

ORIGINAL ARTICLE

Barriers of Back-referral program Implementation for Diabetes Mellitus Care in Primary Health Care Settings: A Case Study in Surakarta City, Central Java Province, Indonesia

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ABSTRACT

Introduction: Back-referral is a key component in the management of diabetes mellitus (DM) within Indonesia's health system, aiming to strengthen continuity of care at the primary level. However, its implementation remains sub-optimal in many areas. In response, the Indonesian government launched the Chronic Disease Management Program (Prolanis) in 2014 to promote integrated care in Primary Health Care (PHC) facilities, including back-referral mechanisms. **Materials and Methods:** This qualitative case study explored barriers to implementing the back-referral program for DM care among Prolanis patients in Surakarta City, Central Java Province, Indonesia. **Results:** Barriers were identified at multiple levels, including: limited hospital engagement in initiating referrals back to PHC, inefficiencies in the hospital-PHC referral process, technical issues with the digital referral system, and poor patient adherence to program protocols. **Conclusions:** Barriers to back-referral implementation were found at the patient level, provider level, and in inter-facility coordination. To improve program sustainability, clearer and more enforceable standard operating procedures (SOPs) are needed across stakeholders.

Malaysian Journal of Medicine and Health Sciences (2026) 22(3): 1-9.doi:10.47836/mjmhs.v22i3.1574

Keywords: Barriers, Back-referral program, Diabetes Mellitus, Health Staff Primary Health Care, The Indonesian National Health Insurance Institution

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by Primary Health Care (PHC) facilities (5). Prolanis is coordinated by the National Health Insurance Agency (BPJSK) and is funded through the National Health Insurance (JKN) scheme.

INTRODUCTION

Diabetes mellitus (DM) is a non-communicable disease (NCD) that affects populations worldwide (1). According to the 2023 Indonesian Health Survey, the total number of DM cases across all age groups in the country has reached 877,531 (2). By 2045, the prevalence is expected to increase by 4.7 million cases, and diabetes-related deaths could rise by more than 944,000 (3).

As a chronic condition, DM requires long-term, continuous care. Regular doctor visits, consistent management of risk factors, proper diagnosis, and timely treatment can significantly reduce complications and mortality (4). To improve long-term care for people with chronic diseases, the Indonesian government launched the Chronic Disease Management Program (Program Pengelolaan Penyakit Kronis/Prolanis) in 2014. This national program focuses on managing DM and hypertension, especially through services provided

Prolanis includes two types of referral pathways: (1) referrals from PHCs to hospitals for specialist treatment, and (2) back-referrals from hospitals to PHCs for continued care of stable patients (6). Ideally, once a DM patient's condition is stable after hospital care, they should be referred back to their PHC to continue treatment as a Prolanis participant (6). This back-referral system helps reduce the burden on hospitals, improves service efficiency, and strengthens the role of PHCs in managing chronic conditions (7,8).

Despite national implementation, the back-referral process faces several challenges. These include weak coordination between hospitals and PHCs, inefficient administrative procedures, and limited hospital willingness to refer stable patients back to PHCs (9) (10). Digital tools like the P-Care application were introduced to support Prolanis implementation and facilitate data recording and referral tracking. However, technical issues and inconsistent data reporting continue to affect

performance (11).

Other problems involve the limited capacity of some PHCs to manage stable DM patients independently, especially when referral procedures are unclear or misunderstood by PHC staff (10)(12). From the patient side, non-compliance is also a concern. Some patients skip PHC visits, prefer collecting medication directly from hospitals, or face scheduling difficulties due to work or daily routines, which makes them less likely to follow program protocols (13) (11) (9).

Although Prolanis has expanded to over 94% of districts and cities in Indonesia (8), few studies have examined how back-referral actually works in practice, especially from the perspectives of both health workers and patients at the PHC level (12)(14)(15). Most available research focuses on clinical outcomes or the hospital perspective, leaving a gap in understanding the frontline challenges in primary care settings.

This study aims to explore the real-world barriers to implementing the back-referral program for DM care at the primary care level in Surakarta City, Central Java Province, Indonesia. By focusing on the experiences of PHC staff and patients, the study contributes to a better understanding of how to strengthen continuity of care through national programs like Prolanis.

