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Empowering Posyandu Cadres for Early Detection of Gestational Diabetes Risk through Local Nutrition Education

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ABSTRACT

Gestational diabetes mellitus is a metabolic disorder during pregnancy that requires early risk identification and appropriate nutritional education at the community level. This community service program aimed to strengthen the capacity of Posyandu cadres to identify gestational diabetes risk factors and provide local nutrition education for pregnant women in the working area of Lubuk Alung Primary Health Care, Padang Pariaman Regency, West Sumatra, Indonesia. The program was implemented in 2026 using a community empowerment approach through several stages: coordination with health professionals and Posyandu cadres, development of screening forms and educational materials, cadre training, nutrition education for pregnant women, mentoring, and evaluation. Educational resources included structured screening forms, posters, infographics, local nutrition guides, sample menus based on locally available foods, and the Kader Posyandu Cerdas pocketbook. Cadre knowledge was evaluated using pre-tests and post-tests, with results analyzed descriptively. The evaluation showed that cadre knowledge increased from 50% before training to 86% after training, representing an improvement of 36 percentage points. The program also produced practical educational and screening tools to support risk identification, consistent nutrition counseling, and appropriate referral of pregnant women to health professionals. In conclusion, empowering Posyandu cadres through structured training and locally relevant educational materials can improve their knowledge and strengthen community-based maternal health promotion. Continued supervision and monitoring are recommended to support the sustainable implementation of screening and referral activities.

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INTRODUCTION

Gestational diabetes mellitus (GDM) is a condition characterized by hyperglycemia first identified during pregnancy and represents an important maternal and public health concern. Appropriate risk identification, nutritional management, lifestyle modification, and clinical monitoring are essential to protect maternal and fetal health. The International Diabetes Federation (IDF, 2021) highlights the global burden of hyperglycemia in pregnancy, emphasizing the importance of prevention and early identification. The management of diabetes during pregnancy requires coordinated care, including healthy eating, physical activity, blood glucose monitoring, and professional assessment (American Diabetes Association Professional Practice

Committee, 2025).

Nutrition and lifestyle education are important components of GDM prevention and management. Pregnant women need practical information about balanced diets, appropriate food portions, healthy carbohydrate sources, protein intake, and the consumption of vegetables and fruits. The World Health Organization (WHO, 2023) emphasizes nutrition counseling during pregnancy to support healthy dietary practices. A scoping review by Helm et al. (2022) identified dietary management, physical activity, and self-management as important components of nutrition education for women with GDM. Similarly, Huang et al. (2022) reported that lifestyle interventions have the potential to improve health behaviors and selected maternal outcomes. Zhang et al. (2024) also examined the effects of dietary approaches and exercise interventions on GDM.

Education using locally available foods may help pregnant women translate nutritional recommendations into familiar dietary practices. Such education can emphasize complex carbohydrates, adequate protein, vegetables, fruits, portion control, and limiting foods and drinks high in simple sugars. These principles align with WHO (2023) recommendations on nutrition during pregnancy. In addition, evidence concerning physical activity during pregnancy reinforces the importance of lifestyle-related approaches to GDM risk reduction (Xie et al., 2024).

Posyandu cadres have an important role in community-based maternal health promotion because they interact directly with pregnant women and their families. With appropriate training, cadres can communicate health information, encourage healthy dietary practices, identify potential risk factors, promote antenatal care attendance, and facilitate referrals. Research on community-based interventions highlights the potential contribution of non-pharmacological approaches to supporting women with GDM (Igwesi-Chidobe et al., 2022). Educational guidance also identifies knowledge, blood glucose monitoring, healthy lifestyles, and self-care as important domains of GDM management (Haron et al., 2023).

In the working area of Lubuk Alung Primary Health Care, Padang Pariaman Regency, West Sumatra, the community service program identified a need to strengthen cadres' knowledge of GDM risk factors, early risk identification, local nutrition, physical activity, pregnancy monitoring, and referral procedures. Practical educational resources and structured screening forms were also needed to support consistent health messages during Posyandu activities. Addressing these needs is important for strengthening the connection between community health promotion and formal maternal health services. Evidence suggests that structured lifestyle and self-management interventions can support health-related behaviors among women with GDM (Igwesi-Chidobe et al., 2022).

