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Transformation of the Midwife's Role in Controlling Gestational Diabetes Mellitus in the Era of Modern Healthcare Services

Nova Ratna Dewi[1]*, Hida Yana[2], Sri Wahyuni[3]
Poltekkes Kemenkes Yogyakarta, Indonesia[1,2,3]
e-mail: * hidayananana77@gmail.com

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ABSTRACT

Gestational diabetes mellitus (GDM) is one of the most common metabolic complications in pregnancy and poses significant short- and long-term risks for both mothers and infants. The increasing prevalence of GDM requires a shift in maternal healthcare approaches, particularly in redefining the role of midwives who serve as frontline providers in antenatal and postnatal services. This study aims to analyze how the rising clinical burden of GDM necessitates the transformation of the midwife's role in modern healthcare services. A qualitative design using a Systematic Literature Review (SLR) was employed by analyzing recent accredited journal articles published between 2021 and 2025 from databases such as Scopus, PubMed, Google Scholar, and SINTA. The data were synthesized thematically to identify patterns linking GDM challenges with midwifery role development. The results indicate that midwives need to expand their functions from birth attendants to GDM case managers through early risk screening, lifestyle education, psychosocial support, referral coordination, and postpartum metabolic follow-up. The discussion highlights that midwife-led and nurse-led care models are effective, cost-efficient, and sustainable, particularly in resource-limited settings. In conclusion, transforming the midwife's role is essential to integrate GDM control into routine maternal care and to support long-term intergenerational prevention of metabolic diseases.

Keywords: *Gestational diabetes mellitus; Midwife role transformation; Maternal healthcare; Lifestyle education*

INTRODUCTION

Gestational diabetes mellitus (GDM) has emerged as the most common metabolic complication of pregnancy worldwide, with prevalence estimates ranging from 14% to 25% of all pregnancies and accounting for up to 18–20 million births annually. This upward trend is closely linked to rising maternal age, increasing obesity, and lifestyle transitions associated with urbanization and

dietary change (Modzelewski et al., 2022; Luo & Ni, 2025; Fu & Retnakaran, 2022). Beyond its epidemiological magnitude, GDM carries substantial short-term obstetric risks, including preeclampsia, cesarean delivery, macrosomia, and neonatal hypoglycemia, while also creating long-term metabolic vulnerability for both mother and child, such as a seven-to-ten-fold increased risk of type 2 diabetes mellitus (T2DM) and cardiovascular disease in mothers and heightened susceptibility to obesity and metabolic syndrome in offspring (Sweeting et al., 2022; Sarfaraz et al., 2025; Luo & Ni, 2025). Consequently, early diagnosis and effective management of GDM are increasingly recognized not merely as obstetric interventions, but as strategic opportunities for intergenerational prevention of chronic metabolic disease (Fu & Retnakaran, 2022; Sweeting et al., 2022).

The growing clinical burden of GDM intersects with broader transformations in health systems characterized by digitalization, evidence-based practice, and the integration of chronic disease management into primary maternal care. In this context, the role of frontline maternal health providers becomes critically important. In many low- and middle-income countries (LMICs), including Indonesia, midwives are the primary providers of antenatal, intranatal, and postnatal services at the community level, especially for pregnancies initially categorized as low risk (Adnani et al., 2025; Nove et al., 2024). The density and accessibility of midwives have been associated with reductions in maternal and neonatal mortality, more rational cesarean section rates, and improved maternal care outcomes (Khan & Yildirim, 2024; Nove et al., 2024). Cultural proximity and community trust further strengthen the utilization of midwifery services in Indonesia, where many pregnant women rely on midwives as their first and most consistent point of contact with the health system (Sugarni et al., 2025; Adnani et al., 2025).

At the same time, the increasing incidence of GDM challenges the traditional perception of midwives primarily as birth attendants. The management of GDM requires competencies that extend beyond routine antenatal monitoring toward early metabolic risk screening, lifestyle counseling, structured referral, and long-term follow-up. Evidence indicates that effective GDM control depends heavily on non-pharmacological interventions, particularly nutritional modification, physical activity, and glycemic monitoring, all of which fall within the educational and supportive scope of midwifery practice (Modzelewski et al., 2022; Sarfaraz et al., 2025). Furthermore, postpartum follow-up at 6–12 weeks for T2DM screening, breastfeeding counseling, and long-term prevention strategies represent essential yet often neglected components of GDM management (Sweeting et al., 2022; Luo & Ni, 2025). These demands position midwives not only as caregivers but as coordinators of chronic disease prevention within maternal health services.

