

Patient preferences in diabetes care: a bibliometric analysis

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Abstract

Background: The purpose of the study was to explore patient preferences in diabetes care by analyzing network visualization, overlay visualization, and density visualization.

Main body: The study used bibliometric analysis for assessing related topics and patient preferences in diabetes care based on the repetition terms received. The data sources were based on online searches via <https://app.dimensions.ai/> collected on August 22, 2023. The literature search was restricted to publications years 2015-2023, focused on the fields of Health sciences, biomedical and clinical science, nursing, public health, psychology, human society, nutrition and diabetes. Data were analysed using VOSviewer. The type of analysis is selected to create a map based on text data, further reviewed by co-occurrence and co-authors.

From the network visualization, it was identified that there were 172 terminology items which were divided into 8 clusters with 6247 links with a strength of 34258. From each cluster, patient preferences among patients with diabetes were identified. Through overlay visualization analysis, it identified that a new topic being researched by scholars in various countries was racism toward patients with diabetes. Furthermore, in density visualization, a topic that few researchers have explored related to fulfilling patient preferences in diabetes care by maximizing telemedicine technology.

Conclusion: Patient preferences in diabetes care are necessary. If patient preferences are considered, patients will feel involved in every decision-making as a result, they will be more responsible for the behaviour changes they have to make in diabetes care.

Keywords: Bibliometric analysis, Diabetes, diabetes care, patients, preferences

Plain English Summary

From the network visualization, it was identified that the essential points of patient preferences were: a) The information that diabetes patients want to get in diabetes care were various complications due to diabetes, information on the locations of endocrinologists, any medication that does not require strict adherence to consumption, and old people's difficulty to understand any information provided by health professionals. b) Health professionals need to pay attention to diabetes distress among diabetes patients, Health professionals should prepare focus group discussions for them in the community, Patients are confused about how to change their lifestyle while the desire to eat is high, and patients need health professional provide information on diabetes care treatments during the month of Ramadan. c) Health professionals need to conduct training and health education for families, information related to CKD and heart failure needs to be provided in detail, and patients want detailed information about how to do physical activity with their different conditions. d) Patients need Telehealth, telemedicine and virtual care for consultation about self-care, medicine and treatment while at home. e) Patients hope that screening for prediabetes will be more serious to be implemented. f) Patients hope they are involved in decision-making, especially in the choice of treatment and care they receive. g) Patients need information about the risk of diabetes during their pregnancy, and obesity, and some

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patient complains of racism when they socialize with other diabetes patients and still feel that there are health professionals who behave racist towards them. h) Patients need detailed information about the side effects of the treatment they choose, and what appropriate diet choices are according to their ability to afford these foods and their availability in their respective homes. Through overlay visualization analysis, it identified that a new topic being researched by scholars in various countries was racism toward patients with diabetes. Furthermore, in density visualization, a topic that a few researchers have explored related to fulfilling patient preferences in diabetes care by maximizing telemedicine technology.

Introduction

Diabetes mellitus is a chronic disease that needs diabetes care to prevent irreversible negative health outcomes or complications (1, 2). Diabetes care involves engaging in recommended behavioural activities such as healthy diets, medication adherence, being proactive, monitoring, risk reduction, problem-solving, and healthy coping, all of which are necessary to successfully manage the disease (3, 4). However, consistency and effectiveness in diabetes care remain a challenge for patients. More than half of people with diabetes cannot control their diet; fewer than 70% of patients take medication on time and participate in physical exercise and 59.2% report that they occasionally, rarely, or never self-monitor their blood glucose (5). One out of every four patients has low compliance with diabetes care (1, 5).