To address these problems, the program adopted a community empowerment approach involving coordination with Lubuk Alung Primary Health Care, development of screening forms and educational materials, cadre training, nutrition education for pregnant women, mentoring, and evaluation. The materials included screening forms, posters, infographics, a local nutrition guide, sample menus based on locally available foods, and the *Kader Posyandu Cerdas* pocketbook. The screening form organized information on maternal identity, risk factors, anthropometric measurements, warning symptoms, dietary patterns, physical activity, blood glucose examination results obtained by health professionals, and follow-up or referral plans. These resources were intended to support consistent education, systematic documentation, and appropriate coordination with health professionals. This approach is consistent with evidence supporting nutrition education and lifestyle interventions in GDM-related

care (Helm et al., 2022; Haron et al., 2023; Huang et al., 2022).

Program evaluation used pre-tests and post-tests to assess changes in cadre knowledge. Although improved knowledge is an important initial outcome, it does not independently demonstrate reduced GDM incidence or improved maternal and neonatal clinical outcomes (Huang et al., 2022; Tsironikos et al., 2023). Continued supervision and coordination with primary health care professionals are therefore necessary to support the appropriate use of screening tools, educational materials, and referral procedures.

Based on these considerations, this community service program aimed to strengthen Posyandu cadres' capacity to support the early identification of gestational diabetes risk through local nutrition education for pregnant women in the working area of Lubuk Alung Primary Health Care. Specifically, the program aimed to improve cadres' knowledge of GDM and its risk factors, provide practical screening and educational tools, promote healthy dietary practices using locally available foods, and strengthen coordination with primary health care professionals for follow-up and referral.

METHODS

The community service program was conducted in 2026 at Lubuk Alung Primary Health Care, Padang Pariaman Regency, West Sumatra. The target groups were Posyandu cadres, pregnant women, and communities served by Lubuk Alung Primary Health Care. A community empowerment approach was used, positioning cadres as a link between health-promotion messages, early risk identification, and professional health services.

The first stage involved coordination with Lubuk Alung Primary Health Care and Posyandu cadres to agree on program needs, content, educational media, and implementation procedures. The second stage involved developing educational and screening tools. The screening form included pregnant women's identity data, gestational diabetes risk factors, anthropometric measurements, warning symptoms, blood glucose examination results obtained by health professionals, dietary patterns, physical activity, a summary of screening results, and follow-up or referral. Educational materials included posters/infographics, a local nutrition guide, examples of menus based on local foods, and the Kader Posyandu Cerdas pocketbook.

The third stage consisted of cadre training and education. The training covered the definition of gestational diabetes, risk factors, the role of cadres, principles of initial screening, local nutrition, physical activity, pregnancy monitoring, and referral mechanisms. The fourth stage provided education to pregnant women using visual media and the local nutrition guide. The fifth stage evaluated cadre knowledge using pre- and post-tests. Evaluation data were reported descriptively as percentages and percentage-point changes.

Figure 1. Flowchart of the community service activities.

RESULT AND DISCUSSION

RESULT

The community service program was implemented in the working area of Lubuk Alung Primary Health Care, Padang Pariaman Regency, West Sumatra, in 2026. The activities involved coordination with health professionals and Posyandu cadres, development of screening instruments and educational materials, cadre training, nutrition education for pregnant women, mentoring, and evaluation. These activities addressed the identified need to strengthen cadres' knowledge and practical capacity in supporting the early identification of gestational diabetes risk.

Figure 2. Education/training session for Posyandu cadres

Figure 3. Education session for pregnant women.

Several educational resources were developed, including a structured screening form, posters, infographics, a local nutrition guide, sample menus based on locally available foods, and the *Kader Posyandu Cerdas* pocketbook. The screening form covered maternal identity, risk factors, anthropometric measurements, warning

symptoms, dietary patterns, physical activity, blood glucose examination results obtained by health professionals, and follow-up or referral plans. The evaluation demonstrated an increase in cadre knowledge from 50% before training to 86% after training, representing an improvement of 36 percentage points. This achievement exceeded the program target of a minimum 30% improvement in knowledge.