The phenomenon observed in many healthcare settings is that despite the clinical urgency of GDM, early detection and comprehensive management are still suboptimal. Screening is frequently delayed, referral pathways are inconsistent, lifestyle counseling is insufficiently emphasized, and postpartum

metabolic follow-up is rarely integrated into routine maternal care. This gap between clinical guidelines and practical implementation is partly attributable to limitations in workforce training, high workloads, and hierarchical organizational structures that constrain professional autonomy (Okeke & Ngunyulu, 2025; Nove et al., 2024). Studies from several countries show that the implementation of modern maternal health guidelines often falters because frontline providers lack adequate training in metabolic risk management and digital health adaptation (Spanos et al., 2024; Kalimashe et al., 2025).

Simultaneously, global discourse on healthcare transformation emphasizes that health professionals must adapt to technological disruption, interprofessional collaboration, and community-oriented care models. Competencies such as digital literacy, relational leadership, innovation, and chronic disease management are increasingly viewed as essential attributes for healthcare providers, including midwives (Mijal et al., 2023; Alowais et al., 2023; Mahajan et al., 2021). These competencies are highly relevant for GDM management, which often requires the use of digital glucose monitoring tools, teleconsultation, patient education platforms, and collaborative care with physicians, nutritionists, and endocrinologists. Thus, the rise of GDM occurs alongside a broader transformation in healthcare delivery that necessitates a redefinition of midwifery roles.

Another important phenomenon is the proven effectiveness of the Midwife-Led Care Unit (MLCU) model for low-risk pregnancies, which has been shown to be safe, cost-effective, and capable of reducing unnecessary interventions while improving maternal experience (Sethi et al., 2025). However, the integration of GDM management into such midwife-led models remains underexplored. Given that many pregnancies initially classified as low risk may later develop GDM, midwives operating in MLCUs are strategically positioned to perform early risk assessment and lifestyle intervention before complications escalate. This suggests that strengthening midwives' competencies in GDM control could significantly enhance the effectiveness of MLCU-based maternal services.

Despite the strategic importance of midwives and the escalating burden of GDM, existing research tends to examine these issues separately. A substantial body of literature focuses on the epidemiology, diagnosis, and complications of GDM (Modzelewski et al., 2022; Sweeting et al., 2022; Luo & Ni, 2025), while other studies discuss the effectiveness of midwifery services in improving maternal outcomes (Nove et al., 2024; Khan & Yildirim, 2024). However, few studies explicitly analyze how the increasing burden of GDM necessitates a transformation of midwifery roles within modern healthcare systems. This represents a significant research gap, particularly in LMIC contexts such as Indonesia where midwives constitute the backbone of maternal health services.

Furthermore, prior studies often conceptualize midwives' roles in GDM management as limited to routine screening and referral, without exploring their potential as lifestyle educators, chronic disease prevention agents, and coordinators of postpartum metabolic care. The literature also lacks a

comprehensive conceptual framework linking epidemiological trends in GDM with professional role transformation, digital health integration, and system-level support required for midwives to function effectively in this expanded capacity (Mijal et al., 2023; Spanos et al., 2024). This gap limits the development of policies and training programs aimed at empowering midwives to respond to contemporary metabolic health challenges in pregnancy.

The novelty of this study lies in its integrative perspective that connects three critical dimensions: the escalating epidemiological burden of GDM, the strategic position of midwives in maternal health services, and the necessity of professional role transformation in the era of modern healthcare. By synthesizing these dimensions, this study moves beyond viewing GDM solely as a clinical obstetric issue or midwifery solely as a traditional maternal care role. Instead, it conceptualizes GDM control as a catalyst for redefining midwives' professional functions within digitally supported, community-centered, and interprofessional healthcare systems.

