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Integrating artificial intelligence in community-based diabetes care programmes: enhancing inclusiveness, diversity, equity and accessibility a realist review protocol

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ABSTRACT

Introduction Marginalised populations—such as racialised groups, low-income individuals, newcomers and those in rural areas—disproportionately experience severe diabetes-related complications, including diabetic foot ulcers, retinopathy and amputations, due to systemic inequities and limited access to care. Although community-based programmes address cultural and accessibility barriers, their isolation from mainstream healthcare systems leads to fragmented care and missed opportunities for early intervention.

Artificial intelligence (AI)-powered technologies can enhance accessibility and personalisation, particularly for underserved populations. However, integrating AI into community settings remains underexplored, with socioethical concerns around inclusion, diversity, equity and accessibility requiring urgent attention.

This realist review aims to examine how, why and under what circumstances AI applications can be effectively integrated into community-based diabetic care for marginalised populations. The review will develop a programme theory to guide ethical, inclusive and effective AI implementation to ensure AI-driven innovations address health disparities and promote culturally sensitive, accessible care for all.

Methods and analysis Using the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) extension for Reviews guidelines, this realist review will systematically search MEDLINE, Embase, CINAHL, Cochrane library, Google Scholar and Scopus, alongside grey literature. A two-stage screening process will identify eligible studies, and data extraction will use a developed tool. Synthesis will employ realist logic, analysing relationships between contexts (eg, organisational capacity), mechanisms (eg, AI functionalities) and outcomes (eg, reduced disparities).

Ethics and dissemination Ethics approval is not required for conducting this realist review. Ethics approval will be obtained from the University of Toronto; however, following the completion of the realist review for patients and community members' engagement to support knowledge mobilisation and dissemination to ensure practical application and reciprocity.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Realist review is an appropriate design methodology to understand how, why and under what circumstances artificial intelligence applications can be effectively integrated into community-based diabetic care for marginalised populations.
- ⇒ Our literature search includes six databases, MEDLINE, Embase, PsycINFO, ERIC, Google Scholar and Scopus, as well as unpublished grey literature.
- ⇒ The search strategy is developed with the support of a scientific research specialist with experience in literature searching.
- ⇒ An anticipated challenge will be to capture the variability of presented methods in a logical sequence and identify common characteristics across methods.
- ⇒ Excluding non-English studies may introduce language bias, overlooking significant findings in other languages.

PROSPERO registration number This protocol was registered at PROSPERO (CRD42025636284).

BACKGROUND

Diabetes mellitus is one of the most prevalent chronic diseases in Canada, affecting approximately 5.7 million individuals and costing an estimated $30 billion annually.[1–3] Type 2 diabetes accounts for 90%–95% of these cases and is associated with significant disability, including blindness, kidney failure and non-traumatic amputations. Diabetes is also the seventh leading cause of death among Canadian adults.[1,2]

Systematically marginalised populations, including racialised groups, low-income individuals, newcomers, people living in isolated or rural areas and those experiencing homelessness, disproportionately bear the burden of diabetes and related complications.[4 5] While these groups are not homogeneous and each faces distinct barriers shaped by unique cultural, historical and sociopolitical contexts, we adopt a broad definition of 'systematically marginalised' to reflect their shared structural disadvantage of being marginalised by a healthcare system structured around a standardised model of care. This model often fails to accommodate the diverse priorities, contexts and available resources and preferences of populations that fall outside dominant social norms, contributing to systemic disparities in access, quality and outcomes of care.

These systematically marginalised populations experience higher rates of diabetic-related complications, including diabetic retinopathy, foot ulcers (diabetic foot ulcers (DFUs)) and amputations, compared with the general population.[5 6] DFUs are among the most severe complications of diabetes, responsible for nearly 70% of non-traumatic amputations and doubling mortality rates compared with other diabetic complications.[5–7] Although regular screening can prevent these complications, systemic inequities—such as poverty, food insecurity, discrimination and limited healthcare access—result in delayed care and higher amputation rates within these communities.[8] Compounding these challenges, shortages of culturally competent care providers and the failure to address cultural oppression, socioeconomic disparities and racism further distance high-risk groups from preventive services.[8 9]

