Jurnal Ners Volume 10 Nomor 1 Tahun 2026 Halaman 482 - 487
JURNAL NERS
Research & Learning in Nursing Science
http://journal.universitaspahlawan.ac.id/index.php/ners

FACTORS INFLUENCING UTILIZATION OF CHRONIC DISEASE MANAGEMENT PROGRAMS AMONG ADULTS WITH DIABETES IN PRIMARY CARE: A SCOPING REVIEW

Shofiyana[1], Sutopo Patria Jati[2], Farid Agushybana[3]
[1,2,3]Magister of Public Health, Faculty of Public Health, Universitas Diponegoro
shofiyananurvianto@gmail.com

Abstract

Background: Chronic disease management programs (CDMPs) in primary health care aim to improve outcomes and reduce avoidable utilization for people with type 2 diabetes, yet enrollment, engagement, and sustained use vary widely across settings. Objective: To map factors influencing utilization of CDMPs among adults with diabetes in primary care and identify leverage points to improve uptake and sustained participation. Methods: We conducted a scoping review of 12 original studies across diverse health systems, synthesizing patient-, program-, provider-, system-, and technology-level determinants of utilization. Results: Utilization was shaped by insurance coverage and costs, care access and convenience, service quality, referral processes, provider capacity, health literacy, motivation, social support, and fit with clinic workflows. Evidence from Indonesia's Prolanis linked program engagement to national insurance membership, primary care use, and glycemic monitoring, with active participation associated with fewer outpatient visits (Putra et al., 2024). *Family support and perceived service quality strongly predicted active participation* (Cahyaningrum et al., 2024). *Technology-enabled programs such as remote patient monitoring (RPM) and telemedicine showed promise for widening access when adequately resourced and integrated, but sites reported variable delivery strategies and implementation barriers (staffing, leadership buy-in, reimbursement, and EHR workflows)* (Kirkland et al., 2023). *Conclusions: Multi-level, context-adapted strategies are needed to optimize CDMP utilization, including streamlined EHR-enabled referrals, aligned incentives, family-engaged care, provider training, and flexible digital options that fit clinic workflows and patient preferences.*

Keywords**:** *Chronic Disease Management, Diabetes Mellitus, Primary Care, Utilization, Scoping Review.*

* Corresponding author :
Address : Demak Jawa Tengah
Email : shofiyananurvianto@gmail.com
Phone : 085225599996