Studies have mainly focused on approaches to improve diabetes care intervention and evaluation of intervention effects among the diabetes population. According to the study, diabetes self-management education (DSME) is an established approach that constitutes a vital component of the complete treatment of diabetes care (6). In DSME, a professional team supports decision-making and implementation of interventions that can actively change diabetes-specific knowledge and lifestyles, and help patients overcome treatment in diabetes care (1, 6, 7). Such interventions have been effective in improving psychosocial and clinical outcomes, increasing self-efficacy and quality of life, and reducing the risk of cardiovascular events (1). Recently, DSME has been involved in to personalized approach to become precision health care. Precision health care has an impact on improving diabetes care among diabetes patients (8, 9). In the precision health care approach, it has been explained that patient preferences are an important component that must be considered for each patient. However, patient preferences for improving diabetes care among diabetes patients have not been discovered yet. In the future study, researchers need information about patient preferences in diabetes care among diabetes patients. This is a problem that arises among researchers currently. The results of bibliometric analyses may guide future studies by determining patient preferences in diabetes care. Bibliometrics analysis is a

statistical-based approach in research that visualizes the contribution of academic institutions and changes in research hotspots (10). Bibliometric analysis is a scientific and quantitative method for assessing published, finding development trends and research hotspots from certain research fields and providing future research development for researchers (11). Bibliometric analysis helps researchers identify emerging areas and future directions of research domains with the help of visualization tools (12). Bibliometric analysis has been used by various authors to evaluate information theory listed in international databases (12).

Moreover, the bibliometric analysis enables researchers to easily obtain information about subjects of interest from numerous references of published articles. There is no bibliometric analysis of patient preference in diabetes care among diabetes patients.

The purpose of this study was to explore patient preferences in diabetes care among diabetes patients by analyzing network visualization, overlay visualization, and density visualization.

Methods

Design

There are five types of study metrics for data analysis, namely: Scientometrics, Bibliometrics, Cybermetrics, Informetrics, and Altmetrics (13). Bibliometrics analysis is more suitable for quantitatively analysing the distribution of research papers that discuss patient preferences in diabetes care. Bibliometric analysis is a research method used in library and information science to evaluate research performance (14). Bibliometric analysis is essential in assessing related topics searched based on the repetition term received (15).

Data sources

The data sources used in this study are based on online searches via <https://app.dimensions.ai/>. Data was collected on August 22, 2023. The literature search used the stages following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (16).

Inclusion criteria of articles

Paper restricted in publications years 2015-2023, focuses on the field of Health sciences, biomedical and clinical science, nursing, public health, psychology, human society, nutrition and diabetes. The article evaluated only article publication type. The book and chapter types were excluded.

Selecting data

The stages in PRISMA include identification, screening, and including as shown in **Figure 1**.

Stage 1 (Identification) detects 83,567 records from dimensions.ai, taking into account, each of the main search terms (precision health and precision medicine), “article and proceeding document type” and “all published data in the data range from 2014 to 2023. In stage 2 (screening), the option “article title, abstract” was selected in the field of each search term, resulting in 79,507 articles being excluded. In phase 3 (included), the final sample yields 4060 articles. The detail of the process is shown in **Figure 1**.