Recognising these inequities, community-based programmes have emerged to improve diabetes-related complications prevention, screening and management in marginalised populations.[9] These programmes emphasise cultural safety, inclusivity and adaptability, addressing unique community priorities, contexts and available resources through culturally relevant nutrition, exercise and disease management education.[10] By offering flexible delivery methods, such as mobile clinics and telehealth, these programmes prioritise accessibility while fostering trust through the involvement of community educators and advocates. Services typically include screenings, education and support for social determinants of health, empowering individuals to manage their care effectively and reduce the overall burden of diabetes.[9 10]

Rationale

While community initiatives excel at addressing cultural preferences and fostering trust, they often remain isolated from mainstream healthcare systems, leading to fragmented care.[11 12] This disconnect results in missed opportunities for early intervention and a lack of care continuity.[11] For example, a patient may receive culturally tailored diabetes education and proper prevention, including screening and risk stratification through a community programme, but lack timely access to medical interventions provided in mainstream healthcare if advanced care is needed, or vice versa. The separation of these systems—operating with independent workflows, databases and communication channels—limits data sharing and collaboration and hinders a holistic understanding of patient priorities, contexts and preferences.[11–13] Consequently, patients from marginalised groups face delays in diagnosis, suboptimal treatment outcomes and worsening health disparities.

The broader healthcare system also operates in silos, with minimal coordination across levels of care. Marginalised populations, in particular, experience long wait times, barriers to specialist referrals and reduced access to care in remote areas.[12 13] A unified system seamlessly connects preventive, primary and specialised care, enabling providers to coordinate services effectively and track patient progress in real time.[12]

Given the complex nature of diabetes, innovative interventions are essential to facilitate early detection, risk stratification and timely care. Artificial intelligence (AI) applications can offer transformative potential for diabetic care by enhancing early detection, enabling risk prediction and optimising care pathways.[14] AI-powered applications, including deep learning and machine learning, can analyse large datasets, identify patterns and flag early signs of complications, allowing for timely intervention and prevention of DFUs and amputations.[14 15] Emerging technologies like triage algorithms for patient prioritisation can further improve healthcare accessibility, particularly where services face long wait times.[14 16] AI-driven systems also offer real-time monitoring, clinical prioritisation and remote consultations, enhancing feasibility and convenience for both patients and providers. For marginalised communities facing structural determinants of health-related barriers to access and culturally competent care, these advancements offer a glimmer of hope. Telemedicine, bolstered by AI-driven technologies, has emerged as a catalyst in bridging geographical gaps in healthcare access. Remote and underserved populations, often isolated from quality healthcare, stand to benefit from remote consultations, diagnostic services and continuous monitoring facilitated by AI.[15 17] Additionally, AI-powered decision support systems equip healthcare providers with nuanced insights, enabling the delivery of culturally sensitive care that respects diverse patient backgrounds and preferences.[14 16 17] These innovations reduce costs and travel burdens for patients while delivering high-quality, personalised care.

Despite these promising advancements in AI-driven healthcare applications, a clear understanding of the contextual factors, mechanisms and outcomes that influence the implementation of AI in diabetes care, particularly within community settings serving marginalised populations, remains lacking.[18] This knowledge gap raises novel socioethical considerations for individuals and society as a whole, which need to be appropriately addressed to ensure that AI applications are widely adopted and benefit all patients. The pervasive presence and wide-ranging variety of AI systems used in healthcare underscore the necessity for considering inclusivity and diversity in their design and implementation to effectively address critical issues of fairness, trust, bias and transparency.[18 19] Ignoring inclusion, diversity, equity and accessibility (IDEA) in AI systems can exacerbate the exact biased conditions it can otherwise mitigate. Biases entrenched in historical data might inadvertently perpetuate inequalities if encoded into AI algorithms, potentially exhibiting disparities in accuracy, diagnosis or treatment recommendations across different population groups.[18] It can cause digital redlining, discrimination and algorithmic oppression, ultimately rendering AI applications unsuitable for marginalised groups. Consideration of IDEA aims not only to prevent biases but to also ensure diverse representation and target social equity and inclusivity.

RESEARCH QUESTIONS, OBJECTIVES AND OUTCOMES

To address this gap, this realist review protocol aims to explore how, why and under what circumstances AI applications can be successfully integrated into diabetic screening delivered by community organisations serving marginalised populations. This review will provide insights into AI applications' relevance and impact on individuals with diabetes, especially those from marginalised groups, their families, caregivers and care providers. These findings are vital for raising awareness and guiding future practices that integrate AI ethically and effectively into diabetes care in community settings.