This integrative approach also highlights the importance of structural and policy support. Evidence from various countries indicates that successful implementation of modern maternal guidelines depends on adequate training, supportive work environments, and clear organizational policies (Okeke & Ngunyulu, 2025; Nove et al., 2024). Therefore, transforming the role of midwives in GDM management is not merely an individual competency issue but requires systemic adjustments in education, regulation, and health service organization.

Based on these considerations, this study aims to analyze how the rising clinical urgency of gestational diabetes mellitus necessitates a transformation of the midwife's role in modern healthcare services, particularly in the context of screening, education, referral coordination, and postpartum metabolic follow-up.

METHODS

This study employs a qualitative approach using a Systematic Literature Review (SLR) design to comprehensively examine how the increasing clinical burden of gestational diabetes mellitus (GDM) necessitates the transformation of the midwife's role in modern healthcare services. The SLR approach is selected to synthesize empirical and conceptual evidence from recent scholarly publications related to GDM management, midwifery practice, and healthcare transformation. Data collection was conducted through a structured search of international and national academic databases, including Scopus, PubMed, Google Scholar, ScienceDirect, and SINTA-indexed journals. Keywords used in the search process included combinations of "gestational diabetes mellitus," "midwife role," "midwifery care," "maternal health services," "digital health," and "healthcare transformation." Inclusion criteria comprised peer-reviewed articles published between 2021 and 2025, written in English, focusing on GDM management, midwifery practice, healthcare workforce transformation, and maternal services in both global and LMIC contexts. Articles not directly addressing midwifery roles, opinion pieces without empirical basis, and studies outside the maternal health context were excluded. The selection process

followed identification, screening, eligibility, and inclusion stages to ensure relevance and methodological rigor.

The data obtained from the selected articles were analyzed using thematic analysis to identify recurring patterns and conceptual linkages between the epidemiological burden of GDM and the evolving professional responsibilities of midwives. Extracted data included author, year, research setting, study design, key variables, and principal findings. These data were organized into a synthesis matrix to facilitate comparison and categorization across studies. The analysis focused on three main themes: (1) clinical urgency and preventive potential of GDM, (2) strategic positioning of midwives in maternal healthcare systems, and (3) required competencies and systemic support for role transformation in the digital health era. Through this analytical process, the study developed an integrative conceptual understanding of how midwives' roles expand from traditional maternity care providers to proactive agents in metabolic disease prevention and coordinated maternal healthcare delivery.