MATERIALS AND METHODS

Study setting

The research was conducted in Surakarta City, Central Java Province, Indonesia, between September 2022 and March 2023. In Indonesia, the Primary Health Care (PHC) system consists of community health centers (Puskesmas), private general practitioner practices, and primary clinics (both public and private) (16). This study focused exclusively on general practitioner clinics and primary clinics within the PHC framework. Surakarta City had 32 registered PHC facilities participating in the Prolanis DM program in 2022, comprising both public (DPP) and private clinics. These facilities served as the operational base for participant recruitment. In Indonesia's referral system, hospitals are categorized into Type A (highest level), B, and C; patients must usually be referred progressively through these levels (17).

In the Prolanis program, diabetes mellitus (DM) patients are permitted to receive hospital care for three months before being transitioned back to PHC facilities through a formal back-referral system. The Indonesian National Health Insurance Institution (BPJSK) manages data entry and patient tracking via the Primary Care (P-Care) application (11).

Research Team and Reflexivity

The research team consisted of healthcare researchers trained in qualitative methods. The primary investigator,

who conducted the interviews and FGDs, maintained a reflexive approach by regularly documenting personal biases and interpretations throughout data collection and analysis. Peer debriefings were held with independent researchers to enhance reflexivity and minimize the influence of preconceptions.

Study Design

This research employed a qualitative case study design to explore the barriers to back-referral program implementation for diabetes mellitus care at the PHC level (18). Reporting of this study adhered to the Standards for Reporting Qualitative Research (SRQR) guidelines.

Population and Sampling Procedure

The study population consisted of first level health care providers registered in the Prolanis program in Surakarta City, comprising 32 PHC facilities (15 DPP (government-managed PHCs) and 17 private primary clinics). Each facility had designated coordinators for Prolanis implementation. In addition, the study included 32 patients who were members of the Prolanis DM program and had undergone back-referral processes.

Purposive sampling was used to recruit participants based on their role and experience with the Prolanis back-referral program (19). The sample included 32 healthcare staff: 15 from DPP PHCs and 17 from private clinics, each serving as the Prolanis coordinator at their facility. For patients, 15 participants were recruited from DPP PHCs and 17 from private clinics, ensuring proportional representation across both types of institutions.

All 32 health workers met the inclusion criteria and were grouped into five focus group discussions (FGDs), with each group consisting of 6 to 8 respondents. One participant per PHC facility was selected to reflect diverse operational experiences across the city.

Inclusion and Exclusion Criteria

For healthcare staff participants, inclusion criteria were: (1) currently employed at PHCs participating in the Prolanis program, and (2) having at least one year of experience managing DM patients through the back-referral program. Staff members who had less than one year of experience or who were not directly involved in the Prolanis back-referral process were excluded.

For patient participants, inclusion criteria were: (1) registered members of the Prolanis DM program, and (2) having experienced a back-referral from a hospital to PHC within the last 12 months. Patients who were unable to provide informed consent, who had severe cognitive impairments, or who had not participated in the back-referral process were excluded from the study.

Data Collection

Data were collected using semi-structured interview guides based on a literature review and adapted from previous studies (20). The data collection included five FGDs with a total of 32 participants, consisting of 15 health staff from general practitioner clinics and 17 from primary care clinics. The participants were divided into five groups, each comprising 6 to 8 respondents. Each group includes 1 to 2 doctors or midwives and 3 to 5 health staff. In addition, in-depth interviews (IDIs) with Prolanis patients were selected from each PHC registered as a referral back program, and 32 participants were obtained.

All interviews and focus group discussions were conducted by the researcher team, who had prior training and experience in qualitative data collection and healthcare program evaluation. Interviews and FGDs were conducted face-to-face at the PHC facilities, with each session lasting between 45 and 90 minutes. Researchers had no formal supervisory or hierarchical relationship with the participants to minimize potential bias or social desirability effects. Participants were informed that their participation was entirely voluntary and that confidentiality would be strictly maintained. Written informed consent was obtained before each session, and all discussions were conducted in private settings to ensure participant comfort and ethical compliance.

