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Empowerment of Health Cadres through the Utilization of Technology in Improving Community Welfare

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Abstract

Posyandu cadres play an important role in driving development, particularly in the health sector, by empowering the community to access health services. This community service activity aims to improve knowledge, educational skills, literacy, and the digitalization of posyandu services related to diseases and health, to create effective communication skills, provide health information, and establish a health database. The method used in this service is Service Learning (SL), referring to Experiential Learning, which directly provides knowledge to posyandu cadres about Diabetes Mellitus. The activity starts with a pretest, a presentation on Diabetes Mellitus, a Q&A session, and a posttest. This service also includes health checks. The service results showed that the average pretest and posttest scores regarding the community's knowledge of Diabetes Mellitus were 51 and 74, respectively. The results indicate an increase in knowledge and understanding among the posyandu cadres and an enhanced role of the cadres in providing health services, particularly concerning Diabetes Mellitus.

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INTRODUCTION

The majority of the community in Alalak Utara Village works as farmers. Based on interviews with posyandu health cadres, the community feels they do not have time for regular health check-ups at the Puskesmas because their work as farmers is from morning until afternoon, while the Puskesmas services only operate until midday. Most people also do not have motor vehicles and only own bicycles as a means of transportation, which is another barrier for the community to conduct regular check-ups at the Puskesmas. The distance between the Puskesmas and the community in Alalak Utara is also far, as there is no Puskesmas in Alalak Utara; therefore, people who want to seek medical treatment must go to the Puskesmas in Alalak Tengah (Alalak Utara Village Profile, 2021).

The community more often discusses or shares their health conditions with the Posyandu cadres, but the cadres do not have sufficient knowledge to provide accurate answers. The community is accustomed to gathering in the yards of residents' homes for casual conversations. Through this habit of gathering, communication occurs between the residents, both about health and other matters. According to the partner, residents usually feel comfortable sharing their health conditions through this gathering. Sometimes, there are questions about health from the residents to the cadres, which the cadres are sometimes

unable to answer. Common questions from the residents, particularly about diabetes mellitus, are often raised. According to the cadres, there have been incidents where residents were unaware of the diabetes they had, which led to death. The community is used to communicating face-to-face, which has become a local wisdom in the community, where there is high trust among the residents of Alalak Utara Village.

Posyandu health cadres implement programs according to the Puskesmas' work program in providing services, which only include helping to carry out the Puskesmas' Posyandu programs, such as recording blood pressure, height, and weight measurements. Cadres' knowledge about diseases and health is still low, and they often face difficulties in providing answers when residents ask about diseases or other health-related issues. Furthermore, the partner's Posyandu does not have a library of health-related reading materials or official Posyandu cadre reading books published by the Ministry of Health of the Republic of Indonesia, and there is no information system for health status data collection. Health cadres have never received specific education about diseases from the Puskesmas or the Local Government (Wahyuningsih et al., 2023).

Diabetes mellitus is a condition in which the body cannot produce insulin, resulting in high blood glucose levels (hyperglycemia) (Budianto et al., 2022; Eltrikanawati et al., 2023; Hendrawan et al., 2023). Previous research supports the still high incidence of diabetes mellitus, which shows that it is a chronic metabolic disorder characterized by increased blood glucose levels. Poor eating habits and physical inactivity are also risk factors for developing diabetes mellitus, which can lead to increased blood glucose levels (Muliasari et al., 2019; Purqoti et al., 2022; Silalahi et al., 2021; Widiyoga et al., 2020).

Increasing knowledge about Diabetes Mellitus is essential because this disease cannot be cured and requires lifelong management to control blood sugar levels, thereby improving the quality of life for sufferers (Rissa et al., 2022; Suciana et al., 2019; Sundari, 2016; Vitniawati et al., 2024). The solutions offered to address the partner's issues are as follows: (a) Posyandu Cadre Education Providing educational materials on degenerative diseases and effective communication training for the cadres; (b) Digitalization of Posyandu Services Facilitating access to health information as a database and for health monitoring; and (c) Creation of a Mini Posyandu Library Procurement of bookshelves, placement of bookshelves, organization of reading spaces, acquisition of books about diseases and health, and providing leaflets and booklets.

Based on the above explanation, there is a need to enhance knowledge and educational skills about diseases and health by providing educational materials, particularly about diseases, and effective communication skills. This includes increasing public knowledge through education from the service team and partners who have received education and communication training. Additionally, the partners' literacy can be improved by providing health reference books in the concept of a mini Posyandu library. This is especially relevant to Posyandu programs for the elderly, pregnant women, toddlers, and non-communicable disease services, as well as digitalizing Posyandu services, which will increase the role of Posyandu cadres in providing health services, particularly regarding Diabetes Mellitus. In terms of the condition of the cadres and the community, the increase in knowledge will be carried out through education and evaluation by conducting pretests and posttests.