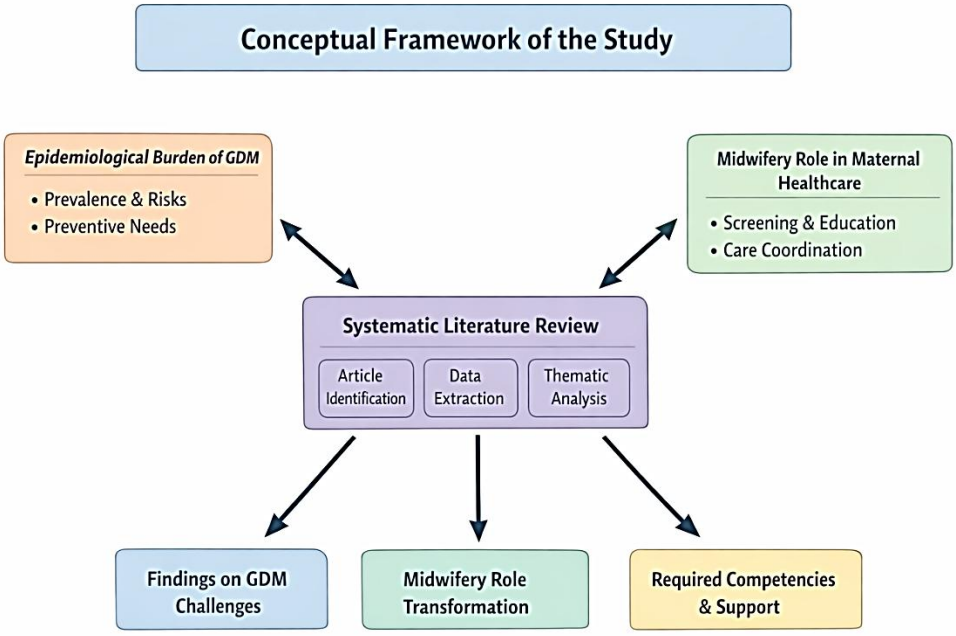

Figure 1. Diagram Conceptual of The Study

RESULT AND DISCUSSION

Based on the stages of the **Systematic Literature Review (SLR)** described in the methods section, the results of data extraction and synthesis from selected scholarly sources reveal consistent thematic patterns linking the clinical burden of gestational diabetes mellitus (GDM), the strategic position of midwives in maternal health services, and the need for competency transformation in modern healthcare systems. The table below summarizes the thematic findings derived from the analyzed literature and groups them according to the main focus of the study.

Tabel 1. Thematic Synthesis of Literature on GDM Burden and the Transformation of the Midwife's Role in Modern Healthcare

No	Main Theme	Key Findings from Literature	Implications for the Midwife's Role	Sources
1	Epidemiological burden of GDM	GDM prevalence rises to 14–25% of pregnancies; short- and long-term risks for mother and baby	Midwives need to conduct early risk screening during pregnancy	Modzelewski et al., 2022; Luo & Ni, 2025; Fu & Retnakaran, 2022
2	Clinical impact of GDM	Preeclampsia, cesarean section, macrosomia, neonatal hypoglycemia	Midwives must be able to detect early signs of complications	Sweeting et al., 2022; Sarfaraz et al., 2025
3	Intergenerational prevention	GDM as an entry point for preventing T2DM and CVD in mother and child	Midwives' role expands to long-term metabolic education	Fu & Retnakaran, 2022; Luo & Ni, 2025
4	Strategic position of midwives in LMICs	Midwives are primary providers of ANC, INC, and PNC at community level	Great potential for community-based GDM management	Nove et al., 2024; Khan & Yildirim, 2024
5	Community trust in midwives	High utilization of midwifery services in Indonesia	Midwives effective as lifestyle educators for pregnant women	Adnani et al., 2025; Sugarni et al., 2025
6	Midwife Led Care Unit (MLCU) model	Safe, cost-effective, reduces unnecessary interventions	MLCU can be integrated with GDM risk screening	Sethi et al., 2025
7	Need for GDM risk screening	Screening based on BMI, age, and diabetes history is essential	Midwives require metabolic risk assessment competencies	Sarfaraz et al., 2025; Luo & Ni, 2025

8	Lifestyle education as main therapy	Nutrition and physical activity are key to GDM control	Midwives as nutrition and physical activity counselors	Modzelewski et al., 2022
9	Postpartum follow-up	T2DM screening at 6–12 weeks often neglected	Midwives need to ensure postpartum metabolic follow-up	Sweeting et al., 2022
10	Challenges in guideline implementation	Lack of training, work overload, hierarchical structure	Need for capacity building and supportive policies	Okeke & Ngunyulu, 2025; Nove et al., 2024
11	Modern healthcare workforce transformation	Need for digital literacy, collaboration, leadership	Midwives require technological and interprofessional competencies	Mijal et al., 2023; Alowais et al., 2023
12	Integration of health technology	Telemonitoring, digital education, electronic records	Midwives involved in digital health utilization	Spanos et al., 2024; Kalimashe et al., 2025

The table demonstrates that the increasing clinical burden of GDM cannot be addressed solely through curative medical approaches but requires a transformation of the midwife's role as a key actor in prevention, education, early detection, and postpartum metabolic management. The literature consistently emphasizes that midwives occupy the most strategic position within maternal healthcare systems, particularly in developing countries such as Indonesia. Therefore, strengthening midwives' competencies in metabolic screening, lifestyle education, and the use of health technology becomes crucial. Furthermore, structural barriers such as limited training opportunities and excessive workloads indicate that the transformation of the midwife's role is not merely an individual issue but also requires supportive policies, organizational reform, and adaptive healthcare systems capable of responding to the challenges of non-communicable diseases in the modern era.