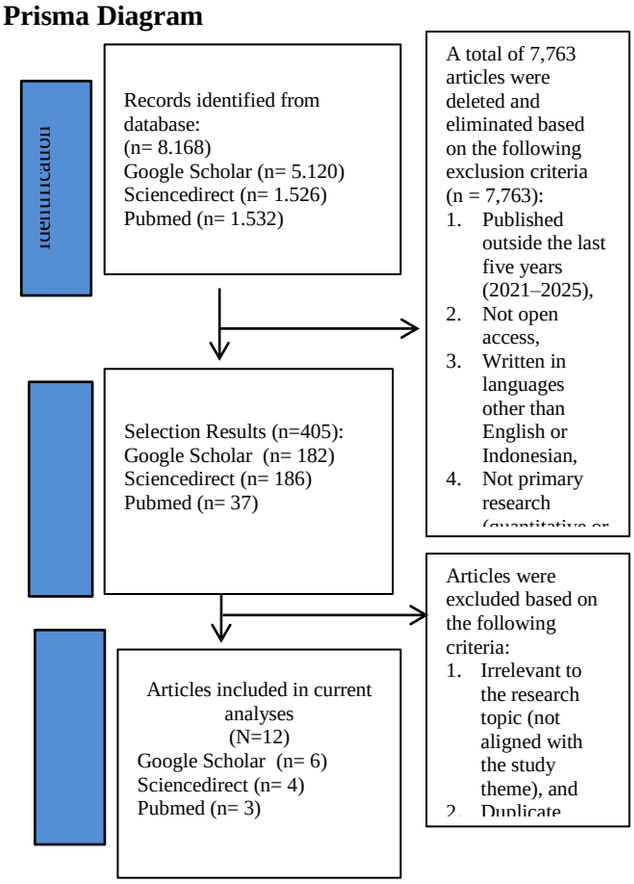
INTRODUCTION

Introduction Type 2 diabetes is a major driver of morbidity, utilization, and cost, prompting countries to introduce primary care–based CDMPs that combine proactive follow-up, self-management support, and standardized monitoring. Examples include Indonesia's Prolanis, Korea's Chronic Disease Management Program (CDMP), and the US National Diabetes Prevention Program (National DPP) (Alkaff et al., 2021). Program participation and continuity are critical for achieving gains such as improved medication adherence and persistence, yet they are often uneven across populations and settings (Kim et al., 2012) . Implementation frameworks emphasize referral pathways, team-based protocols, and financial alignment to support scale and spread (Sanders et al., 2023). Despite these investments, patients with diabetes frequently bypass primary care or disengage from program pathways, reflecting barriers at the patient, clinic, and system levels. Studies from China's primary care reform show patient preferences for community health centers co-vary with age, education, disease duration, and insurance coverage (Michielsen & Laurant, 2023). Mixed-methods work in Hebei Province identified a cycle of limited provider capacity, high workloads, and low patient health literacy undermining treatment intensification and engagement (Tao et al., 2024). In the US Medicare Diabetes Prevention Program, stakeholders reported reimbursement constraints and lack of systematic referral processes as major obstacles to utilization (Gassner et al., 2022).

METHOD

We conducted a scoping review following a framework similar to Arksey and O'Malley and consistent with PRISMA-ScR guidance used in related work on primary care diabetes management, adapted to our topic and available sources (Jahan et al., 2025). We searched for original studies examining factors associated with utilization, enrollment, engagement, or sustained participation in primary care–based CDMPs among adults with diabetes. Eligible designs included cross-sectional, cohort, mixed-methods, implementation evaluations, and pragmatic trials if they reported determinants or barriers/facilitators of program use. From the screened literature, we included 12 original articles spanning Indonesia, Korea, China, and the United States. We charted study context, program type, population, measures of utilization (e.g., enrollment, active participation, visit reduction, adherence to monitoring), and factors across patient, program, provider, system, and technology domains. Findings were synthesized thematically.

Prisma Diagram



RESULT AND DISCUSSIONS

Based on the literature search, 12 articles were include for analysis, the artclek are described as follows:

Tabel 1. Data extraction

No	Authors, Year	Article Title	Design / Method	Key Findings
1	Alkaff et al., 2021	*The Impact of the Indonesian Chronic Disease Management Program (PROLANIS) on Metabolic Control and Renal Function of Type 2 Diabetes Mellitus Patients in Primary Care Setting*	Quantitative, longitudinal evaluation study.	PROLANIS improved glycemic control and maintained renal function.

