



Enhancing diabetes management: Nurse-Led coaching at PROLANIS Diabetes Club

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ABSTRACT

The global prevalence of Diabetes Mellitus (DM) is escalating, with projections indicating a continued upward trend. Indonesia, particularly in South Sulawesi, has also experienced a rise in DM prevalence over recent years. Comprehensive strategies in effective management are crucial to reduce the impact of DM. This community engagement took place at Bajeng Community Health Center in South Sulawesi from October to November 2023, involving 58 diabetic patients and 10 nurses in the Prolanis club. Activities included mini-lectures, active learning, and demonstrations, starting with coaching training for nurses by an international coach. Subsequent activities involved nurses conducting coaching sessions with patients, accompanied by the community engagement team. Statistical tests on knowledge and quality of life before and after coaching showed a significant improvement in both variables ($p < 0.0001$). Coaching interventions by trained nurses demonstrated a positive impact on the knowledge and quality of life of diabetic patients. The results of this activity provide a strong foundation to consider integrating coaching as an integral part of diabetes management strategies to enhance the health and well-being outcomes for patients.

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1. INTRODUCTION

The global prevalence of Diabetes Mellitus (DM) continues to escalate, posing a significant public health concern. According to Saedi et al (2019), the prevalence of DM reached 9.3 percent in 2019, with projections indicating a steady increase to 10.2 percent by 2030 and 10.9 percent by 2045. In Indonesia, particularly in South Sulawesi, the prevalence of DM has risen from 1.5 percent in 2013 to 2 percent in 2018 (Kementerian Kesehatan Badan Penelitian dan Pengembangan Kesehatan, 2018; Tim Riskesdas, 2019).

The substantial impact of DM includes heightened health risks and substantial economic burdens. International Diabetes Federation (2023) reported 4.2 million deaths attributed to DM in 2019, with 374 million individuals at high risk of developing Type-2 Diabetes (T2DM). Global healthcare expenditures due to DM amount to 760 billion USD annually, with projections to increase to 825 billion USD by 2030 and 845 billion USD by 2045. Indirect costs, such as unemployment and decreased productivity, exacerbate the economic ramifications (International Diabetes Federation, 2019).

Patient adherence to DM management remains suboptimal, with poor compliance observed in medication, dietary regulations, and physical activity (Mosleh et al., 2017). In South Sulawesi, particularly in Gowa District, patient compliance with DM management presents a significant challenge. The number of people with diabetes in Gowa, South Sulawesi, is 7,599 (Tim Riskesdas, 2019), indicating that diabetes is a significant health issue in the region, requiring ongoing monitoring and intervention. Despite the routine implementation of the Prolanis program at Bajeng Health Center in Gowa, consisting primarily of monthly exercise and education sessions, patient engagement remains low, with less than 50 percent active participation.

To address these challenges comprehensively, a multifaceted approach to DM management is imperative. The World Health Organization advocates for education and heightened public awareness regarding healthy lifestyles (International Diabetes Federation, 2019). Nurse-led coaching has emerged as an effective intervention to enhance knowledge, skillsets, and overall quality of life among DM patients (Davies et al., 2020; Jafar et al., 2023). Additionally, the CERDIK method, an Indonesian acronym for *Cek Kesehatan rutin* (Regular health check-ups), *Enyahkan asap rokok* (Eliminate smoking), *Rajin beraktivitas* (Regular exercise), *Diet seimbang* (Diet), *Istirahat cukup* (Adequate rest), and *Kelola stress* (Stress management), endorsed by the government, aligns with the International Diabetes Federation's recommendations for mitigating non-communicable disease risks.

However, prevailing evaluations of DM management predominantly concentrate on programmatic elements, overlooking the crucial realm of individual behavioral modifications. This oversight underscores the importance of incorporating coaching activities and implementing the CERDIK program to bolster comprehensive DM management strategies. By integrating nurse training initiatives and diabetes foot ulcer risk screenings, it is anticipated that there will be notable enhancements in knowledge acquisition, skill development, and overall quality of life among DM patients at Bajeng Health Center, South Sulawesi. Neglecting to address behavioral modification aspects in diabetes management can significantly impact patient outcomes. Although there isn't specific data concerning "Mitra", the Indonesian context emphasizes the importance of taking behavioral changes into account in diabetes management to achieve the best health outcomes.

