RESEARCH ARTICLE

Problems in continuity of care for patients with type 2 diabetes mellitus

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Abstract

Background: Continuity of care is an important attribute of healthcare. Problems are particularly common when many patients are discharged from hospitals to primary healthcare centres. However, data on problems in continuity of care for patients with type 2 diabetes mellitus were limited and inconclusive. **Objective:** This study aimed to identify problems in continuity of care in Indonesia. **Method:** This observational study was conducted from January to February 2022 in five selected primary healthcare centres (PHC) in Banjarmasin, Indonesia. Data were collected using a checklist of the patient's routine visits, care planning service and follow-up during the transition. **Result:** Thirty patients were recruited based on their risk of type 2 diabetes mellitus. Most patients (60%) did not visit the PHC routinely as scheduled, and around 37% of patient medical records were not filled due to inconsistency in the physician assigned per visit. Only six respondents received patient books concerning medication management, while the rest did not get any. Follow-ups for HbA1C testing that were supposed to be provided biannually were not conducted, and only one patient underwent routine fasting blood glucose tests every month. **Conclusion:** The continuity of care for patients with diabetes mellitus in Indonesia was lacking due to non-adherence to regular treatment, inadequate documentation and absence of follow-up services.

Introduction

When a patient moves from a primary healthcare centre to a hospital and vice versa or contacts different healthcare professionals, the patient might face a higher risk for some reasons (World Health Organisation, 2018). Handling patients by multiple healthcare professionals or facilities might result in missing and incorrect information about patient medication, changes to existing medication regimens, and a lack of patient information and documentation during the transition of care (Ellitt *et al*., 2010; Braund *et al*., 2014). In the Indonesian Health Care System, patients with chronic diseases also experience the transition of care. Initially, they receive healthcare services from a primary healthcare centre. When they are unstable or need more assistance, they will be referred to a hospital to get advanced care. When

patients are well-controlled but still need long-term medication or care, they will be reversely referred to the primary healthcare centre and included in the chronic disease control programme. Then, the patients will receive medicine and counselling from pharmacists at a community pharmacy (BPJS Kesehatan, 2014). During the transition, treatment must be maintained. Continuity of care reflects the extent to which a series of discrete health care is experienced by the patient in coherent, interconnected and consistent ways according to their health needs and preferences (World Health Organisation, 2018). Continuity of care plays an important role, especially in patients with chronic diseases who experience the transition of care. It may become one of the risk factors for loss of care, such as medication errors and medication discrepancies (Fernandes & Shojania, 2012). A study conducted by Azzi and colleagues (2014) showed that medication

discrepancies that most often occur in the transition of care for patients with type 2 diabetes mellitus are the addition of drugs that have high-risk drug interactions and unnecessary drug administration that results in uncontrolled blood glucose levels *(Azzi et al.,* 2014). An uncontrolled blood glucose level is associated with an increased risk of complications that reduce health-related quality of life (HRQoL) and increase the risk of morbidity. Complications that possibly occur include macrovascular complications (coronary heart disease and stroke) and microvascular complications (nephropathy, retinopathy, and neuropathy) (Pham *et al.*, 2020). However, in Indonesia, there are limited data investigating problems in continuity of care, particularly in people with type 2 diabetes mellitus. Therefore, this study aimed to identify problems with continuity of care in Indonesia.

Methods

Design

This observational study was conducted in five selected primary healthcare centres (PHCs) in Banjarmasin, Indonesia. The authors used medical records of adult patients (aged >18 years) with diabetes mellitus discharged from a hospital to primary healthcare centres for outpatient services for at least six months.

Assessment

Data were collected from January to February 2022 using a structured checklist to identify and categorise the primary outcomes. The primary outcomes of this study were problems in continuity of care in patients with type 2 diabetes mellitus, i.e. 1) Problems with patient's routine visits; 2) Problems with care planning service; and 3) Problems with patient follow-up and monitoring (Table I).

Table I: Categories of problems in continuity of care in this study

Categories	Subcategories	Definitions
Problem with the patient's routine visit		The patient did not visit the primary healthcare centres (PHC) routinely as scheduled.
Problems with care planning services	Inconsistency of personnel assigned to every patient	Patients did not consistently see the same physicians for each visit.
	Incompleteness and inconsistency of information	Patient medical records were not filled completely and consistently.
	Unavailability of information media	Problems were found in the use and availability of patient books concerning medication management.
Problems with patient follow-up and monitoring	Irregular monitoring of blood glucose levels	Monitoring and follow-up for the effectiveness and side effects of the medication through blood glucose testing were not conducted every month.
	Irregular monitoring of HbA1C	Monitoring and follow-up for the effectiveness and side effects of the medication through HbA1C testing were not conducted biannually.

Results

General characteristics

Thirty patients with type 2 diabetes mellitus involved in the reverse referral programme of Indonesian Health Insurance to five selected primary healthcare centres (PHC) were recruited in this study. The average age was 63 (33 to 83 years), and the average number of drugs per patient was four. Out of 30 patients in total, 53% of all patients were male.