2	Baughman et al., 2022	*Comparison of Quality Performance Measures for Patients Receiving In-Person vs Telemedicine Primary Care*	Comparative quantitative study.	No significant difference in quality outcomes between in-person and telemedicine care.
3	Browning et al., 2015	*Implementing a Chronic Disease Self-Management Program into China: The Happy Life Club™*	Implementation study (mixed methods).	Social support and intrinsic motivation enhanced program success.
4	Cahyaningrum et al., 2024	*Factors Influencing Active Participation in the Chronic Disease Management Program (Prolanis)*	Cross-sectional study.	Family and provider support positively associated with active participation.
5	Gassner et al., 2022	*National Strategies for Preventing and Managing Non-communicable Diseases in Selected Countries*	Policy literature review.	Countries with integrated NCD strategies show better outcomes.
6	Jahan et al., 2025	*Barriers and Facilitators of Primary Care Management of Type II Diabetes Mellitus in the West African Sub-region: A Scoping Review*	Scoping review.	Main barriers: limited resources, lack of training, low patient engagement.
7	Kim et al., 2012	*Evaluation of the Chronic Disease Management Program for Appropriateness of Medication Adherence and Persistence in Hypertension and Type-2 Diabetes Patients in Korea*	Quantitative evaluation study.	CDMP improved adherence and clinical control of blood pressure and glucose.
8	Kirkland et al., 2023	*Diabetes Remote Monitoring Program Implementation: A Mixed Methods Analysis of Delivery Strategies, Barriers and Facilitators*	Mixed-methods study.	Success depended on supportive staff and user-friendly technology.
9	Michielsen & Laurant, 2023	*Primary Healthcare Competencies Needed in the Management of Integrated and Person-centred Care for Chronic Illness and Multimorbidity*	Conceptual review.	Interpersonal and interprofessional coordination skills are crucial.
10	Putra et al., 2024	*The Relationship Between Chronic Disease Management* ... (incomplete title)	Quantitative (assumed).	(Data incomplete, likely on program effectiveness.)
11	Sanders et al., 2023	*Application of Implementation Mapping to Develop Strategies for Integrating the National Diabetes Prevention Program into Primary Care Clinics*	Implementation research.	Mapping approach improved program integration.
12	Shahid et al., 2025	*A Realist Review of Factors Critical for the Implementation of eHealth in Chronic Disease Management*	Realist review.	Success requires leadership support, interoperability, and patient literacy.

Health literacy, motivation, and social support were consistent drivers of active participation. In a Prolanis cohort, family support was the strongest predictor of activeness (OR ≈ 48), with service quality also significant (Cahyaningrum et al., 2024). Demographic and clinical characteristics interacted with preferences and program use; in China, patients under 60 years, with longer disease duration or better self-reported health, and those in chronic disease

management and insured plans were more likely to prefer and utilize community health centers (Michielsen & Laurant, 2023). Digital adjuncts combining human coaching with app-based self-management improved sleep and weight over 12 weeks in primary care, suggesting that when supportive and usable, technology can sustain engagement in behavior change (Study et al., n.d.). Program design and delivery

Programs that standardized monitoring and provided incentives showed improved medication adherence and persistence, particularly among patients who shifted care from hospitals to clinics and stayed with one clinic, highlighting the importance of continuity and a clear primary care home (Kim et al., 2012). Nurse- or coach-supported behavioral programs embedded in primary care (e.g., motivational interviewing–based coaching) demonstrated feasibility and modest clinical benefits, reinforcing the value of structured self-management support within routine workflows (Browning et al., 2015). RPM delivery strategies varied by clinic staffing, leadership buy-in, resources, patient needs, and inter-site communication; barriers included training, workflow integration, and resourcing, indicating site-level tailoring is essential for sustained utilization (Cahyaningrum et al., 2024). System-level and financing factors

Insurance membership, primary care facility use, HbA1c measurement, and physical activity were associated with active Prolanis participation and fewer outpatient visits, pointing to the reinforcing role of coverage, access to testing, and patient behaviors (Alkaff et al., 2021). In the US, DPP implementers cited low awareness, lack of standard referral pathways, and limited reimbursement as key constraints; implementation mapping emphasized EHR optimization, provider-to-provider education, and clear policies to improve referrals and adoption (Kim et al., 2012). Medicare DPP stakeholders highlighted financial reimbursement constraints and the absence of systematic EHR referral triggers, recommending adjustments to eligibility and payment, as well as persistent virtual delivery options to broaden reach (Putra et al., 2024). Care access and modality