The primary goal is to develop a programme theory (PrT) that offers insights into the unique social, cultural and environmental factors affecting AI integration in community-based organisations serving marginalised groups. Understanding what works, for whom and under what circumstances allows for the replication of effective strategies in other contexts. This can lead to the development of best practices that are culturally appropriate and more likely to be effective. The findings of the realist review can provide policy makers with a robust evidence base to justify and guide investments and support the development of guidelines and standards that reflect the best practices identified in community-based programmes and the provision of more equitable and diverse diabetes-related complication services.

Additionally, the review seeks to identify the mechanisms that contribute to the success of AI technology in these settings and inform policies that ensure continuous support for marginalised groups. The findings can guide mechanisms on how to embed IDEA principles into the development and implementation of AI applications, as it is crucial for fostering inclusive and equitable healthcare practices, mitigating biases and expanding accessibility. The findings from this review can also guide investments in AI technology for diabetes care and support the development of guidelines that reflect best practices identified in community-based programmes, ultimately promoting more equitable and diverse diabetes-related complication services that reflect broader societal values. Future accounts of the infancy of diabetes AI must reflect our early and decisive action to confront ethnoracial inequities before they are coded into our systems and perpetuate the very biases we aim to eliminate.[18 20] If we take deliberate and meaningful steps now towards training our algorithms to be ethnoracially inclusive, we can architect innovations in diabetes care that are bound by the diverse fabric of our society.[18 21]

Research questions include

1. What is the nature and content of the AI applications and technology used, the target population, the services provided and the care pathway embedded in the processes involved?
2. What are the key theories and assumptions underlying these applications?
3. How can AI improve diabetes-related complications prevention, screening and management in community-based organisations?
4. How do contextual factors, such as cultural beliefs, social structures and healthcare infrastructure, influence these applications' design, implementation and outcomes?
5. What mechanisms are activated within these applications that may impact diabetes-related complications and health outcomes in marginalised populations that drive successful integration and positive outcomes?
6. What are the outcomes or indicators of success for these applications and how were they selected—(patient-reported outcomes (PROMs) and patient-reported experiences (PREMs))?
7. What is the impact of integrating AI or using AI applications on IDEA?
8. What are the facilitators, successes, challenges and barriers to AI adoption in underserved settings?
9. What are the funding models and sustainability-related strategies?

Objectives include

1. To identify and synthesise evidence on AI applications for diabetes-related complications prevention, screening and management in marginalised populations, screening, diagnosis and management in community-based settings.
2. To explore the contextual factors that influence the adoption and implementation of AI in underserved communities.
3. To understand the mechanisms through which AI applications improve diabetes-related complication services outcomes in these settings.
4. To identify the outcomes of integrating AI into diabetes-related complication services, focusing on health equity, inclusiveness and diversity as well as accessibility and effectiveness.

Outcomes include

1. A detailed understanding of how AI can be tailored to meet the priorities, contexts and available resources and preferences of underserved communities in

diabetes-related complications prevention, screening and management.
2. Identification of best practices and key considerations for implementing AI in community-based organisations.
3. Recommendations for policy makers, practitioners and researchers on integrating AI to promote health equity in diabetes management.

METHODOLOGY

Realist review approach

We will employ realist synthesis principles as a foundation to underpin the process of data collection and analysis.[22] The research team will follow the current quality and publication standards for realist reviews outlined by the realist and meta-narrative evidence synthesis (RAMESES) group.[23] This protocol was registered at PROSPERO (CRD42025636284). We expect to start this review at the beginning of May 2025 and end by May 2026.

Why a realist review?

The integration of AI applications and the use of technology in diabetes-related complications care demand multifaceted mechanisms. These applications are situated within complex systems and are significantly influenced by the social, political, historical and cultural contexts.[24] Recognising the interactions of these diverse contextual factors, it is essential to understand how AI-driven diabetic care programmes function and how they produce varying outcomes across different populations and settings.[24]

