

Empowerment of Public Health Students as Agents of Behavior Change in The Prevention and Control of Diabetes Mellitus in Tafraka Village Pulau Hiri District, Ternate City, Indonesia

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Abstract.

Diabetes Mellitus (DM) is a non-communicable disease (NCD) that is a major health problem worldwide, including in Indonesia. Data from the Indonesian Ministry of Health shows that the prevalence of diabetes continues to increase annually, not only among the elderly but also among those of productive age and adolescents. The main objective of this empowerment program is to enhance the role and capacity of public health students as agents of behavior change through a community-based empowerment approach, specifically in Tafraka Village, Pulau Hiri District, Ternate City. With this approach, students are expected to contribute significantly to increasing public awareness, knowledge, and healthy lifestyles related to the prevention and control of diabetes mellitus. The empowerment program begins with a preparation phase, strengthening the students' capacity as agents of behavior change. At this stage, coordination is carried out with various stakeholders, including educational institutions, community health centers, and community leaders, to determine the location and target groups for the activities. Students of the Public Health Study Program, Faculty of Health Sciences. The results of the activity showed that the empowerment approach involving students of the Public Health Study Program of the Faculty of Health Sciences in the Field Learning Experience (PBL) 2 activity in Tafraka Village, Pulau Hiri District, was effective in increasing public knowledge and awareness of efforts to prevent and control Diabetes Mellitus. The conclusion of the empowerment activity of Public Health students as agents of behavior change in Tafraka Village, Pulau Hiri District, Ternate City showed that the active involvement of students in community education and mentoring activities was able to increase public knowledge, attitudes, and awareness of the importance of preventing and controlling Diabetes Mellitus.

Keywords: Student empowerment; behavior change agent; prevention and diabetes mellitus.

I. INTRODUCTION

Diabetes Mellitus (DM) is a non-communicable disease (NCD) that is a major health problem worldwide, including in Indonesia [1]. Data from the Indonesian Ministry of Health shows that the prevalence of diabetes continues to increase annually, not only among the elderly but also among those of productive age and adolescents. This condition is influenced by lifestyle changes such as unhealthy diets, lack of physical activity, and low awareness of healthy living behaviors [2]. At the community level, public knowledge and awareness regarding independent prevention and management of diabetes mellitus are still limited [3]. Promotional and preventive efforts often fall short due to a lack of change agents capable of bridging health information with real-world practices. Yet, prevention through behavioral change is the most effective and sustainable strategy for reducing the incidence of diabetes [4]. Public health students are strategically positioned as agents of change due to their fundamental health knowledge, communication skills, and social connections with the community.

Empowering students as health education facilitators can be an innovative approach to building awareness, shaping healthy lifestyles, and encouraging active community participation in diabetes mellitus management [5]. Through a community-based empowerment approach, students not only act as conveyors of

health information but also as facilitators capable of encouraging sustainable behavioral change in the community [6]. Therefore, this community service activity is crucial in developing an adaptive, participatory, and sustainable model of public health student empowerment in efforts to prevent and control Diabetes Mellitus. The main objective of this empowerment is to increase the role and capacity of public health students as agents of behavior change through a community-based empowerment approach, particularly in Tafraka Village, Pulau Hiri District, Ternate City. With this approach, it is hoped that students will be able to contribute significantly to increasing public awareness, knowledge, and healthy living behaviors related to the prevention and control of Diabetes Mellitus.

II. METHODS

The implementation of empowerment activities begins with a preparatory stage through strengthening the capacity of students as agents of behavior change. At this stage, coordination is carried out with various stakeholders, including educational institutions, community health centers, and community leaders, to determine the location and targets of the activities. Students of the Public Health Study Program, Faculty of Health Sciences who participated in the Field Learning Experience (PBL) 2 activity in Tafraka Village, Pulau Hiri District, were provided with intensive training on the basic concepts of Diabetes Mellitus, risk factors, prevention and control efforts, and community-based behavior change communication strategies. In addition, students were also trained in health education skills, the use of health promotion media, and interpersonal communication techniques to be able to convey health messages effectively, contextually, and in accordance with the characteristics of the target community [7].