Discussion

The purpose of this study was to analyze how the rising clinical urgency of gestational diabetes mellitus (GDM) necessitates a transformation of the midwife's role in modern healthcare services, particularly in the domains of screening, education, referral coordination, and postpartum metabolic follow-up. The findings synthesized in Table 1 demonstrate a consistent relationship between the epidemiological burden of GDM, the strategic positioning of midwives within maternal healthcare, and the emerging requirement for expanded competencies aligned with contemporary healthcare transformation. The discussion below integrates these findings with accredited journal sources provided, to explain why and how this transformation must occur.

The increasing prevalence of GDM worldwide, accompanied by its short-term obstetric complications and long-term metabolic consequences, provides the primary clinical rationale for transforming midwifery roles. GDM is no longer viewed as a transient pregnancy condition but as an early indicator of lifelong metabolic vulnerability for both mother and child (Sweeting et al., 2022; Xu et al., 2025; Zhu et al., 2025). This shift in clinical understanding alters the logic of maternal care. If GDM is an entry point for intergenerational prevention of T2DM and cardiovascular disease, then the responsibility for its management cannot rest solely on specialist physicians. Instead, it must be embedded in routine maternal services where midwives are the most consistent and accessible providers. The limited availability of physicians and high workload pressures, particularly in low- and middle-income countries, have led researchers to propose nurse-led and midwife-led models as strategic solutions for managing chronic metabolic conditions such as GDM (M. et al., 2024; Bukari et al., 2025).

Evidence from Ghana and other countries reveals persistent barriers in GDM management, including fragmented service structures, insufficient trained personnel, screening costs, and weak postpartum follow-up systems (Köpsén et al., 2023; Bukari et al., 2025; Hooper et al., 2025). These constraints highlight that the challenge is not only clinical but organizational. In such conditions, redefining the midwife's role becomes a pragmatic strategy to close gaps in screening, counseling, and follow-up. This supports the thematic finding that midwives must move beyond their traditional focus on normal childbirth to become active managers of metabolic risk throughout pregnancy and after delivery.

One major form of transformation identified in the literature is the shift from "birth attendant" to "GDM case manager." Studies show that midwives are already positioned at the frontline of antenatal care, making them ideally suited to perform early GDM screening, provide structured education, and ensure continuity of care (Nayak et al., 2023; Murray-Davis et al., 2022; Köpsén et al., 2023). Midwifery facilitator-based approaches, including classes, lifestyle

mentoring, and emotional support, have been shown to improve glycemic control and perinatal outcomes while empowering pregnant women to make independent health decisions (Nayak et al., 2023). Furthermore, care models grounded in the concept of self-transcendence and enhancement of self-efficacy significantly reduce psychological distress, improve dietary and physical activity behaviors, and lower pregnancy-related complications such as gestational hypertension (Xu et al., 2025). These findings directly correspond to the table's themes regarding lifestyle education, psychosocial support, and long-term prevention.

Another dimension of transformation is the shift from passive education to active lifestyle advocacy. Structured training programs for nurses and midwives have been shown to significantly improve knowledge, attitudes, and practices related to GDM and hypertensive disorders of pregnancy, with effects lasting at least three months after training (Stan et al., 2023). However, studies also report that many midwives face barriers such as limited access to nutritionists, physiotherapists, and educational resources, which restrict their ability to deliver effective lifestyle counseling (Köpsén et al., 2023; Bukari et al., 2025). This aligns with the table's identification of systemic barriers requiring organizational and policy support. Importantly, the quality of education and mentoring provided by midwives strongly influences long-term maternal behavior, yet many women with a history of GDM are lost to follow-up after childbirth because they perceive themselves as "healthy" once pregnancy ends (Sweeting et al., 2022; Köpsén et al., 2023). This reinforces the need for midwives to extend their role into postpartum metabolic surveillance.

The transformation also involves expanding from a narrow clinical role to a systemic and collaborative role. Systematic reviews from high-income countries emphasize that effective GDM management requires clear guidelines, multiprofessional collaboration, and organizational support to address both short-term and long-term risks (Hooper et al., 2025). The development of competency measurement tools for obstetric nurses and midwives in GDM management, encompassing knowledge, skills, and attitudes, has been proposed to standardize care quality (Zhu et al., 2025). Moreover, nurse-led and midwife-led diabetes clinics demonstrate advantages such as holistic care, continuity, preventive orientation, and community engagement, and are considered cost-effective and sustainable for both T2DM and GDM management (M. et al., 2024; Bukari et al., 2025). These findings directly support the implication that midwives should be involved not only as care providers but as developers and implementers of midwife-led diabetes services.