The overarching goal of this initiative is to foster a holistic approach to DM management, bridging the gap between existing programmatic efforts and the nuanced needs of DM patients within the community. This community service program aims to empower DM patients with the knowledge, resources, and support systems necessary to effectively manage their condition and improve their quality of life, achieving optimal health outcomes. It is important to note that PkM Community Service activities are closely related to PROLANIS (*Program Pengelolaan Penyakit Kronis* or Chronic Disease Management Program), which is an initiative by BPJS (Indonesia's Health Insurance Administration). The rationale behind aligning our nurse-led coaching activities with the PROLANIS program is to leverage the existing structure and resources of PROLANIS to maximize the impact of our interventions. This alignment allows for a more coordinated and comprehensive approach to diabetes management, ensuring that patients receive consistent and continuous care that is in line with national health policies and guidelines.

2. METHODS

Activity Design

The community engagement initiative was carefully designed to address the specific needs of diabetic patients at Puskesmas Bajeng Gowa in South Sulawesi. The program involved comprehensive coaching training for nurses followed by direct coaching sessions with diabetic patients. This structured approach aimed to improve diabetes management knowledge and quality of life for the participants.

Location and Duration

The activities took place at Puskesmas Bajeng, Gowa, South Sulawesi, from October to November 2023. The location was selected for its accessibility to the local diabetic community. The two-month duration allowed for thorough training and follow-up sessions to ensure sustained support and monitoring of progress.

Participants

The program involved 58 diabetic patients and 10 nurses from the Prolanis Club at Puskesmas Bajeng. The Prolanis Club is a community-based organization that supports individuals with chronic diseases through education, lifestyle interventions, and peer support. The Prolanis Club (Prolanis stands for *Program Pengelolaan Penyakit Kronis* or Chronic Disease Management Program) is a community-based organization aimed at supporting individuals diagnosed with chronic diseases, such as diabetes, in managing their condition through education, lifestyle interventions, and peer support.

Equipment and Facilities

The program utilized various resources, including educational modules, training materials, and digital communication tools (e.g., WhatsApp) to facilitate both in-person and remote coaching sessions. A detailed coaching module, created by the community service team, was used as a primary tool. This module included comprehensive information on diabetes management and step-by-step coaching procedures. Additionally, the community health center's facilities, including meeting rooms and digital communication tools, supported the implementation of the coaching sessions.

Preparation

Prior to the program, a preliminary survey was conducted to assess the baseline knowledge and quality of life of the participating diabetic patients. This survey helped tailor the program's activities to meet the specific needs of the participants. Initial assessments revealed low engagement in diabetes management activities, with less than 50 percent of patients actively participating in the Prolanis program. This highlighted the need for enhanced support and education to improve patient outcomes.

A comprehensive module was crafted, encompassing diverse facets of diabetes management such as personalized patient care and effective coaching strategies. Concurrently, in the Training Session, efforts were directed towards scheduling and coordinating a training session under the guidance of an internationally certified coach. This session aimed to equip nurses with advanced skills and strategies crucial for engaging patients effectively in their care journey.

Implementation Methods

Method 1: Nurse training

The first method involved training the nurses in effective coaching techniques. An internationally certified coach conducted intensive sessions to equip nurses with advanced skills for patient engagement. This training was crucial for ensuring that nurses could provide high-quality, personalized coaching to diabetic patients. This training equipped them with advanced skills and strategies essential for effective patient engagement and support.

Method 2: Patient coaching sessions

Following their training, nurses conducted coaching sessions with patients. These sessions were designed to offer personalized support, education, and practical advice on diabetes self-management. The coaching included both face-to-face meetings and ongoing support via WhatsApp, ensuring continuous engagement. Nurses conducted a series of guidance sessions tailored to the needs of 60 diabetic patients affiliated with the Prolanis Club at Puskesmas Bajeng Gowa Sulawesi Selatan. These sessions spanned a two-week period and comprised four intensive sessions. During these interactions, patients received individualized support, education, and practical advice on various facets of diabetes self-management. Through the guidance sessions, patients were empowered to make informed decisions about their health, adopt healthier lifestyle practices, and effectively manage their diabetes for improved overall well-being.