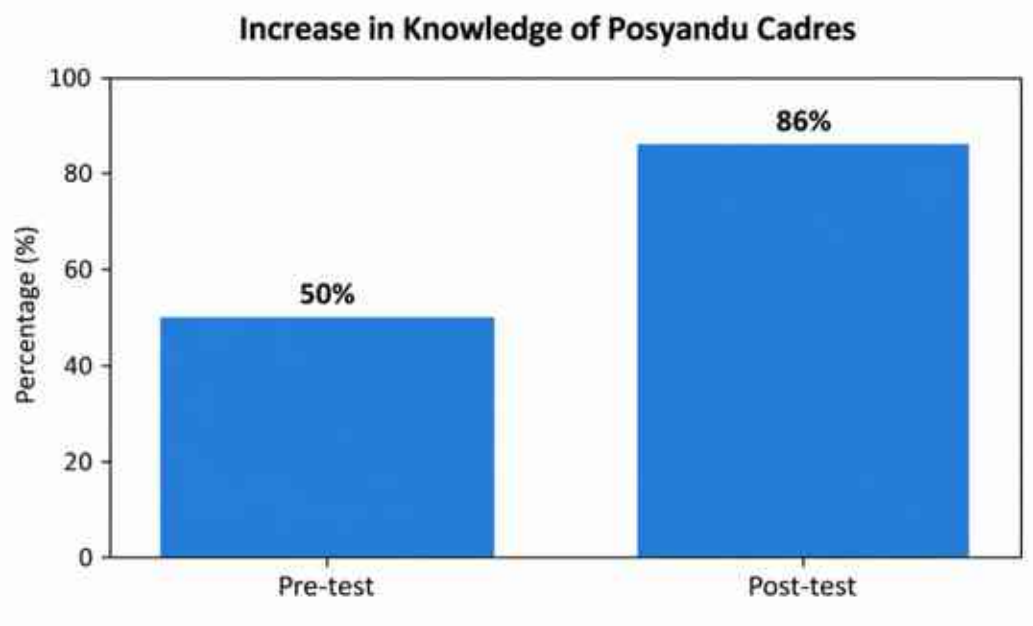

Figure 4. Comparison of cadre knowledge levels before and after training.

DISCUSSION

The improvement in cadre knowledge indicates that structured training supported by practical educational materials can strengthen community-level understanding of gestational diabetes and maternal nutrition. This finding is consistent with Huang et al. (2022), who reported that lifestyle interventions can improve selected health behaviors among women with gestational diabetes. Helm et al. (2022) also highlighted the importance of nutrition education in supporting dietary management and self-care. These findings reinforce the rationale for integrating cadre training into maternal health promotion.

The use of locally available foods represents another important aspect of the program. Practical menu examples and nutrition guides can help translate general dietary recommendations into information that is more relevant to pregnant women's everyday lives. This approach aligns with the World Health Organization's (2023) recommendations on nutrition counseling during pregnancy and supports the inclusion of healthy dietary practices in community education.

Furthermore, the screening form provides a practical mechanism for documenting risk factors and facilitating communication with health professionals. However, cadres should support risk recognition and referral rather than independently diagnose gestational diabetes. Consistent with evidence on community-based interventions (Igwesi-Chidobe et al., 2022), collaboration with primary health care services is essential for appropriate follow-up. Although the knowledge improvement is encouraging, further monitoring is needed to assess the routine use of educational materials, screening skills, referral practices, and sustainability.

CONCLUSION AND RECOMMENDATIONS

The community service program in the working area of Lubuk Alung Primary Health Care successfully strengthened the capacity of Posyandu cadres to support the early identification of gestational diabetes risk through local nutrition education. Cadre knowledge increased from 50% before training to 86% after training, representing an improvement of 36 percentage points. The program also produced practical educational resources, including structured screening forms, posters, infographics, local nutrition guides, sample menus, and the *Kader Posyandu Cerdas* pocketbook to support maternal health promotion. Future community service activities should prioritize regular mentoring and supervision, integration of screening tools into routine Posyandu activities, strengthening coordination with primary health care professionals, and evaluating cadres' practical skills, referral practices, and the sustainability of educational activities. Further evaluation involving pregnant women is also recommended to assess the applicability of nutrition messages and their potential contribution to healthier dietary practices, while clinical assessment and diagnosis remain the responsibility of qualified health professionals.