An additional important aspect of transformation is the integration of psychosocial support and technology. GDM is often accompanied by stress, stigma, and social barriers that hinder adherence to dietary and activity

recommendations. Midwife interventions that include psychological support and coping reinforcement have been shown to improve glycemic control and quality of life (Xu et al., 2025; Hardjito et al., 2025). Educational media such as booklets, modules, and e-modules have demonstrated significant improvements in knowledge and readiness for health management among families at risk for diabetes and could be adapted for GDM contexts (Megayanti et al., 2025; Raharjo et al., 2024; Mulyati & Muntamah, 2025). This confirms the relevance of digital literacy and educational innovation identified in the results table.

These findings collectively answer the research objective by demonstrating that the transformation of the midwife's role in GDM control is not optional but essential in modern healthcare. Clinically, midwives must conduct risk-based screening, glycemic monitoring, early lifestyle management, and structured referral coordination (Nayak et al., 2023; Sweeting et al., 2022). Educationally, they must facilitate GDM classes, nutrition counseling, physical activity guidance, breastfeeding support, and postpartum T2DM prevention (Stan et al., 2023; Xu et al., 2025). Psychosocially, they must identify distress, provide emotional support, and strengthen self-efficacy for self-management (Hardjito et al., 2025). Systemically, they must participate in developing and implementing midwife-led diabetes services and advocate for policies supporting GDM screening and follow-up (Bukari et al., 2025; Zhu et al., 2025).

In conclusion, the synthesis of findings and literature clearly demonstrates that the epidemiological escalation of GDM acts as a catalyst for redefining the professional identity of midwives. The midwife in the era of modern healthcare is no longer confined to the delivery room but becomes a metabolic risk manager, lifestyle educator, psychosocial supporter, and systemic collaborator in maternal health services. This transformation requires not only individual competency development but also structural, educational, and policy-level support to ensure that midwives can effectively contribute to intergenerational prevention of metabolic disease through comprehensive GDM management.

CONCLUSION

In conclusion, the escalating clinical burden of gestational diabetes mellitus (GDM) fundamentally necessitates a transformation of the midwife's role within modern healthcare services from a primary focus on normal childbirth to a comprehensive role in metabolic risk management across the antenatal and postpartum continuum. This study demonstrates that midwives are strategically positioned to conduct early risk screening, deliver structured lifestyle education, coordinate referrals, provide psychosocial support, and ensure postpartum metabolic follow-up, thereby contributing to both immediate obstetric safety and long-term intergenerational prevention of type 2 diabetes and cardiovascular disease. The transformation is supported by evidence showing that midwife-led and nurse-led models are effective, cost-efficient, and sustainable, particularly in

contexts with limited physician availability. However, achieving this expanded role requires strengthened competencies, supportive organizational structures, clear guidelines, and integration of educational and digital health tools. Thus, the modernization of maternal healthcare demands not only clinical adaptation but also systemic empowerment of midwives as key actors in GDM control and chronic disease prevention.

REFERENCES

Adnani, Q., Maulina, R., Ramadhan, K., Argaheni, N., Kennedy, H., & Telfer, M. (2025). Trends and determinants of antenatal, intranatal, and postnatal care utilization among Indonesian women (2012–2017): associated factors in midwifery service utilization between midwives and other health professionals. *BMC Nursing, 24.* https://doi.org/10.1186/s12912-025-03527-6

Alowais, S., Alghamdi, S., Alsuhebany, N., Alqahtani, T., Alshaya, A., Almohareb, S., Aldairem, A., Alrashed, M., Saleh, K., Badreldin, H., Yami, M., Harbi, S., & Albekairy, A. (2023). Revolutionizing healthcare: the role of artificial intelligence in clinical practice. *BMC Medical Education, 23.* https://doi.org/10.1186/s12909-023-04698-z