Encountered problems in continuity of care

Most patients (60%) did not visit the PHC routinely as scheduled. From the medical records, some of them were known to have uncontrolled blood glucose levels and missed the consultation with a healthcare professional every month. This study also found problems with care planning services that consist of three subcategories (Table II), such as "*inconsistency personnel*" as the primary contributor (100%) to the problems since patients met different physicians for each visit to every PHC. Most patients in this study also received irregular monitoring of blood glucose levels (97%) and HbA1C (100%). Table II presents all the problems identified in the continuity of care.

Table II: Number and percentage of encountered problems in continuity of care (n = 30)

Categories	Subcategories	n (%)	Examples/descriptions
Problem with the patient's routine visit		18 (60)	A 51-year-old female with an uncontrolled fasting blood glucose level (468 mg/dL) visited the PHC on October 14, 2021, and then on January 21, 2022.
Problems with care planning services	Inconsistency of personnel assigned to each patient	30 (100)	All patients met different doctors at each visit because each PHC had more than one doctor.
	Incompleteness and inconsistency of information	11 (37)	A 54-year-old female received Levemir, but the dose regimen was not written in the medical record.
	Unavailability of information media	24 (80)	Based on the standard of care by the Indonesian National Health Insurance, all of the patients in the reverse referral programme should have patient books concerning medication management, but in this study, only six patients from one PHC received the books.
Problem with patient's follow-up and monitoring	Irregular monitoring of blood glucose	29 (97)	A 73-year-old male got the blood glucose testing (fasting blood-glucose level = 210 mg/dL) on October 1st, 2021, and he did not get tested again in his next visit to monitor the effectiveness of his medication.
	Irregular monitoring of HbA1C	30 (100)	Based on the standard of care by Indonesian National Health Insurance, all of the patients in the reverse referral programme were supposed to get HbA1C testing biannually, but it was not provided for the patients.

Discussion

Patient's routine visit

Regular visits can inform healthcare professionals to tailor care that matters to patients (World Health Organisation, 2018). Patient's routine visit as scheduled increases the healthcare provider's understanding of individual needs and circumstances. However, in this study, most patients (60%) did not visit the PHC routinely as scheduled. This emphasises the noncompliance issues, which leads to poor relational and informational continuity of care for patients with chronic diseases like diabetes mellitus.

Care planning service

- Consistency of personnel assigned to each patient
  Seeing the same provider over time gives benefits such as trust, mutual understanding, effective communication, adherence to treatment and patient satisfaction (Saultz & Albedaiwi, 2004). It also encourages relational continuity related to the healthcare provider's empathy associated with patient enablement to cope with life, understanding of coping skills with their illness, and confidence in staying healthy (Mercer *et al.*, 2008). None of the patients in this study met the same physician on each visit. Within various healthcare settings, such as hospitals and primary healthcare centres, ongoing relationships between patients and providers may be challenging to establish as care is provided by a diverse team of healthcare professionals, depending on their shifts. Recent studies have shown a trend in using social media to manage chronic diseases to support face-to-face consultation. A systematic review by Alfian and colleagues (2021) showed that most social media interventions influenced treatment behaviour and clinical outcomes (Alfian *et al.*, 2021). Social media use can be considered one of the solutions to overcome the inconsistency of personnel working with patients.

- Completeness and consistency of information
  Complete and consistent patient medical records bridge the patient information from one provider to another over time. It facilitates interventions and identification of people with multiple and complex health conditions (World Health Organisation, 2018). In this study, around 37% of patient medical records were not filled. Incomplete documentation of patient medication is associated with delayed initiation of treatment by healthcare professionals. It is also considered a risk factor that may lead to medication errors and patient harm (Almousa *et al.*, 2020).

- Availability of information media
  The availability of information and communication media supports the transfer and sharing of information on patient treatment among providers and settings to ensure continuity and coordination of care (World Health Organisation, 2018). However, only six patients from one PHC received the patient books as the medication documentation between specialists, general practitioners and pharmacists during the reverse referral programme.

Patient's follow-up and monitoring

Evaluating the medication's effectiveness is necessary to demonstrate whether continuity of care has been achieved (Government of South Australia, 2010). In individuals with diabetes mellitus, the effectiveness

and safety of medication should be confirmed through a structured approach to monitoring blood glucose levels, evaluating individual responses, and guiding adjustments or changes in drug dose or therapy (American Diabetes Association, 2022). This study did not conduct biannual monitoring and follow-up for the effectiveness and safety of the medication through HbA1C testing. Only one patient underwent a monthly fasting blood glucose test. Without regular monitoring and follow-up, evaluating the effectiveness and safety of continuous patient medication administered from one healthcare provider to another is impossible.

Conclusion

Continuity of care is essential to healthcare, especially for patients with chronic diseases discharged from a hospital to primary healthcare centres for outpatient services. However, the continuity of care in Indonesia might be jeopardised by patients' non-adherence to regular visits, inadequate documentation and unstandardised follow-up services.

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