DAFTAR PUSTAKA

American Diabetes Association Professional Practice Committee. (2025). 15. Management of diabetes in pregnancy: Standards of care in diabetes—2025. *Diabetes Care, 48*(Supplement 1), S306–S320. https://doi.org/10.2337/dc25-S015

Haron, Z., Sutan, R., Zakaria, R., & Abdullah Mahdy, Z. (2023). Self-care educational guide for mothers with gestational diabetes mellitus: A systematic review on identifying self-care domains, approaches, and their effectiveness. *Belitung Nursing Journal, 9*(1), 6–16. https://doi.org/10.33546/bnj.2396

Helm, M. M., Izuora, K., & Basu, A. (2022). Nutrition-education-based interventions in gestational diabetes: A scoping review of clinical trials. *International Journal of Environmental Research and Public Health, 19*(19), Article 12926. https://doi.org/10.3390/ijerph191912926

Huang, S., Magny-Normilus, C., McMahon, E., & Whittemore, R. (2022). Systematic review of lifestyle interventions for gestational diabetes mellitus in pregnancy and the postpartum period. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 51*(2), 115–125. https://doi.org/10.1016/j.jogn.2021.10.007

Igwesi-Chidobe, C. N., Okechi, P. C., Emmanuel, G. N., & Ozumba, B. C. (2022). Community-based non-pharmacological interventions for pregnant women with gestational diabetes mellitus: A systematic review. *BMC Women's Health, 22*, Article 482. https://doi.org/10.1186/s12905-022-02038-9

International Diabetes Federation. (2021). *IDF diabetes atlas* (10th ed.). https://diabetesatlas.org/

International Diabetes Federation. (n.d.). *Prevalence of gestational diabetes mellitus (GDM).* https://diabetesatlas.org/data-by-indicator/hyperglycaemia-in-pregnancy-hip-20-49-y/prevalence-of-gestational-diabetes-mellitus-gdm/

Kementerian Kesehatan Republik Indonesia. (2020). *Pedoman pelayanan antenatal terpadu*. Kementerian Kesehatan Republik Indonesia.

Retnakaran, M., Viana, L. V., & Kramer, C. K. (2023). Lifestyle intervention for the prevention of type 2 diabetes in women with prior gestational diabetes: A systematic review and meta-analysis. *Diabetes, Obesity and Metabolism, 25*(5), 1196–1202. https://doi.org/10.1111/dom.14966

Tsironikos, G. I., Potamianos, P., Zakynthinos, G. E., Tsolaki, V., Tatsioni, A., & Bargiota, A. (2023). Effectiveness of lifestyle interventions during pregnancy on preventing gestational diabetes mellitus in high-risk women: A systematic review and meta-analyses of published randomized controlled trials. *Journal of Clinical Medicine, 12*(22), Article 7038. https://doi.org/10.3390/jcm12227038

Wang, Y.-H., Zhou, H.-H., Nie, Z., Tan, J., Yang, Z., Zou, S., Zhang, Z., & Zou, Y. (2022). Lifestyle intervention during pregnancy in patients with gestational diabetes mellitus and the risk of neonatal hypoglycemia: A systematic review and meta-analysis. *Frontiers in Nutrition, 9*, Article 962151. https://doi.org/10.3389/fnut.2022.962151

World Health Organization. (2016). *WHO recommendations on antenatal care for a positive pregnancy experience*. https://www.who.int/publications/i/item/9789241549912

World Health Organization. (2021). *WHO antenatal care recommendations for a positive pregnancy experience: Nutritional interventions update*. https://www.who.int/publications/b/59023

World Health Organization. (2023, August 9). *Nutrition counselling during pregnancy*. https://www.who.int/tools/elena/interventions/nutrition-counselling-pregnancy

Xie, W., Zhang, L., Cheng, J., Wang, Y., Kang, H., & Gao, Y. (2024). Physical activity during pregnancy and the risk of gestational diabetes mellitus: A systematic review and dose-response meta-analysis. *BMC Public Health, 24*, Article 594. https://doi.org/10.1186/s12889-024-18131-7

Zhang, L., Wang, F., Tashiro, S., & Liu, P. J. (2024). Effects of dietary approaches and exercise interventions on gestational diabetes mellitus: A systematic review and Bayesian network meta-analysis. *Advances in Nutrition, 15*(12), Article 100330. https://doi.org/10.1016/j.advnut.2024.100330