Schedule and Program Stages

The program was structured into distinct phases, each with specific objectives and activities.

Nurse coaching training (October 21, 2023)

The objective of this stage is to equip nurses with coaching skills for diabetes management. There are 10 nurses as participants. The activities are introducing to coaching techniques, role-playing, and practical demonstrations. The outcome of this stage is the nurses are prepared to lead coaching sessions with patients.

Pre-coaching survey and initial patient meetings (October 22-28, 2023)

The objective of this stage is to assess baseline knowledge and quality of life of patients. There are 58 diabetic patients as participants. The activities are distributing and collecting of pre-coaching questionnaires and also initial face-to-face meetings between nurses and patients. The outcome of this stage is collected data to tailor coaching sessions.

Coaching sessions (October 29 - November 14, 2023)

The objective of this stage is to improve patients' knowledge and self-management of diabetes. The participants in these stages are 58 diabetic patients and 10 nurses. The activities are four intensive coaching sessions, including mini-lectures, active learning, and demonstrations. Sessions conducted in-person and via WhatsApp. The outcome of this stage are enhanced patient knowledge and quality of life.

Post-coaching survey (November 15-21, 2023)

The objective of this stage is to evaluate the impact of the coaching sessions. There are 58 diabetic patients as participants. The activities are distributing and collecting of post-coaching questionnaires. The outcome of this stage is analysis of improvements in knowledge and quality of life.

Success Indicators and Evaluation Method

The assessment instruments used in the coaching session referred to Jafar et al (2023) and focused on evaluating the success indicators of the program. These indicators primarily centered on the

enhancement of knowledge related to diabetes self-management and the improvement in the quality of life among patients. To measure these outcomes, pre-test and post-test evaluations were administered, allowing for a comparative analysis of participants' knowledge levels before and after the coaching sessions. Statistical analysis techniques were employed to quantify the effectiveness of the program based on the observed changes.

Furthermore, the evaluation methodology encompassed pre- and post-coaching questionnaires distributed to patients. These questionnaires were designed to gauge patients' understanding of diabetes management principles and to assess various aspects of their quality of life. By collecting feedback from participants before and after the coaching sessions, the evaluation process aimed to track changes in patients' knowledge levels, perceptions, and overall well-being. The utilization of validated assessment tools aligned with established research methodologies facilitated a comprehensive evaluation of the coaching program's impact on patient education and health outcomes.

3. RESULTS AND DISCUSSION

The training and coaching assistance activities for diabetic patients were conducted from October 21, 2023, to November 7, 2023, at the Bajeng Gowa Community Health Center in South Sulawesi. The community engagement initiative, titled "Efforts to Enhance Diabetes Management Compliance through Coaching of Community Health Center Nurses and PROLANIS Diabetes Club with an Integrative Coaching Approach," involved 10 nurses from the Bajeng Gowa Community Health Center. These nurses provided coaching assistance to 58 diabetic patients.

Nurse Coaching Training

The objective of the Nurse Coaching Training held on October 21, 2023, was to equip nurses with coaching skills essential for diabetes management. Ten nurses from the Bajeng Primary Health Center in Gowa, South Sulawesi, participated in this session. Renowned Coach Zulqadri, serving as the Associate Coach from Insight Indonesia, graced the occasion as the principal facilitator, imparting comprehensive insights into various coaching techniques. The training activities included an introduction to various coaching techniques, role-playing scenarios, and practical demonstrations as shown in Figure 1. As a result of this training, the nurses were well-prepared to lead coaching sessions with diabetic patients, demonstrating enhanced competencies in diabetes management coaching.



Figure 1. Nurse coaching training

Pre-Coaching Survey and Initial Patient Meetings

Between October 22 and 28, 2023, a pre-coaching survey and initial patient meetings were conducted. The primary objective was to assess the baseline knowledge and quality of life of diabetic patients. Fifty-eight diabetic patients participated in this phase. Activities included the distribution and collection of pre-coaching questionnaires and initial face-to-face meetings between nurses and patients (Figure 2). These initial meetings were crucial for establishing rapport and discussing the coaching process. The data collected during this phase was used to tailor the subsequent coaching sessions to meet the specific needs of each patient.

