IDENTIFICATION AND INTERVENTION OF HEALTH PROBLEMS THROUGH FIELD LEARNING EXPERIENCE (PBL) IN AEK KOTA BATU VILLAGE, NA IX-X DISTRICT, NORTH LABUHANBATU REGENCY

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Abstract

This study, conducted through Field Learning Experience (PBL) in Aek Kota Batu Village, North Labuhanbatu Regency, identified Diabetes Mellitus (DM) as a primary and escalating health concern. The rising prevalence of DM is attributed to a confluence of factors, including insufficient public knowledge, unhealthy lifestyle choices, and detrimental environmental conditions. To address this multifaceted issue, a series of targeted interventions were implemented. These interventions encompassed educational outreach programs on DM for adolescents, comprehensive health screenings to facilitate early detection, and the cultivation of Family Medicinal Plants (TOGA). The educational initiatives aimed to enhance understanding of DM, its risk factors, and preventive measures among the younger population. Health screenings played a crucial role in identifying individuals at risk or in the early stages of DM, enabling timely intervention. Furthermore, the promotion and cultivation of TOGA provided a sustainable and natural approach to managing blood sugar levels, fostering self-reliance in health management within the community. The findings underscore the critical importance of collaborative efforts among various stakeholders to effectively mitigate the incidence of DM. This integrated approach, combining education, early detection, and community-based solutions, is essential for improving public health outcomes and reducing the burden of DM in the long term.
Keywords: Diabetes Mellitus, Public Health, Intervention, Community Engagement

INTRODUCTION

Public health is a collective effort to maintain the health of all people by emphasizing disease prevention and creating an environment that supports healthy living, rather than merely treating those who are already sick. This effort requires collaboration from various parties, such as the government, community, private sector, and individuals. However, the challenges faced continue to evolve, ranging from lifestyle diseases like diabetes, hypertension, and obesity, to mental health issues.(Kamaruddin, 2025)

All of this demonstrates the importance of public health's role in ensuring everyone has an equal opportunity to live healthily. The main problem in health management actually centers on human factors, namely knowledge, attitudes, and behavior. Inadequate knowledge, coupled with the rampant spread of misinformation, often hinders individuals from making appropriate decisions. In the context of public health science, the direction and success of interventions are highly determined by the systematic process of identifying and prioritizing problems. Problem identification is carried out through the collection of epidemiological data and surveillance to observe disease trends and their risk factors.(Arayana dkk., 2024)

Meanwhile, problem priorities are determined based on the level of urgency, severity (morbidity and mortality), and potential social and economic impact. With this approach, limited resources can be allocated more effectively to address the most pressing health challenges and provide the greatest benefit to the community.(Arsyad, 2023)

Referring to this framework, diabetes mellitus emerges as one of the main health priorities in Aek Kota Batu village. Its drastic increase in prevalence has made it a non-infectious pandemic that imposes a substantial disease burden, not only on individuals but also on the health system and economy of a region. Diabetes Mellitus is a serious concern for various groups due to its widespread impact, both in the short and long term, thus requiring comprehensive and sustainable countermeasures (Ministry of Health RI, 2020). Sociodemographic factors and an unbalanced consumption pattern in the community are determinants of DM occurrence. The purpose of this study is to determine the determinants of DM incidence in the community based on sociodemographic conditions and eating consumption patter. In addition, the community in Aek Kota Batu Village also faces problems related to unhealthy lifestyles, which contribute to the increasing cases of Diabetes Mellitus (DM).(Ariani dkk., 2024)

DM is a serious public health problem because its impact is not only short-term but also long-term, which can reduce the quality of life of sufferers. The main factors influencing the incidence of DM include low public knowledge, an unbalanced diet, and a lack of physical activity or exercise. Knowledge plays an important role in preventing DM. Communities with low understanding tend not to know the risk factors, early symptoms, or appropriate prevention steps. As a result, many are late in performing early detection, increasing the risk of the disease. In addition, the community's eating patterns, which tend to be high in calories, fat, sugar, and low in fiber, are also a major trigger for DM if not balanced with healthy consumption patterns.(Haerani, 2024)

Lack of physical activity further increases the risk of DM. A sedentary lifestyle makes the body more susceptible to obesity, decreased insulin sensitivity, and metabolic disorders that lead to DM. Therefore, increasing knowledge, improving eating patterns, and habitually exercising are very important to prevent and control DM in the community.Field Study Experience (PBL) is a learning approach that provides students with the opportunity to interact directly with the community in order to understand existing health conditions, while also attempting to provide solutions through simple interventions.

This activity is not only beneficial for students as a means of training skills and expanding insights in the field of public health, but can also make a real contribution to improving the health of the local community.(Suharsono dkk., 2025)

The implementation of PBL in Aek Kota Batu Village, Na IX-X District, North Labuhanbatu Regency, is directed at identifying various health problems faced by residents, then formulating appropriate handling steps in accordance with needs in the field. In this way, PBL is expected not only to provide practical experience for students, but also to encourage changes in community health behavior towards better conditions. The results of the activity include mapping health problems, interventions carried out, and benefits that can be directly felt by the community of Aek Kota Batu Village.