Bukari, M., Abubakari, A., Malechi, H., Hinneh, T., Garti, H., & Agbozo, F. (2025). Resource constraints, patient emotions, and therapy: experiences of healthcare providers in the screening and management of gestational diabetes mellitus in northern Ghana. *BMC Health Services Research, 25.* https://doi.org/10.1186/s12913-025-12262-2

Fu, J., & Retnakaran, R. (2022). The life course perspective of gestational diabetes: An opportunity for the prevention of diabetes and heart disease in women. *EClinicalMedicine, 45.* https://doi.org/10.1016/j.eclinm.2022.101294

Hardjito, K., Suwoyo, S., & Yani, E. (2025). Sinergi edukasi dan senam sehat dalam meningkatkan kesadaran masyarakat terhadap risiko diabetes melitus. *COMMUNITY: Jurnal Pengabdian Kepada Masyarakat.* https://doi.org/10.51878/community.v5i2.7363

Hooper, M., Kurz, E., Knight-Agarwal, C., Bushell, M., Ladbrook, E., & Davis, D. (2025). The perspectives of healthcare professionals in providing care to women with GDM in high-income nations: A qualitative systematic review. *Primary Care Diabetes.* https://doi.org/10.1016/j.pcd.2024.11.005

Kalimashe, L., Du Plessis, E., & Sehularo, L. (2025). Development and evaluation of relational leadership guidelines for primary healthcare: A mixed methods study. *Journal of Nursing Management, 2025.* https://doi.org/10.1155/jonm/2653041

Khan, M., & Yildirim, M. (2024). The role of midwives in reducing maternal mortality. *International Journal of Midwifery and Nursing Practice.* https://doi.org/10.33545/26630427.2024.v7.i1a.152

Köpsén, S., Lilja, M., Hellgren, M., Sandlund, J., & Sjöström, R. (2023). Midwives' and diabetes nurses' experience of screening and care of women with gestational diabetes mellitus: A qualitative interview study. *Nursing Research and Practice, 2023.* https://doi.org/10.1155/2023/6386581

Luo, Q., & Ni, Q. (2025). Life-course management of gestational diabetes mellitus: A narrative review. *World Journal of Clinical Cases, 13.* https://doi.org/10.12998/wjcc.v13.i29.111096

M., I., R., M., K., M., & F., E. (2024). Innovative management of non-communicable disease in a low-income country: Supporting nurses and midwives to set up and manage a nurse-led diabetes clinic at Bo Government Hospital in Sierra Leone. *African Journal of Health, Nursing and Midwifery.* https://doi.org/10.52589/ajhnm-zvvwncwy

Mahajan, A., Esper, S., Cole, D., & Fleisher, L. (2021). Anesthesiologists' role in value-based perioperative care and healthcare transformation. *Anesthesiology, 134,* 526–540. https://doi.org/10.1097/aln.0000000000003717

Megayanti, S., Agustini, N., Yusniawati, Y., Kamaryati, N., Arka, I., Juliani, M., Trisna, M., & Halimah, N. (2025). Implementasi interpersonal edukasi dan kolaborasi dalam rangka peningkatan kesehatan pada pasien diabetes melitus tipe II di Club Diamed RS Balimed Denpasar. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM).* https://doi.org/10.33024/jkpm.v8i7.18571

Mijal, M., Marczewska, M., Kostrzewski, M., Bańka, M., & Kamiński, A. (2023). Digital transformation of healthcare and job roles changes. https://doi.org/10.1016/j.procs.2023.10.186

Modzelewski, R., Stefanowicz-Rutkowska, M., Matuszewski, W., & Bandurska-Stankiewicz, E. (2022). Gestational diabetes mellitus—Recent literature review. *Journal of Clinical Medicine, 11.* https://doi.org/10.3390/jcm11195736

Mulyati, S., & Muntamah, U. (2025). Penerapan edukasi dengan media booklet dalam pengelolaan kesiapan peningkatan manajemen kesehatan pada keluarga berisiko diabetes melitus. *Jurnal Keperawatan Berbudaya Sehat.* https://doi.org/10.35473/jkbs.v3i2.4263