Coaching Sessions

The coaching sessions took place from October 29 to November 14, 2023, with the objective of improving patients' knowledge and self-management of diabetes. Fifty-eight diabetic patients and ten nurses participated in these sessions. The coaching activities included four intensive sessions comprising mini-lectures, active learning exercises, and demonstrations. These sessions were conducted both in-person and via WhatsApp to provide continuous support (Figure 3). The outcome of these coaching sessions was a significant enhancement in the patients' knowledge and quality of life, with notable improvements in their self-management skills.



Figure 2. Pre-coaching survey and initial patient meetings
Figure 3. Coaching session (left: face-to-face, right: via WhatsApp)

Post-Coaching Survey

The post-coaching survey was conducted from November 15 to 21, 2023, with the objective of evaluating the impact of the coaching sessions. Fifty-eight diabetic patients participated in this survey. Activities involved the distribution and collection of post-coaching questionnaires. The collected data was then analyzed to assess improvements in the patients' knowledge and quality of life following the coaching intervention.

To evaluate the impact of the coaching assistance on diabetes self-management knowledge and quality of life before and after the coaching sessions, a comprehensive analysis of pre-test and post-test results was conducted. The Wilcoxon test, known for its robustness in non-parametric data, was utilized for statistical analysis. The tables (Tables 1 and 2) present detailed distributions and frequency characteristics of the patients, providing insights into the sample demographics and characteristics. Furthermore, Table 3 presents a comparative analysis of quality of life and knowledge scores obtained before and after the coaching sessions, offering a clear depiction of the effectiveness of the coaching intervention in enhancing patients' understanding and well-being.

Table 1. Patient characteristics based on age, distance from residence to the nearest health facility, duration of illness, pre-quality of life, and pre-knowledge (n=58)

Variable	Mean	sd	95% CI	
			Min	Max
Age (years)	56.69	8.96	38	77
Distance to nearest health facility (kms)	2.31	2.13	0.05	10
Duration of diabetes mellitus (years)	5.36	3.81	0	15

The data presented in Table 1 illustrates the characteristics of the patients involved in this study. On average, the participants' age was 56.69 years with a standard deviation of 8.96, ranging from 38 to 77 years, indicating a diverse age distribution. The mean distance to the nearest healthcare facility was 2.31 with a standard deviation of 2.13, ranging from 0.05 to 10, highlighting considerable variability in the proximity of patients' residences to healthcare services. The average duration of diabetes mellitus among the patients was 5.36 years with a standard deviation of 3.81, ranging from 0 to 15 years, indicating variability in the duration of the disease across the patient population.

Table 2. Patient characteristics based on gender, marital status, education, occupation, and other ailments (n=58)

Variable	f	%
Gender		
Male	7	12.1
Female	51	87.9
Marital Status		
Married	55	94.8
Unmarried	1	1.7
Widow/Widower	2	3.4
Education		
Elementary School	23	39.7
Junior High School	7	12.1
Senior High School	13	22.4
Bachelor's Degree	15	25.9
Occupation		
Homemaker	43	74.1
Pensioner	7	12.1
Farmer	3	5.2
Teacher	1	1.7
Nurse	1	1.7
Civil Servant	3	5.2
Other Ailments		
Gout	1	1.7
Asthma	2	3.4
Kidney diseases	1	1.7
Hipertenyion	30	51.7
Cholestherol	1	1.7
Neuropathy	1	1.7
Rheumatism	1	1.7
There isn't any	21	36.2

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Table 2 presents the characteristics of patients based on various demographic variables and health conditions. Out of the total 58 patients, the majority were female (87.9 percent). Regarding marital status, most patients were married (94.8 percent). In terms of education, the majority of patients had a secondary education level (high school, 22.4 percent; bachelor's degree, 25.9 percent). Regarding occupation, the majority of patients were homemakers (74.1 percent), followed by retirees (12.1 percent). Concerning other ailments, most patients suffered from hypertension (51.7 percent), followed by no additional ailments (36.2 percent). These data provide a comprehensive insight into the demographic diversity and health conditions of the patient sample.