IMPLEMENTATION METHOD

This study uses a quantitative descriptive method with a cross-sectional design. Primary data was obtained from observation activities and direct interviews with the community in 7 different neighborhoods in Aek Kota Batu Village using a questionnaire tool contained in the PBL implementation guide. Secondary data was obtained from data taken from the Aek Kota Batu community health center report which includes data on the top 10 diseases with the highest number of cases obtained from the Aek Kota Batu community health center. The PBL data collection technique is an interview using a questionnaire. A questionnaire is a series of written questions aimed at obtaining answers related to demographic data and lifestyle from the community. The questions in the questionnaire consist of respondent identity, family identity, social environmental factors, eating patterns, facilities and infrastructure, accessibility of health services and information. This aims to explore what health problems occur in the Aek Kota Batu village area. Documentation was also carried out by photographing available data in Aek Kota Batu Village, Na IX-X District, North Labuhanbatu Regency.(Banowo & Maulana, 2021).

RESULTS AND DISCUSSION

1. Identification of Public Health Problems

Based on secondary data obtained from Aek Kota Batu Community Health Center, several health problems were identified as follows:

Table 1. Top 10 Diseases in Aek Kota Batu Village

No.	Disease Name	Prevalensi
1.	Obs. Febris	2845
2.	Hypertension	1289
3.	Dyspepsia	1256
4.	Gastritis	1220
5.	Arthritis rheumatoid	826
6.	Rheumatoid Arthritis	569
7.	ARI	451
8.	Diarrhea	199
9.	Dermatitis	158
10.	Hypotension	48

2. Public Health Problem Priorities

No.	Health Problem	M	S	V	C	Total	Prioritas
1.	Hypertension	64	52	59	68	13.351.936	II
2.	Breast Cancer	27	55	64	54	5.132.160	III
3.	Diabetes Melitus	75	63	48	68	15.422.400	I
4.	Diarrhea	45	35	45	45	3.189.375	IV
5.	Dermatitis	36	27	46	34	1.520.208	VI
6.	ARI	41	35	50	43	3.085.250	V