All interviews and focus group discussions were conducted in Bahasa Indonesia. The audio recordings were transcribed verbatim in the original language. Subsequently, the transcripts were translated into English by bilingual members of the research team who had prior experience in qualitative data analysis to ensure the accuracy and contextual integrity of the data.

Data saturation was achieved after five FGDs and thirty-two IDIs when no new themes emerged. Data saturation was assessed continuously during data collection. Saturation was considered achieved when no new codes or themes emerged from the interviews and FGDs. In this study, thematic saturation was reached after conducting the fifth Focus Group Discussion (FGD) with healthcare staff and the thirtieth In-depth Interview (IDI) with patients, where subsequent discussions and interviews yielded repetitive information without new insights.

Thematic coding was conducted manually by the lead researcher using structured matrices developed during data immersion. Coding categories and themes were refined iteratively through regular peer discussions with two independent qualitative researchers to enhance consistency and analytical rigor. This approach ensured transparency, minimized individual bias, and allowed systematic tracking of patterns across transcripts.

Instruments for Data Collection

The key question for this research addressed ten questions, including the utilization and application of a back referral program, the DM workflow from diagnosis to back-referral program, and the efficacy of P-Care as a documentation tool. The questions also included challenges in DM service provision, the compatibility of the DM Program, and potential service enhancements. Discussion includes patient management issues, technical and non-technical barriers, and regulatory challenges. Participants also have a chance to provide additional suggestions for service development.

Data Analysis

The interviews and FGDs were transcribed verbatim, and the resulting data were analyzed using thematic analysis. Thematic analysis was selected for this study because of its flexibility in identifying, analyzing, and interpreting patterns within qualitative data. This method is particularly suitable for exploring the perceptions, experiences, and systemic challenges described by both health providers and patients in a complex program setting such as Prolanis. Compared to content analysis, thematic analysis allows for greater depth in understanding meaning across participant narratives, and unlike framework analysis, it does not require pre-determined coding structures, which was essential given the exploratory nature of this study. Following Braun and Clarke's six-phase approach, the process included familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report (21). This approach allowed the systematic identification of patterns across the dataset, ensuring the richness and depth of the qualitative findings.

Data were securely stored in encrypted digital files and accessible only to the research team. Personal identifiers were removed from the transcripts and replaced with alphanumeric codes to ensure participant anonymity. The coded data were then used for analysis, maintaining confidentiality throughout the research process.

To preserve participant anonymity while ensuring contextual clarity, all quotes from focus group discussions (FGDs) and in-depth interviews (IDIs) were labeled using a structured format. Each quotation includes the respondent's role (e.g., Nurse, Midwife, Patient), facility type and identification number (e.g., Individual Practice #20, Private Clinic #11), and the session reference (e.g., FGD 3 or IDI 24). Participant numbers were assigned sequentially based on the recruitment list, and facility identifiers were anonymized using numerical codes. This coding system allows readers to understand the informant's perspective while maintaining full confidentiality in accordance with ethical approval.

Trustworthiness

Trustworthiness in this qualitative study was ensured by addressing four key criteria: credibility, transferability,

dependability, and confirmability. Credibility was supported through data triangulation across participant groups (healthcare staff and patients), prolonged engagement with the field, and peer debriefing among independent qualitative researchers. Member checking was also conducted by sharing key themes with selected participants to validate the researchers' interpretation. Transferability was enhanced by providing a rich description of the study setting, participant characteristics, and the healthcare context in Surakarta City, allowing readers to determine the relevance of findings to other similar settings. Dependability was ensured by maintaining an audit trail that documented analytic decisions, coding steps, and theme development throughout the research process. Confirmability was addressed through reflexive journaling by the lead researcher, combined with independent review of codes and themes by two other trained qualitative analysts to minimize personal bias in data interpretation.

RESULTS

Participants' Characteristics

Table 1 provides a detailed summary of the characteristics of PHC staff, including demographic information, job roles, education levels, and responsibilities related to the Prolanis Information System. These details are crucial for understanding the composition and roles of staff in the study context.