Table 3 illustrates the differences in knowledge and quality of life before (pre) and after (post) coaching assistance intervention among 58 patients. Regarding the knowledge variable, there was a notable increase, with the mean knowledge score rising from 13.86 ± 3.24 before the intervention to 20.55 ± 2.20 after the intervention. This increase was statistically significant with a p-value < 0.0001 , as determined by the dependent t-test. Similarly, for the quality of life variable, there was a significant improvement. The mean quality of life score increased from 58.38 ± 5.65 before the intervention to 67.22 ± 4.66 after the intervention. This enhancement was also found to be statistically significant with a p-value < 0.0001 , based on the Wilcoxon Sign Rank Test. Overall, these findings indicate a considerable positive impact of coaching assistance intervention on enhancing both knowledge and quality of life among the respondents.

The positive findings of this study align with several previous researches highlighting the pivotal role of coaching assistance in enhancing the quality of life and knowledge of diabetes patients (Jafar et al., 2023; Miyamoto et al., 2019; Ramchandani, 2019). Previous studies have demonstrated that coaching assistance can provide significant support to patients with diabetes, helping them manage their condition more effectively (Sherifali, 2017; Wallace et al., 2018).

Numerous studies have proven that coaching interventions are effective in delivering relevant information and building better understanding of diabetes management (Shiferaw et al., 2020; Steelman et al., 2019). Trained coaches can assist patients in comprehending the complexities of the disease, providing personalized information, and guiding them in making appropriate decisions regarding lifestyle changes and dietary habits (DeJesus et al., 2018). Previous research findings indicate that coaching interventions can have a positive impact on patients' knowledge levels, contributing to improved adherence to diabetes management plans (Patel et al., 2018; Rosland et al., 2022).

Table 3. Differences in pre and post coaching knowledge and quality of life (n=58)

Variable	Coaching Assistance Intervention			P-value
	Mean \pm sd	95% CI		
		Min	Max	
Knowledge				
Pre	13.86 \pm 3.24	6	22	0.0001 ^a
Pos	20.55 \pm 2.20	15	24	
Quality of Life				
Pre	58.38 \pm 5.65	43	70	0.0001 ^b
Pos	67.22 \pm 4.66	53	74	

^aDependent t-test

^bWilcoxon Sign Rank Test

Meanwhile, previous studies have revealed that coaching assistance can provide emotional support, enhance self-confidence, and help patients overcome daily challenges related to diabetes, thus improving patients' quality of life (Jafar et al., 2023). Coaching can create a space for patients to share experiences, concerns, and goals, fostering a more personal relationship and motivating patients to take an active role in managing their condition (Piuhola, 2017). These positive effects can be reflected in improved quality of life, encompassing aspects such as happiness, life satisfaction, and psychological well-being.

Comparing these findings with previous community engagement initiatives reveals a consistent pattern of success, indicating the enduring value of such programs (Purwanti et al., 2023; Sari et al., 2022). The coaching assistance not only empowered patients with essential knowledge and skills but also fostered a sense of confidence and motivation in managing their condition. Furthermore, the program's collaborative approach, involving trained nurses and dedicated coaching sessions, highlights its potential for scalability and sustainability within the community health center setting. Overall, the coaching assistance program not only benefited the diabetic patients directly but also contributed to the advancement of healthcare practices and the promotion of holistic well-being in the community (Dennis et al., 2013; Sari et al., 2022; Sqalli & Al-Thani, 2020).

In terms of contributing to science and technology or innovation for the community, the coaching assistance program presents several avenues for further exploration and advancement. For instance, the integration of technology, such as mobile applications or telemedicine platforms, could enhance the accessibility and reach of coaching services, especially for patients in remote areas. Additionally, ongoing research and evaluation of the program's effectiveness can provide valuable insights into best practices for diabetes management and inform future interventions in similar contexts.

4. CONCLUSION AND RECOMMENDATIONS

The community service initiative aimed at improving diabetes self-management knowledge and patient well-being yielded significant positive outcomes, demonstrating the value of integrating coaching into diabetes management strategies. Despite its achievements, future efforts should address challenges in sustaining patient engagement and provide ongoing support for nurses. Multidisciplinary teams should be involved to address diverse patient needs comprehensively. Moving forward, adopting patient-centered approaches, expanding outreach to underserved populations, and leveraging technology are crucial. Continuous monitoring and evaluation will ensure interventions remain effective and responsive. It is essential to continue and expand this program to further enhance diabetes care and patient empowerment.

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