3. Problem Cause Analysis
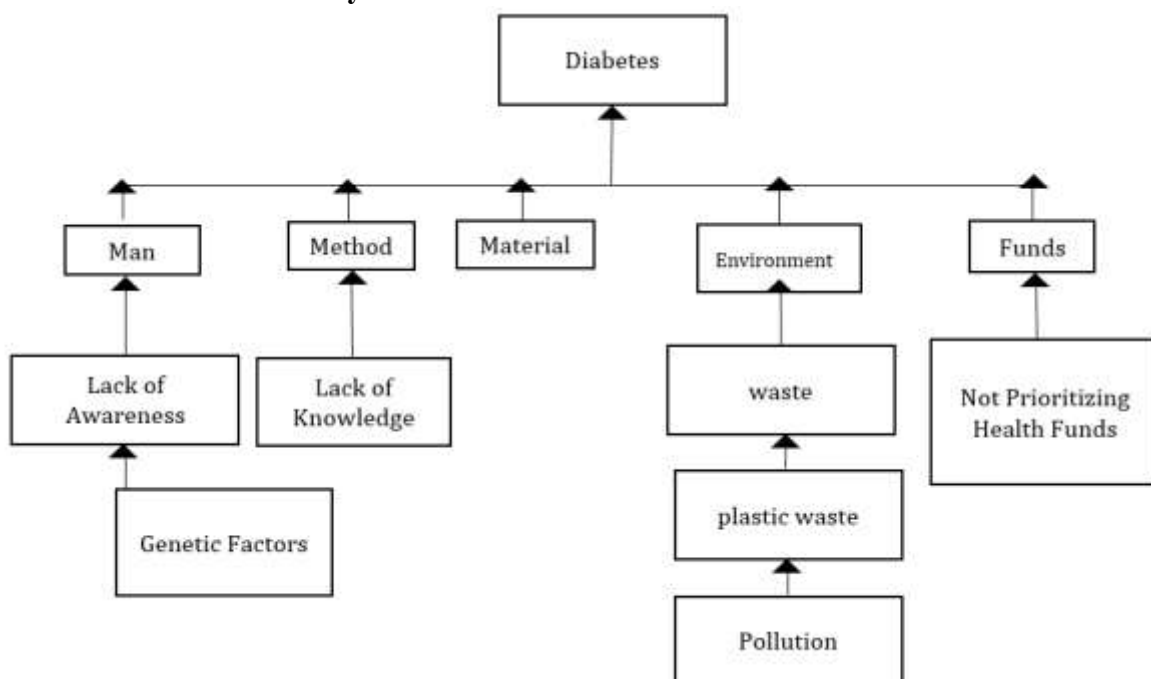
a. Human factors

The lack of public awareness regarding Diabetes Mellitus (DM) is a major factor exacerbating the condition of this disease in Indonesia. Low understanding of key DM risks such as overweight, unhealthy eating patterns, and lack of physical activity makes the public less vigilant in preventing and controlling this disease. Ministry of Health data shows that only about 30% of the public understands the importance of lifestyle changes as a preventive measure for DM, so effective education is highly needed to increase this awareness. In addition, hereditary factors also contribute significantly to the risk of DM, where individuals with a family history of DM have a higher chance of experiencing the same disease. These genetic factors affect the body's ability to regulate blood sugar levels through insulin production and sensitivity. However, low awareness means that people with a hereditary history are less likely to undertake preventive efforts such as monitoring diet and physical activity. Therefore, continuous and comprehensive education is key to increasing public knowledge and awareness so that they can control risks through lifestyle changes, especially for groups with genetic risk factors. The combination of increased understanding of modifiable risks and management of hereditary risks is very important in reducing the prevalence of DM and improving the quality of life for sufferers.(Barakah dkk., 2025; Sundari dkk., 2025)

b. Method Factors

The lack of public knowledge about Diabetes Mellitus (DM) is one of the important determinants contributing to the increasing prevalence of this disease. Low knowledge causes individuals not to fully understand risk factors, early signs and symptoms, as well as prevention and management steps for DM. This condition implies delayed diagnosis, low adherence to therapy, and limited adoption of healthy lifestyle behaviors. Therefore, efforts are needed to improve comprehensive health education through counseling, health promotion, utilization of information media, and community-based early detection programs to increase public knowledge and reduce the risk of DM.(Hidayad, 2025)

c. Environmental Factors

The environment plays a significant role in influencing the incidence of Diabetes Mellitus (DM). Unhealthy environmental conditions, such as high air pollution, exposure to industrial waste, and accumulation of waste, can increase the risk of metabolic disorders. Air pollution, for example, contains fine particles (PM2.5) that can cause oxidative stress and chronic inflammation, thereby disrupting insulin sensitivity. Similarly, exposure to factory waste and certain chemicals can affect pancreatic function and glucose metabolism.(Husaini, 2025) In addition, a poor environment is also associated with limited access to health facilities and physical activity spaces. Areas with high pollution levels or poor sanitation tend to reduce the quality of life of the community, including in maintaining a healthy lifestyle. The habit of littering, which degrades environmental quality, also impacts the lack of awareness to adopt a clean and healthy lifestyle. Therefore, efforts are needed to improve the environment through effective waste management, industrial waste

control, and air pollution reduction. In addition, the government and society need to synergize in creating an environment that supports physical activity, access to healthy food, and adequate health facilities to reduce the risk of DM incidence. (Sari dkk., 2025)

d. Funding Factors

Limited allocation of health funds is an important factor that can worsen the control of Diabetes Mellitus (DM).Lack of attention to funding in the health sector results in limited public access to early detection services, treatment, and education programs related to DM. This condition increasingly impacts low-income communities, who tend to delay examinations or stop treatment due to financial constraints. Therefore, an increase in health fund allocation is needed through examination subsidies, provision of affordable medicines, and strengthening of public education programs so that financial barriers can be minimized and DM prevention and control efforts can be optimized.(Sahur, 2021)

4. Intervention efforts for the problem

a. Counseling related to DM Education for Adolescents: Early Prevention Strategy

The counseling activity was held on Wednesday, August 27, 2025, involving male and female students of the Islamic Boarding School as participants. The material provided included the classification of Diabetes Mellitus, the normal range of blood glucose levels, clinical signs and symptoms, etiological factors, and prevention strategies that can be applied from adolescence.

b. Health screening

The health screening activity was held on Wednesday, August 27, 2025, targeting male and female students of the Islamic Boarding School, carried out through collaboration between PBL students and health workers from the Community Health Center. This screening aims to detect early risk factors for non-communicable diseases, especially Diabetes Mellitus, so that prevention and control efforts can be carried out more optimally.

c. Planting TOGA (Family Medicinal Plants)

One intervention strategy in controlling diabetes mellitus (DM) at Aek Kota Batu Community Health Center is through planting Family Medicinal Gardens (TOGA). The TOGA planting activity was carried out on August 07-08, 2025. Medicinal plants planted in TOGA, such as bay leaves, gotu kola, and Phyllanthus niruri, are known to have hypoglycemic potential that can help control blood sugar levels naturally. The implementation of TOGA not only increases the availability of medicinal plants at the household level but also encourages the community to adopt a healthy and independent lifestyle in DM management, making this intervention promotive, preventive, and sustainable.

CONCLUSION

The Field Study Experience (PBL) activity in Aek Kota Batu Village identified Diabetes Mellitus (DM) as a major and increasing health problem, caused by a lack of knowledge, unhealthy lifestyles, and environmental factors. To address this, DM education was provided to adolescents, health screenings were conducted, and Family Medicinal Plants (TOGA) were planted. This intervention aimed to improve understanding, early detection, and community self-reliance, demonstrating that collaboration is key to reducing the

incidence of DM.

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