Students of the Public Health Study Program of the Faculty of Health Sciences who participated in the Field Learning Experience (PBL) 2 activity in Tafraka Village, Pulau Hiri District, carried out the community empowerment stage by playing a direct role as facilitators and companions [8]. Activities were carried out through group education, interactive discussions, health counseling, and mentoring on healthy lifestyle behaviors that included regulating diet, increasing physical activity, and monitoring diabetes risk factors. Students also encouraged active community involvement through a participatory approach involving families and local leaders. The entire series of activities was accompanied by periodic monitoring and evaluation to assess changes in community knowledge, attitudes, and behavior in the prevention and control of Diabetes Mellitus, which were then used as a basis for program improvement and development [9].

III. RESULT AND DISCUSSION

The results of the activity indicate that the empowerment approach involving students of the Public Health Study Program of the Faculty of Health Sciences in the Field Learning Experience (PBL) 2 activity in Tafraka Village, Pulau Hiri District, was effective in increasing public knowledge and awareness of efforts to prevent and control Diabetes Mellitus. This finding is in line with the concept of health promotion which emphasizes the importance of community empowerment and active participation as the basis for sustainable behavior change [10]. The presence of students as agents of change has been proven to be able to bridge communication between health workers and the community, so that health messages can be received in a more contextual and easily understood manner. In addition, the application of counseling methods combined with a participatory approach and direct practice has been proven to be more effective than one-way information delivery, because it encourages the community to reflect on daily habits and make behavioral changes that support the prevention of Diabetes Mellitus. Thus, the empowerment of public health students not only increases individual capacity, but also strengthens the role of the community in efforts to control non-communicable diseases in a sustainable manner [11]. The results of the outreach activities indicate that the approach of empowering public health students as agents of change has a positive impact on increasing the knowledge, attitudes, and awareness of the community in Tafraka Village, Pulau Hiri District, in efforts to prevent and control Diabetes Mellitus [12].

This outreach activity was carried out through interactive lecture methods, group discussions, and simple demonstrations related to healthy eating patterns, physical activity, and controlling diabetes risk factors. The material was delivered in language that is easily understood by teenagers and adapted to the

socio-cultural conditions of the local community [13]. During the activity, the community was seen actively asking questions, sharing health experiences, and showing interest in the information provided by the students. This shows that a participatory approach that directly involves the community is able to increase their understanding and awareness of the importance of healthy lifestyle behaviors in preventing Diabetes Mellitus [14]. Furthermore, the discussion results indicate that student involvement as facilitators and mentors significantly contributes to bridging communication between health workers and the community [15]. Students not only serve as information providers but also as motivators, encouraging behavioral change through persuasive and educational approaches. Documentation of the activities, including photos of outreach sessions, group discussions, health education practices, and field observation notes, demonstrates increased community participation and readiness to implement healthy lifestyles in daily life. Overall, this activity demonstrates that empowering public health students is effective in supporting sustainable Diabetes Mellitus prevention and control efforts at the community level, particularly in Tafraka Village, Pulau Hiri District, Ternate City. This can be seen in Figure 1.



Fig 1. Toga Toma meeting at the Tafraka Village information center

Figure 1 shows that the meeting with religious and community leaders at the Tafraka Village Information Center was held as an effort to build mutual support for the empowerment of public health students as agents of behavior change. The meeting discussed the role of students in supporting the prevention and control of diabetes mellitus and the importance of involving community leaders in conveying health messages to residents. The discussion demonstrated a shared commitment to supporting health education activities so that they are well-received and sustainable within the community [16].



Fig 2. Diabetes Mellitus (DM) Socialization

Based on Figure 2, it shows that the socialization of Diabetes Mellitus (DM) implemented through the empowerment of Public Health students as agents of behavior change in Tafraka Village, Pulau Hiri District, Ternate City, is a promotive and preventive effort aimed at increasing public health literacy

regarding non-communicable diseases. This activity was systematically designed by integrating educational and participatory approaches, where students acted as facilitators who conveyed scientific information regarding risk factors, signs and symptoms, prevention, and control of Diabetes Mellitus through contextual and easy-to-understand communication methods [17]. Socialization was carried out through counseling, interactive discussions, and demonstrations of healthy living behaviors adapted to the socio-cultural conditions of the local community. This approach not only increased public knowledge and awareness, but also encouraged the formation of sustainable preventive attitudes and behaviors. Thus, the empowerment of public health students has proven to play a strategic role in strengthening promotive and preventive health efforts at the community level, particularly in controlling Diabetes Mellitus in Tafraka Village [18].