Table 1: Characteristics of PHC Staff

Characteristics	PHC Staff (n=32)	
	mean ± SD	n [%]
Age [year-old]	33.84 ± 11.43	
Duration of work [year]	12.97 ± 7.11	
Sex		
Male		6[19]
Female		26[81]
Type of job		
Midwife		5[16]
Nurses		21[66]
Pharmacist Assistant		1[3]
Medical Doctor		5[16]
Education		
Diploma		17[53]
Bachelor		15[47]
Type of Primary Health Care		
Primary Clinic		17[53]
General Practitioner		15[47]
Responsible for Data Entry in the Prolanis Information System		10[31]
Yes		22[69]
No		

Based on the demographic results of PHC staff (Table 1), the study results show that the predominant PHC staff are female, with most staff positions occupied by nurses. The staff primarily hold diplomas, and most work in primary clinics. They are proficient in entering data into the Prolanis Information Systems.

Table 2 provides a detailed summary of the characteristics of patients with Diabetes Mellitus (DM) who participated in the study. The data includes demographic information such as age, sex, and working status, as well as education levels and the presence of comorbid conditions like hypertension, tuberculosis, renal disease, and osteoarthritis. These variables offer a comprehensive profile of the patient.

Table 2: Characteristics of Patients with DM who participated in the study

Characteristics	Patients [n= 32]	
	mean ± SD	n [%]
Age [year-old]	55.25 ± 11.87	
Duration of Diabetes Mellitus [year]	10.66 ± 8.31	
Sex		
Male		15[47]
Female		17[53]
Working status		
Working		19[59]
Not working		13[41]
Education		
Junior High School		3[9]
Senior High School		14[44]
Bachelor/Diploma Degree		13[41]
Master/Doctoral Degree		2[6]
Comorbidities		
Hypertension		16[50]
Tuberculosis		1[3]
Renal Disease		2[6]
Osteoarthritis		2[6]
None		11[34]

On average, the patients were 55 years old and had been diagnosed with DM for approximately 10 years. Notably, most of the referral patients were women, highlighting potential gender-related trends within this population.

Themes and Subthemes

The results of the Focus Group Discussions and in-depth interviews with PHC staff and patients involved in the Diabetes Mellitus (DM) back-referral program are summarized in the narrative below. The findings highlight key themes and perspectives related to the implementation and challenges of the program, providing valuable insights into its effectiveness and areas for improvement.

Overall, participants identified several obstacles to implementing the back-referral program, including hospital-level constraints to refer patients back to PHC, inefficient procedures for back-referral from hospitals to PHC for DM management, technical barriers related to information systems, and patient non-compliance with the referral program. These challenges highlight critical

areas requiring attention to improve the program's effectiveness.

Thematic analysis generated four main themes that reflect the barriers to implementing the back-referral program for diabetes mellitus in PHC settings. Each theme comprises subthemes that represent distinct challenges, supported by participant quotes. The distribution of these themes and their related Subthemes is illustrated in Figure 1.

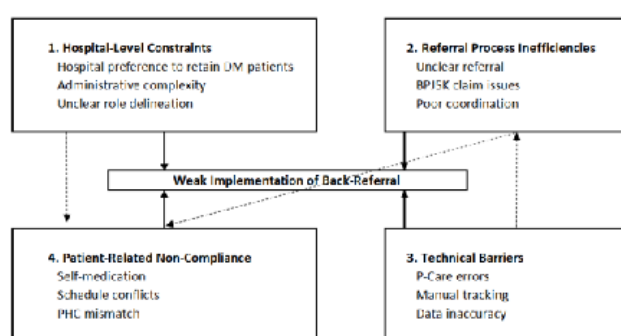


Figure 1: Thematic Map of Identified Barriers to Back-Referral Program Implementation for Diabetes Mellitus Care in PHC Settings

Figure 1 illustrates the four distinct themes that emerged from the data analysis. Each theme represents a specific domain of barriers, ranging from institutional issues (Theme 1 and 2), to technical problems (Theme 3), and behavioral challenges at the patient level (Theme 4). While the themes are presented separately, they collectively contribute to the limited success of the back-referral program implementation. The thematic map (Figure 1) also illustrates the interlinkages between themes, shown with dashed lines to indicate overlapping or interacting barriers, highlighting the dynamic and multifactorial nature of the challenges identified.

Theme 1: Hospital-Level Constraints.

This theme includes three subthemes: hospital preference to retain DM patients, administrative complexity, and unclear role delineation between hospital and PHC.