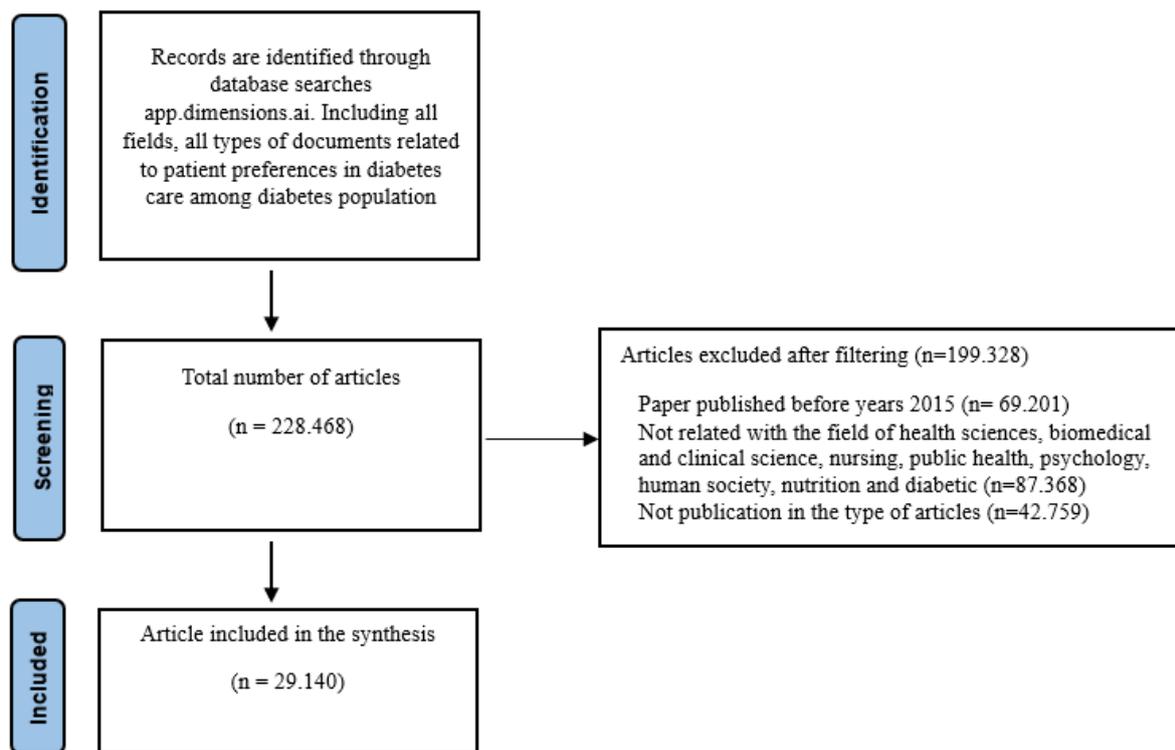


Figure 1: PRISMA Flowchart

Data analysis

Data were analysed using VOSviewer. VOSviewer is a computer program for creating and viewing bibliometric maps (17). The type of analysis is selected to create a map based on text data. In this study, the analysis was reviewed by co-occurrence and co-authors.

Co-occurrence procedures

The procedure for co-occurrence analysis goes through the following stages: The data source is selected, read data from references manager files. Choose fields selected fields from which terms will be extracted are title and abstract fields. The counting method is selected full counting. The threshold is selected the minimum number of occurrences of a term is 10. Choose a number of terms 133.

Co-authors procedures

The procedure for co-author analysis goes through the following stages: Choose the type of data: Create a map based on bibliographic data. Choose this option to create a co-authorship map based on bibliographic data. Choose data source: Read data from reference manager files. Supported file type: ris. Choose the type of analysis and counting method: the type of analysis is co-authorship and the counting method is full counting. Choose threshold: the maximum number of documents of an author is 2. Of the 2624 authors, 49 met the threshold. Choose the author: For each of the 49 authors, the total strength of the co-authorship links with other authors will be calculated. The authors with the greatest total link strength will be selected. The number of authors to be selected is 49.

patients with diabetes and different health providers might be used to carry out brief deductive instruction. patient understanding of CKD and heart failure will be improved by health education such as quick deduction instruction. A specific treatment plan for patients must be highlighted as part of self-management. In self-management physical activity with their different conditions is one of the basic things that must be given to patients and families (33). It emphasizes precise problem-solving and minimizes unneeded interventions. For health literacy to be effective, this understanding must be verified and clarified. In addition, early screening for pre-diabetes is also needed to prevent the incidence of diabetes, especially in the family of patients with a history of diabetes (34). Aiming to improve health outcomes, screening asymptomatic persons for type 2 diabetes and prediabetes may enable earlier detection, diagnosis, and treatment. Clinicians should think about screening people from groups with disproportionately high incidence and prevalence at a younger age. When fasting plasma glucose is measured, prediabetes can be identified. Prediabetes is indicated by fasting plasma glucose levels between 100 and 125 mg/dL (5.55 to 6.94 mmol/L), an HbA1c level between 5.7% and 6.4%, or a 2-hour postload glucose level between 140 and 199 mg/dL (7.77 to 11.04 mmol/L).