Telemedicine exposure during the pandemic was associated with higher performance on diabetes-related testing and counseling measures compared with office-only care, suggesting remote modalities can facilitate adherence to routine monitoring when access is limited (Tao et al., 2024). Diffusion of personal health records for diabetes in primary care was limited by integration into daily processes, trialability, and perceived advantage over existing methods, underscoring that digital tools must align with clinic workflows to be utilized (Vinet & Zhedanov, 2011). Linking EHR prescriptions with dispensing claims revealed that dispensing was associated with patient, encounter, and clinic characteristics, indicating that structural and contextual factors beyond prescribing influence real-world medication use in chronic care programs (Shahid et al., 2025). Observed utilization-related outcomes

Active participation in Prolanis was associated with a reduction in outpatient visits, with engagement co-varying with insurance and primary care utilization (Alkaff et al., 2021). In Korea's CDMP, adherence improvements were concentrated among patients who shifted to and stayed within clinics, pointing to the utilization benefits of strengthened primary care continuity and clinic-based management (Gassner et al., 2022). A small Indonesian Prolanis cohort showed mixed clinical changes (e.g., triglyceride reduction) without broad metabolic improvements in the early implementation period, illustrating that program utilization does not automatically translate into short-term control across all parameters (Cahyaningrum et al., 2024). Discussion This scoping review shows that utilization of primary care–based diabetes CDMPs is driven by multi-level and interacting determinants. At the system level, insurance coverage, reimbursement design, and EHR-enabled referral workflows are pivotal: when coverage aligns with program requirements and referrals are streamlined, clinics and patients are more likely to engage (Jahan et al., 2025). Financial barriers and complex eligibility or performance-based payments can suppress availability and participation, especially in resource-constrained sites, making policy refinements and simplified referral tools key strategies to increase utilization (Putra et al., 2024). At the patient and family level, social support and perceived service quality strongly influence activeness, reinforcing the value of family-engaged models and reliable, respectful primary care services (Cahyaningrum et al., 2024).

Technology is a potent enabler of utilization when it complements rather than complicates care. Remote monitoring, virtual visits, and mobile coaching can expand access and support routine monitoring, but require staffing, leadership support, and workflow integration to be sustained (Gassner et al., 2022). Large-system data show that telemedicine can improve adherence to testing and counseling, indicating that hybrid models may help bridge access gaps and maintain engagement over time (Baughman et al., 2022). Conversely, digital tools that lack integration or clear advantage (e.g., PHRs without workflow fit) face adoption challenges, limiting their impact on program utilization (Shahid et al., 2025).

Context matters. In China, provider capacity constraints and low patient health literacy dampened treatment intensification and engagement, suggesting that workforce

development, patient education, and community-facing support are necessary complements to program design . Preferences for community health centers vary by age, education, insurance, and disease duration, so tailoring outreach and scheduling options to patient segments can improve fit and participation (Kim et al., 2012). Program outcomes tied to utilization also depend on continuity: adherence gains clustered among patients anchored in clinic-based care, while short-term metabolic outcomes in early Prolanis implementation were mixed, indicating the importance of longer-term follow-up and continuous quality improvement to translate utilization into consistent clinical gains (Cahyaningrum et al., 2024).

CONCLUSIONS

Conclusions Optimizing utilization of primary care–based diabetes CDMPs requires coordinated action across levels: align financing and coverage; embed simple, EHR-enabled referral pathways; invest in provider capacity and continuity; design family-engaged services that patients perceive as high quality; and deploy hybrid digital models that integrate into clinic workflows and meet patient preferences. Implementation strategies that address these determinants are most likely to increase enrollment, engagement, and sustained participation, and to translate utilization into better adherence and outcomes.