Subtheme 1.1: Hospital preference to retain DM patients

A recurring concern raised by PHC staff was the tendency of hospitals to retain diabetes mellitus (DM) patients, even when their conditions were stable and manageable at the PHC level. This preference undermines the principle of back-referral. Participants shared that hospitals often continued care despite referral flags or patient requests for return.

"The problem is that most patients can be treated at our PHCs, yet hospitals push for their return (to the hospital). This causes arguments between us and patients." (Nurse, Individual Practice P20, FGD 3)

"Referral patients should be returned, but the hospital is unwilling to do so." (Nurse, Individual Practice P30,

FGD 5)

"Patients should be referred back to us but are not being returned to the PHC. Despite having a back-referral flag status, hospitals continue to manage these patients, causing a burden." (Nurse, Individual Practice P32, FGD 5)

Subtheme 1.2: Administrative complexity

PHC staff perceived administrative challenges as a key barrier for hospitals to comply with the back-referral protocol. These included time-consuming paperwork, misaligned systems, and lack of integrated digital processes, which made it more convenient for hospitals to continue managing patients rather than coordinating referrals.

"The response from other PHC staff (in the FGD) is correct, especially for chronically passive patients. Despite informing these patients to request a referral back to our PHC, the hospital did not complete the referral process." (Nurse, Private Clinic P11, FGD 2)

Subtheme 1.3: Unclear role delineation between hospital and PHC

Several participants expressed that the lack of clear boundaries regarding the responsibilities of hospitals versus PHCs in managing chronic patients contributed to confusion. This ambiguity resulted in patients navigating between facilities for basic services, such as medication retrieval or routine monitoring.

"Patients should be referred back to the PHC once their condition improves. However, some hospitals do not comply with this protocol. Even when the patient's condition improves, and their blood is taken at the clinic, they still have to pick up their medication at the hospital, resulting in queuing twice. Then, they need to undergo a check-up and retrieve their medication directly from the hospital, which requires requesting another referral, even though they are only picking up their medications." (Doctor, Individual Practice P17, FGD 3)

Theme 2: Inefficient procedure of back referral from hospital to PHC for DM management.

Subthemes: Ambiguous referral status, Complications in BPJSK claims, and Poor coordination between PHC and hospital.

Participants reported that inefficiencies in administrative procedures disrupted the smooth implementation of the back-referral program. Issues such as unclear referral status, difficulties in claims processing with BPJSK, and communication gaps between PHCs and hospitals were commonly cited. These inefficiencies not only delayed patient management at PHCs but also created frustration among healthcare providers.

One PHC staff member described:

Our concern is that if the [referral back] status of the patient is unclear, we will be at a loss because not only we can't claim yet, [but we also cannot correctly implement the DM referral back program]. (Nurse, Individual Practice P14, FGD 2)

Another participant added:

Once, I reported it, but it was denied. The reason is that the DM referral patient has not died. However, the patient is not active because he moved to another PHC [This is what hinders the implementation of the referral program at the PHC, and the patient is the one who bears the consequences. (Midwife, Private Clinic P5, FGD 1)]

Theme 3: Technical barriers related to information systems.

Subthemes: System downtime and maintenance, Incomplete or inaccurate patient data, and Manual data tracking burden.

Technical issues with the P-Care application emerged as another critical barrier. Participants highlighted system downtime during maintenance, inaccuracies in patient records, and the need for manual verification of data, all of which hampered efficient patient management. Such technical disruptions often led to delays in service provision and increased administrative burden for PHC staff.

A PHC staff member stated:

The P-Care system sometimes has errors, but I can log in through Mozilla Firefox on the web. However, we run into problems when the central office does maintenance; we can't input data into P-Care. There was one time when maintenance lasted a whole day, so the issue is that we can't do anything once maintenance starts from the central office. [This problem significantly impacts the implementation of the DM referral program, especially when the patient needs to be referred back to the hospital and their chronic medication is running low or has run out entirely. Meanwhile, the referral letter cannot be made manually; it must come from the P-Care output]. (Midwife, Individual Practice P29, FGD 5)

Another mentioned:

The P-Care system doesn't track patient referral history. Sometimes, patients ask to be referred to other specialists even though they weren't initially. We end up having to manually check with the hospital to see which specialist the patient was referred to and why. It's a hassle because the system doesn't handle it for us. [As a result, the primary clinic has to provide a new referral for the patient to get services at the hospital]. (Nurse, Individual Practice P15, FGD 3)

Another participant added:

If there is an error in P-Care, we often have to track and record it manually. However, sometimes we cannot check whether the patient's membership is still active or

not registered at the PHC [especially if the patient is a referral back program DM; that's how we can sometimes become careless and make mistakes]. (Nurse, Individual Practice P12, FGD 2)

In addition to system-related issues, several participants noted that limited digital literacy among PHC staff, particularly in navigating the P-Care system's advanced functions, further complicated data entry and troubleshooting. This limitation often required reliance on a small number of staff with higher technical skills, creating delays when they were unavailable.

Theme 4: Patient's non-compliance regarding the referral program

Subthemes: Medication collection preferences, Scheduling conflicts with work, Mismatch between patient needs and PHC schedules.

Patient non-compliance presented a significant challenge in the back-referral program. Factors such as preferences for buying medication independently, work-related time constraints, and difficulties adhering to scheduled visits contributed to suboptimal engagement with PHC services. These behaviors not only undermined continuity of care but also complicated the administrative processes required for patient monitoring.

One patient shared:

Usually, they don't want to pick up their diabetes medication [as advised by the Internal Medicine Specialist at the hospital]; they choose to buy it themselves at another pharmacy [outside the hospital] because they don't want to queue at the hospital pharmacy. (Nurse, Individual Practice P13, FGD 2)

Another patient stated:

I work in a factory and have to commit to this job, sometimes causing me to miss appointments with the hospital doctors according to the schedule [to follow the DM referral program]. (Patient, Unemployed, IDI 6)

Another participant added:

According to the updated doctor's practice schedule, he only practices in the afternoon. Then I think, what if I need to see the doctor in the morning [because I have other business in the afternoon that makes it impossible to visit the doctor]. Especially if I need a referral back to the hospital, I would have to make time in the afternoon [There are two alternative options for patients in this situation: either adjust to the doctor's practice schedule without needing to handle the referral program, or choose to move to another primary health facility where the opening hours suit their preferences, but they would need to manage the referral program again at the new PHC]. (Patient, Driver, IDI 24)

Beyond logistical and scheduling issues, socio-cultural expectations and gender roles appeared to influence

patient adherence, particularly among women who balanced multiple household and caregiving responsibilities. Limited understanding of the back-referral process and its benefits further contributed to non-compliance.

DISCUSSION

This study identified four primary barriers to the implementation of the back-referral program for diabetes mellitus (DM) management in Surakarta City: (1) Hospital-Level Constraints to refer patients back to primary healthcare (PHC); (2) inefficient back-referral procedures; (3) technical obstacles related to information systems; and (4) patient non-compliance.

The reluctance of hospitals to refer stable DM patients back to PHC contradicts the principle of continuity in chronic disease management. Similar findings were reported in previous research, where centralized decision-making in hospitals limited the autonomy of PHCs in integrated care delivery (3). In our context, hospital hesitance may be driven by unclear incentives, administrative burdens, and concerns over treatment accountability. Strengthening coordination and implementing performance-based incentives may help align hospital practices with national referral goals.

This resistance may be influenced by multiple factors beyond administrative complexity. First, hospitals may fear being held accountable for adverse outcomes if patients are referred back prematurely. Second, as hospital income may be partially linked to patient volume or service utilization under the national health insurance scheme, there may be financial disincentives to refer stable patients away. Third, an ingrained institutional culture that favors specialist-led care and values centralized control can discourage task-shifting to PHCs. These systemic and behavioral drivers have been observed in other LMICs as well, where referral pathways are underutilized despite clear guidelines.

Inefficient referral procedures, particularly in relation to claims, also disrupt back-referral implementation. As outlined in Indonesia's Social Security Administering Body Regulation No. 7 of 2018, claims require extensive documentation (22). PHC staff in our study described delays and denials caused by ambiguous patient referral statuses. Previous studies suggest that optimizing claims data systems can improve efficiency and support the design of more patient-centered workflows (23,24). Addressing bureaucratic gaps is essential to sustain trust and functionality within the referral system.