Murray-Davis, B., Berger, H., Melamed, N., Darling, L., Syed, M., Guarna, G., Li, J., Barrett, J., Ray, J., Geary, M., Mawjee, K., Bagheri, N., & McDonald, S. (2022). A framework for understanding how midwives perceive and provide care management for pregnancies complicated by gestational diabetes or hypertensive disorders of pregnancy. *Midwifery, 115,* 103498. https://doi.org/10.1016/j.midw.2022.103498

Nayak, D., Tripathi, P., Nayak, P., Nayak, M., Das, N., Mall, M., Patel, D., & Dash, R. (2023). Enhancing perinatal outcomes in gestational diabetes mellitus: A

midwifery facilitator based approach. *Journal of Advanced Zoology*. https://doi.org/10.17762/jaz.v44i4.2480

Nove, A., Boyce, M., Neal, S., Homer, C., Lavender, T., Matthews, Z., & Downe, S. (2024). Increasing the number of midwives is necessary but not sufficient. *Human Resources for Health, 22*. https://doi.org/10.1186/s12960-024-00925-w

Okeke, N., & Ngunyulu, R. (2025). Barriers and facilitators influencing midwives' implementation of South Africa's maternal care guidelines in postnatal health. *Primary Health Care Research & Development, 26*. https://doi.org/10.1017/s1463423625000015

Raharjo, S., Fazdria, F., Husaini, M., Sulistiany, E., & Elfida, E. (2024). Pelatihan dan pendampingan kader kesehatan tentang latihan syukur berbasis e-modul dalam pengendalian gula darah diabetes. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*. https://doi.org/10.33024/jkpm.v7i8.15523

Sarfaraz, S., Rizwan, N., Sharif, A., Altaf, R., Nasim, M., Syed, S., Mushtaq, A., Asim, F., Mushtaq, M., Sarfraz, M., Ahmad, W., Ullah, B., & Qader, A. (2025). Mapping gestational diabetes mellitus – A narrative review of key determinants and epidemiology. *Biological and Clinical Sciences Research Journal*. https://doi.org/10.54112/bcsrj.v6i4.1535

Sethi, D., Kumari, H., Umar, M., & Priya, T. (2025). Evaluating the efficacy of midwifery led-care unit for optimizing maternal and infant health outcomes in India: An evidence-based systematic review. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. https://doi.org/10.18203/2320-1770.ijrcog20250877

Spanos, S., Leask, E., Patel, R., Datyner, M., Loh, E., & Braithwaite, J. (2024). Healthcare leaders navigating complexity: a scoping review of key trends in future roles and competencies. *BMC Medical Education, 24*. https://doi.org/10.1186/s12909-024-05689-4

Stan, D., Dobre, C., Mazilu, D., & Brătilă, E. (2023). Practices, attitudes and knowledge of midwives and nurses regarding gestational diabetes and pregnancy-induced hypertension. *Journal of Medicine and Life, 16,* 227–234. https://doi.org/10.25122/jml-2023-0021

Sugarni, M., Munawarah, R., Mauludiyah, Z., Giri, K., & H. (2025). The role of midwives in reducing maternal mortality through community-based health programs. *Miracle Get Journal*. https://doi.org/10.69855/mgj.v2i2.119

Sweeting, A., Wong, J., Murphy, H., & Ross, G. (2022). A clinical update on gestational diabetes mellitus. *Endocrine Reviews, 43,* 763–793. https://doi.org/10.1210/endrev/bnac003

Xu, M., Wu, Y., Zhou, Y., Lv, Z., Chen, W., & Fan, J. (2025). Research on the application effect of self-transcendence nursing model in patients with gestational diabetes mellitus: A randomized controlled trial. *BMC Pregnancy and Childbirth, 25*. https://doi.org/10.1186/s12884-025-07195-x

Zhu, Y., Ren, Y., Wan, F., Liu, F., Du, F., Li, W., Tian, T., Liu, X., Li, L., & Jia, Z. (2025). Development of a questionnaire to evaluate the management of gestational diabetes mellitus patients among obstetric nurses. *Frontiers in Public Health, 13*. https://doi.org/10.3389/fpubh.2025.1521673