REFERENCES

Alkaff, F. F., Illavi, F., Salamah, S., Setiyawati, W., Ramadhani, R., Purwantini, E., & Tahapary, D. L. (2021). *The Impact of the Indonesian Chronic Disease Management Program (PROLANIS) on Metabolic Control and Renal Function of Type 2 Diabetes Mellitus Patients in Primary Care Setting*. https://doi.org/10.1177/2150132720984409

Baughman, D. J., Jabbarpour, Y., Westfall, J. M., Jetty, A., Zain, A., & Baughman, K. (2022). *Comparison of Quality Performance Measures for Patients Receiving In-Person vs Telemedicine Primary Care in a Large Integrated Health System*. 1–12. https://doi.org/10.1001/jamanetworkopen.2022.33267

Browning, C. J., Yang, H., Zhang, T., Chapman, A., Liu, S., Enticott, J., & Thomas, S. A. (2015). *Implementing a chronic disease self-management program into China : the Happy Life Club ™*. *2*(April), 1–5. https://doi.org/10.3389/fpubh.2014.00181

Cahyaningrum, I., Rosdiana, Y., & Pajojang, A. L. (2024). *Factors Influencing Active Participation in the Chronic Disease Management Program (Prolanis)*. *12*(2), 195–204.

Gassner, L., Zechmeister-koss, I., & Reinsperger, I. (2022). *National Strategies for Preventing and Managing Non-communicable Diseases in Selected Countries Literature Search of National Strategies*. *10*(February), 1–10. https://doi.org/10.3389/fpubh.2022.838051

Jahan, Y., Reichenberger, V., Mirzoev, T., & Agyepong, I. A. (2025). *Barriers and facilitators of primary care management of type II diabetes mellitus in the West African sub-region : A scoping review*. 1–28. https://doi.org/10.1371/journal.pgph.0003733

Kim, J., Kim, E., & Lee, E. (2012). *Evaluation of the chronic disease management program for appropriateness of medication adherence and persistence in hypertension and type-2 diabetes patients in Korea*.

Kirkland, E. B., Johnson, E., Bays, C., Marsden, J., Verdin, R., Ford, D., King, K., & Sterba, K. R. (2023). *Diabetes Remote Monitoring Program Implementation : A Mixed Methods Analysis of Delivery Strategies , Barriers and Facilitators*. *4*. https://doi.org/10.1089/tmr.2022.0038

Michielsen, L., & Laurant, M. (2023). *Primary Healthcare Competencies Needed in the Management of Integrated and Person-centred Care for Chronic Illness and Multimorbidity*. 1–27.

Putra, D. P., syakurah, r. a., idris, h., & flora, r. (2024). *the relationship between chronic disease management program (prolanis) for diabetes mellitus and outpatient visits diabetes mellitus patients at class c palembang hospitals in 2023*. *4*(08), 6657–6664.

Sanders, M., Perkison, W. B., Rodriguez, S. A., Velasco-huerta, F., Mathews, P. D., Fwelo, P., White, G. E., Reininger, B. M., Fernandez, M. E., & Perkison, W. B. (2023). *Application of implementation mapping to develop strategies for integrating the National Diabetes Prevention Program into primary care clinics*. *April*, 1–12. https://doi.org/10.3389/fpubh.2023.933253

Shahid, N., Parker, G., Bielecki, J. M., Rac, V., & Berta, W. (2025). A realist review of factors critical for the implementation of eHealth in chronic disease management. *BMC Health Services Research*. https://doi.org/10.1186/s12913-025-12361-0

Study, R., Ju, H., Kang, E., Kim, Y., Ko, H., & Cho, B. (n.d.). *The Effectiveness of a Mobile Health Care App and Human Coaching Program in Primary Care Clinics : Pilot Multicenter Corresponding Author : 10*. https://doi.org/10.2196/34531

Tao, X., Mao, L., Zhang, P., Ma, X., Liang, Z., Sun, K., & Peiris, D. (2024). Barriers and facilitators to primary care management of

type 2 diabetes in Shijiazhuang City , China : a mixed methods study. *BMC Primary Care*, 1–15. https://doi.org/10.1186/s12875-024-02330-7

Vinet, L., & Zhedanov, A. (2011). A "missing" family of classical orthogonal polynomials. *Journal of Physics A: Mathematical and Theoretical*, *44*(8), 1–9. https://doi.org/10.1088/1751-8113/44/8/085201