distribution confirms an overall enhancement in participants' health knowledge following the intervention. This gain in knowledge is well-supported by the use of educational media that presents information in a concise, systematic, and easily understandable format. Previous studies demonstrate that employing leaflets as hypertension educational tools significantly elevates participant knowledge post-intervention (Cahaya et al., 2025). Furthermore, leaflets enable participants to review the provided information at their own pace, thereby reinforcing comprehension and long-term retention of health-related concepts (Meylani et al., 2026).

In the execution of the community-based hypertension education program in Pekayon Jaya Sub-District, the majority of participants were female, comprising 54 individuals (73.0%), whereas male participants accounted for 20 individuals (27.0%), with participant ages ranging from 30 to 65 years. This age range falls within the adult population, representing a critical target demographic for hypertension detection and management efforts. The World Health Organization reports that hypertension is prevalent among adults aged 30–79 years and identifies advancing age as a primary risk factor for the condition (WHO, 2021). Furthermore, age, sex, physical activity levels, and obesity are key factors associated with the incidence of community hypertension (Khasanah, 2022).

The implementation of hypertension health education among the community in Pekayon Jaya Sub-District demonstrated a marked increase in knowledge levels following the intervention. The combined proportion of participants categorized under "Good" and "Excellent" knowledge rose significantly from 52.7% pre-education to 90.5% post-education. Conversely, the proportion of participants in the "Poor" and "Fair" categories decreased from 47.3% to 9,5%. These findings align with prior research indicating significant differences in community knowledge regarding hypertension before and after receiving health education, which reported an increase in mean knowledge scores of 5.55 (Padila et al., 2024). Furthermore, knowledge gains following health talks are well-supported by studies showing an increase in mean knowledge scores among intervention groups, rising from 11.48 prior to education to 16.13 post-intervention (Pratama et al., 2022).

The implementation of community engagement through the UKK approaches and community health education in Pekayon Jaya Village highlights the role of structured education in strengthening hypertension awareness among both workers and the general public. Within the UKK, health education was integrated with blood pressure screening, combining health promotion via knowledge enhancement with disease prevention through early detection among the workforce. Concurrently,

within the general community, the educational intervention led to a marked increase in the proportion of participants achieving "Good" and "Excellent" knowledge levels following the health sessions.

The direct impact of this community engagement activity is demonstrated by the immediate enhancement of health literacy and awareness among both workers and community members, as well as the successful identification of individuals with elevated blood pressure through early risk screening. Furthermore, to ensure the impact of this activity persists in an ongoing manner, a sustainable mechanism has been established through routine blood pressure monitoring and the ongoing distribution of educational materials, which will be continuously coordinated by local health volunteers *(kader Posyandu)* in collaboration with the Pekayon Jaya Primary Health Center *(UPTD Puskesmas Pekayon Jaya).*

Conclusion

The implementation of community engagement through UKK initiatives among workers at *SPPG Karakter Dahsyat Mulia* and community-based hypertension health education in Pekayon Jaya Sub-District demonstrated an increase in participant knowledge following the educational interventions. In the UKK program, health education was paired with blood pressure screening, which identified participants with elevated blood pressure falling into hypertensive categories, thereby supporting early detection of hypertension risk factors in the workplace. Similarly, in the community setting, the intervention led to a marked increase in the proportion of participants categorized under "Good" and "Excellent" knowledge levels post-education. These outcomes indicate that targeted health education serves as an effective health promotion and disease prevention strategy to improve awareness and knowledge regarding hypertension prevention and management. Continued educational efforts, routine blood pressure monitoring, and the reinforcement of roles among community health volunteers (*kader*) and primary healthcare facilities remain essential to ensure sustained hypertension control across both workplace and community settings.

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