METHODS

The method used in this community service is the Service Learning (SL) method, referring to Experiential Learning, which involves applying the enhancement of community knowledge on specific topics to provide solutions to the issues faced by the Posyandu cadres (Afandi et al., 2022).

The service team's target is the Rahayu Posyandu cadres, consisting of 11 individuals in Alalak Utara Village. The activities will be carried out from July to September 2024. The service location is Jl. Alalak Utara No. 16, Banjarmasin, covering RT. 15, RT. 16, and RT. 40. The community service activities for the Posyandu cadres in Alalak Utara Village were implemented in several stages as follows:

1. Initial observation by analyzing the target location, identifying problems, planning interventions, and implementing solutions to the partner's issues.
2. Conducting a pretest for the Posyandu cadres who will participate in the Diabetes Mellitus education.
3. Providing education on Diabetes Mellitus to the Posyandu cadres.
4. Evaluating by giving a posttest to the Posyandu cadres who have received education on Diabetes Mellitus.

RESULTS AND DISCUSSION

The empowerment results for the Rahayu Posyandu cadres in Alalak Utara Village show that providing education about Diabetes Mellitus can increase individual knowledge about the disease, based on the evaluation results that measure the respondents' knowledge level through questionnaires. The characteristics of the respondents are shown in Table 1.

Table 1 Respondent characteristics

Respondent	Age	Gender	Education Level
R1	39	F	High school
R2	45	F	Elementary school
R3	23	F	Perguruan Tinggi
R4	56	F	High school
R5	52	F	Junior High school
R6	47	F	Junior High school
R7	48	F	Elementary school
R8	34	F	Junior High school
R9	30	F	High school
R10	62	F	Elementary school
R11	24	F	High school

The educational activities improved the knowledge and understanding of the Posyandu cadres about diabetes mellitus, as shown in Figure 1.

Figure 1 Diabetes mellitus education activities

The education results were then evaluated by giving a posttest to all Posyandu cadres. This was done to assess the cadres' knowledge before and after the education and to determine if the intervention significantly increased their knowledge. Both the pretest and posttest consisted of 27 questions each. The pretest and posttest assessment results for the 11 respondents can be seen in Table 2.

Table 2 Pretest and posttest results

Respondent	Pretest	Postest
R1	74	93
R2	77	85
R3	81	85
R4	41	70
R5	48	70
R6	33	74
R7	41	81
R8	41	85
R9	59	70
R10	67	89
R11	55	81
Average	51	74

Based on the data above, the average pretest score was 51, and the average posttest score was 74. This shows that there was a significant increase in knowledge before and after the education on diabetes mellitus. The results indicate that educating Posyandu cadres about diabetes mellitus is essential, as it enhances their role in providing health services, particularly regarding the prevalent disease in the community.

The method of delivering education had a significant impact on the level of knowledge, and the acquired knowledge can be applied in everyday life, including its application in achieving good health (Hartaty & Menga, 2022).

Knowledge and attitude are crucial factors in forming a person's actions. Knowledge and attitudes based on a proper understanding can foster new, positive behaviors regarding a certain issue (Notoatmodjo, 2014). Health education through lectures and skill demonstration methods influenced knowledge and skills (Amanda et al., 2020).

Health education will positively impact if the delivery process uses appropriate media (Karamoy et al., 2023). Media such as PowerPoint presentations, educational materials, and leaflets can improve the skills and knowledge of Posyandu cadres. This is consistent with the research by Wijayanti et al. (2016) and Hakim et al. (2021), where implementing such methods can improve skills and knowledge, making it one of the methods to promote health.

Implementing the health cadre empowerment activities on diabetes mellitus will improve the knowledge and role of Posyandu cadres in providing health services, particularly for the Posyandu cadres in Alalak Utara Village. The higher the skills and knowledge of the Posyandu cadres, the better the health services they can provide to the community. This knowledge includes information gained through reading books and health education.

The increase in knowledge among Posyandu cadres can be achieved by implementing programs. The first program is Posyandu cadre education, which involves delivering materials and education about Diabetes Mellitus, enhancing the knowledge of each cadre, and providing effective communication education to the cadres so that they can act as health educators in the community, thus improving their ability to communicate health information effectively. The second program is the digitalization of Posyandu services, which facilitates access to health information as a database and for health monitoring, particularly for the community in Alalak Utara Village. The third program is the creation of a mini Posyandu library, which includes providing bookshelves, organizing a reading space, and offering books on diseases and health, as well as leaflets and booklets, to support the health cadres and improve Posyandu health services in Alalak Utara Village.

CONCLUSION

Based on the health cadre empowerment activities, it can be concluded that this service activity successfully increased the knowledge and understanding of Posyandu cadres and enhanced their role in providing health services, particularly regarding Diabetes Mellitus. It also contributed to the community's well-being and improved the Posyandu service facilities.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS STATEMENT

Each author contributed conceptualization by SA and JN, methodology by RS and NZ, Formal Analysis by HK and BRH, and writing the preparation of the original draft by MW, JAP, and EHP.

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