Technical barriers, especially with the P-Care system, further hinder program implementation. P-Care is designed to streamline registration and patient monitoring (25), yet frequent system errors, maintenance disruptions, and data inconsistencies compromise its effectiveness.

These findings mirror prior research showing that system performance and digital literacy are critical for reliable digital health services (12,23). In our context, the gap in digital literacy among some PHC staff contributed to difficulties in utilizing available system features, a challenge also reported in other LMIC settings. For example, successful integration of digital health tools in countries such as Vietnam and the Philippines has been supported by targeted capacity-building programs, continuous on-site technical assistance, and peer-learning approaches. Incorporating similar strategies could strengthen the operational use of P-Care and improve data accuracy and timeliness. Improving the usability and resilience of digital platforms, supported by continuous IT assistance and staff training, can enhance program sustainability.

Patient non-compliance also emerged as a major barrier. Factors such as long wait times, rigid clinic schedules, and preferences for informal medication access often led patients to bypass the system, despite available education. Beyond these practical issues, socio-cultural expectations and gender roles, particularly the caregiving responsibilities of women who formed the majority of patients, further limited their ability to attend scheduled visits. Limited health literacy regarding the objectives and benefits of back-referral also reduced perceived necessity for PHC follow-up. This is consistent with global evidence that non-adherence in chronic care is complex and influenced by practical and psychological factors, including denial, work obligations, and low health literacy (26–28).

PHC staff in our study emphasized the importance of flexible scheduling and stronger patient-provider engagement to address these issues.

Improved communication between healthcare providers and patients is essential. Patient-centered education and shared decision-making have been shown to enhance adherence and improve clinical, psychological, and behavioral outcomes (26,29,30). Even brief, high-quality consultations can significantly improve trust and patient satisfaction (26,29). In addition, PHCs need support not only in administrative and information system capacity, but also in clinical readiness to manage stable DM cases, including ensuring medicine availability (30). Managing appointment backlogs and offering more accessible scheduling options may further support care continuity (23,30).

While this study provides detailed insights from the PHC perspective, it did not include input from hospital stakeholders or BPJSK officials. As such, barriers at higher system levels, such as referral hospital policies or national coordination mechanisms, remain outside the scope of analysis. Nevertheless, these findings offer practical directions for improving the design and implementation of back-referral programs and

enhancing DM care integration at the primary level.

These findings may be transferable to other low- and middle-income countries (LMICs) with similar decentralized health systems and national health insurance programs. Challenges such as weak inter-facility coordination, limited digital infrastructure, and uneven referral practices are common across LMIC settings, including countries like the Philippines, Vietnam, and Nigeria. Our study highlights how gaps in policy execution, health system readiness, and stakeholder alignment can hinder referral effectiveness, even when national guidelines are in place. These insights may inform broader efforts to strengthen primary care-centered chronic disease management in resource-constrained environments.

CONCLUSION

Four major barriers of the implementation of the back-referral program for diabetes mellitus care in primary healthcare settings were identified: lack of motivation among hospitals to initiate back-referrals, inefficient referral procedures, technical difficulties within information systems, and patient non-compliance with referral protocols. These findings highlight the need for stronger coordination between hospitals and PHCs, simplification of administrative referral processes, and technological improvements to support seamless patient transitions. Efforts to enhance patient engagement and education on the importance of back-referral are also critical.

Recommendations:

Policymakers should reinforce hospital adherence to back-referral policies through incentive structures and monitoring mechanisms.

Primary healthcare facilities must strengthen administrative capacity and ensure staff competency in using referral information systems.

Future research should involve stakeholders from referral hospitals and BPJSK to provide a comprehensive understanding of systemic barriers and inform more integrated intervention strategies.

Invest in patient-centered education programs and implement flexible primary health care scheduling to improve patient engagement and continuity of care.

ACKNOWLEDGEMENT

The authors gratefully acknowledge Universitas Sebelas Maret for its institutional support. The first author extends his sincere appreciation to his doctoral supervisors for their invaluable guidance and to his wife and family for their unwavering support, patience, and encouragement.

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