IV. CONCLUSION

The conclusion of the Public Health student empowerment activity as agents of behavior change in Tafraka Village, Pulau Hiri District, Ternate City shows that the active involvement of students in community education and mentoring activities can improve community knowledge, attitudes, and awareness of the importance of preventing and controlling Diabetes Mellitus. Through a participatory approach and contextual communication, the community is more receptive to health information and encouraged to implement healthy lifestyle behaviors in their daily lives. This activity also strengthens the role of students as facilitators of behavior change and demonstrates that community-based empowerment is an effective and sustainable strategy in efforts to control non-communicable diseases at the local level.

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REFERENCES

- [1] M. of H. of the R. of Indonesia, "Ministry of Health of the Republic of Indonesia," *Indones. Heal. Profile 2022. Jakarta Minist. Heal. Repub. Indones.*
- [2] W. H. Organization, "Global Report on Diabetes. Geneva: WHO.," 2023.
- [3] I. D. Federation., "IDF Diabetes Atlas. Brussels: IDF.," 2021.
- [4] M. of H. of the R. of Indonesia., "Guidelines for the Prevention and Control of Non-Communicable Diseases. Jakarta: Directorate of P2PTM.," 2021.
- [5] S. Notoatmodjo, "Health Promotion and Health Behavior. Jakarta: Rineka Cipta.," 2020.
- [6] World Health Organization (WHO), "WHO Global Report on Effective Access to Health Services. Geneva: World Health Organization.," 2022.
- [7] M. of H. of the R. of Indonesia., "National Action Plan for Controlling Non-Communicable Diseases 2024–2030. Jakarta: Ministry of Health, Republic of Indonesia.," 2024.
- [8] K. Glanz, K., Rimer, B. K., & Viswanath, "Health Behavior: Theory, Research, and Practice. San Francisco: Jossey-Bass.," 2021.

- [9] W. H. Organization., “Global report on diabetes. Geneva: World Health Organization,” 2023, [Online]. Available: <https://www.who.int/publications/item/9789240062194>
- [10] K. Glanz, K., Rimer, B. K., & Viswanath, “Health behavior: Theory, research, and practice (5th ed.). San Francisco: Jossey-Bass.,” 2015.
- [11] J. E. Nutbeam, D., & Lloyd, “Understanding and responding to health literacy as a social determinant of health. Annual Review of Public Health,” pp. 42, 159–173., 2021, [Online]. Available: <https://doi.org/10.1146/annurev-publhealth-090419-102529>
- [12] I. D. Federation., “IDF Diabetes Atlas (10th ed.). Brussels: IDF.,” 2021.
- [13] W. H. Organization., “WHO guideline on self-care interventions for health. Geneva: WHO.,” 2018.
- [14] A. Bandura, “Health promotion by social cognitive means. Health Education & Behavior,” pp. 31(2), 143–164, 2024, [Online]. Available: <https://doi.org/10.1177/1090198104263660>
- [15] G. Laverack, “Health promotion practice: Power and empowerment. London: SAGE Publications.,” 2017.
- [16] D. Nutbeam, “Health literacy as a public health goal: A challenge for contemporary health education and communication strategies. Health Promotion International,” pp. 15(3), 259–267., 2023.
- [17] S. Rachmawati, R., & Nurhayati, “Community-based intervention for diabetes prevention in rural areas of Indonesia.” *Int. J. Public Heal. Sci.*, pp. 8(4), 485–492., 2019.
- [18] Y. Kurniawan, T., & Widyastuti, “Community empowerment approach in non-communicable disease prevention: Evidence from Indonesia.” pp. 9(3), 181–187., 2020.