The existence of technology such as telehealth and telemedicine or virtual care to monitor patient conditions or serve for consultation is needed (31, 35). Telemedicine allows patients to receive medical attention when it is convenient for both the doctor and the patient while remaining safe. This could mean that a person is not required to take time off work. The existence of technology has been proven to be able to help patients more easily and efficiently in obtaining information (35, 36). Going to the doctor's office requires sitting in close quarters with other people, which might lead to illness. This is especially dangerous for persons with chronic medical conditions. Telemedicine service providers' overhead charges could be reduced. Clinicians may discover that telemedicine supplements their revenue by allowing them to care for additional patients. With the existence of technology in telemedicine or telehealth, patients and their families will find it easier to make decisions about the most suitable treatment through virtual consultation (35).

Another preference that health professionals are expected to immediately address is the problem of racism that still exists among the community and health professionals (37). From the literature, Hispanic/Latinx, Black/African American, Asian, and Native American/Alaska Native patients are

less likely to participate in diabetes care management, whether self-directed or provided by a clinician, with some Asian identities having poorer diabetes management than other minoritized populations (38). Racism is very disturbing to a person's psychological condition so it will also have an impact on health status (39). Poor management can be attributed to both clinician and patient variables. Clinicians' management of diabetic patients is influenced by cultural differences, time constraints, and insufficient staff assistance, whereas patients' adherence to diabetes treatment is influenced by distrust in the healthcare team and system, cultural differences, and language obstacles (38). According to the research, health professionals and medical institutions should implement programmatic changes such as cultural competency training for clinicians, expanding healthcare teams through the integration of community health workers and allied health professionals, and providing culturally and linguistically appropriate medical care (40, 41). Disparities in diabetes treatment and management will persist for persons of colour until tailored medical care is maximized for all patients (42).

Conclusion

Patient preferences are a determinant in the choice of medication and care. From the network visualization, it was identified that the essential points of patient preferences were: a) The information that diabetes patients want to get in diabetes care were various complications due to diabetes, information on the locations of endocrinologists, any medication that does not require strict adherence to consumption, and old people's difficulty to understand any information provided by health professionals. b) Health professionals need to pay attention to diabetes distress among diabetes patients, Health professionals should prepare focus group discussions for them in the community, Patients are confused about how to change their lifestyle while the desire to eat is high, and patients need health professional provide information on diabetes care treatments during the month of Ramadan. c) Health professionals need to conduct training and health education for families, information related to CKD and heart failure needs to be provided in detail, and patients want detailed information about how to do physical activity with their different conditions. d) Patients need Telehealth, telemedicine and virtual care for consultation about self-care, medicine and treatment while at home. e) Patients hope that screening for prediabetes will be more serious to be implemented. f) Patients hope they are involved in decision-making,

especially in the choice of treatment and care they receive. g) Patients need information about the risk of diabetes during their pregnancy, and obesity, and some patient complains of racism when they socialize with other diabetes patients and still feel that there are health professionals who behave racist towards them. h) Patients need detailed information about the side effects of the treatment they choose, and what appropriate diet choices according to their ability to afford these foods and their availability in their respective homes. Therefore, patient preferences are expected when determining the appropriate intervention for a patient. Through overlay visualization analysis, it identified that a new topic being researched by scholars in various countries was racism toward patients with diabetes. Furthermore, in density visualization, a topic that a few researchers have explored related to fulfilling patient preferences in diabetes care by maximizing telemedicine technology.

List of Abbreviation

CKD:	Chronic kidney disease
DSME:	Diabetes self-management education
PRISMA:	Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Declaration

Ethics approval and consent to participate
Not applicable.

Consent for publication

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Availability of data and materials

The articles used in this study are publicly available.

Conflict of interest

The authors declared no conflict of interest.

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Authors' contributions

Conceptualization and data interception: All authors; Study design, writing the original draft

and data evaluation: PS; Supervision: WSFV; Final approval: All authors.

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