Therefore, the team will adopt a realist approach that is grounded in realist philosophy[22] to appropriately address this complexity. This perspective challenges the assumption that outcomes are the result of a linear and simple interaction between an intervention and its effects. Instead, the realist perspective acknowledges that multiple causal mechanisms operate simultaneously and interact differently, resulting in a range of different outcomes depending on the various contexts.[22] Through the realist review, the research team will use a context, mechanisms and outcomes (CMO) framework.[25] This approach will allow for examining these complex social programmes, exploring the theories that underpin the intervention being studied and providing an explanatory analysis of what works, for whom, in what circumstances and why these applications are successful in some settings. Our approach will also include a rigorous data extraction that emphasises not only outcomes but also the context in which interventions are implemented. Furthermore, studies will be assessed for both methodological rigour and explanatory depth, with particular attention to how well they illuminate the mechanisms at play in marginalised settings. By integrating this enhanced analytic approach, the realist review aims to move beyond simple effectiveness measures to generate explanatory insights about what works, for whom, in what contexts and why. This depth of analysis is particularly crucial for community-based AI-driven interventions for marginalised populations, where context is a dynamic factor in shaping intervention outcomes (De Weger *et al*, 2020).

Using a realist approach will also produce an effective review specifically for marginalised groups. For years, research has failed to recognise diverse perspectives, leading to deep mistrust and further annihilation of different racialised groups. Previous evaluations have used practices that are often culturally insensitive and frequently impose views from a common dominant white male. In contrast, a realist approach provides a 'real world' review.[26–28] The attention to social, historical, cultural and ecological factors highlighted in the realist approaches is consistent with the philosophies of living a good life in many cultures.

Realist methodology also aims to understand the broader context, with an emphasis on recognising and respecting the inter-relations between all aspects of the person, the community and the environment. Although realist reviews may initially seem rooted in Western culture, they align with IDEA. It takes into account intersectionality and multifactorial or holistic models.

The methodology used in realist reviews is well suited to incorporate culturally relevant, respectful and participatory research approaches. Realist reviews, for instance, prioritise community engagement, which can serve as a means to integrate IDEA throughout the process.[28 29] This approach ensures that Western research methodologies are applied in ways that uphold antioppressive values, empower communities and respect diverse knowledge and practices.[29] It also ensures that the different contexts, ways of knowing and concepts of health and well-being are considered within the review and that outcomes reflect the values of the diverse communities.[24 26]

The realist review approaches also adopt a strengths-based approach that is concerned with reducing the risk of negative stereotyping inherent in public health approaches that focus on deficits and problems.[30] Realist approaches provide the opportunity to paint a full picture of both the strengths and successes as well as challenges and gaps. By adopting realist approaches, this review seeks to strike a balance between avoiding the reinforcement of negative stereotypes about marginalised communities while also acknowledging the real gaps and specific health inequities that demand attention.[30]

Process

The process will include six steps (see figure 1).

Step 1: develop an initial programme theory

For this realist review, an initial PrT will be developed to act as a theoretical framework to guide the review process. This initial PrT will be refined as the review progresses.

Our initial PrT will be mainly founded on the Equity Diversity Artificial Intelligence (EDAI) framework. In this framework, researchers categorised the IDEA indicators in healthcare into three interconnected, inter-related context levels: individual (micro level), community (meso

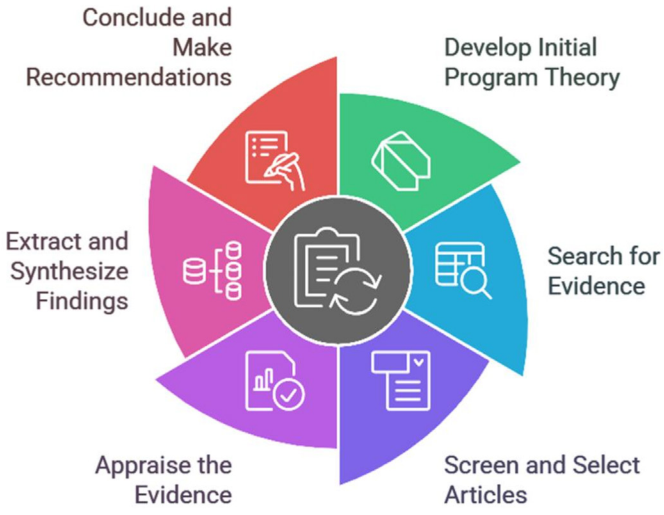

Figure 1 Realist Review Process

level) and society (macro level).[31] The EDAI framework acknowledges that the integration of IDEA in AI demands a multifactorial approach. The micro level comprises smaller entities like individuals or families and their interactions. The meso level involves groups or communities or organisations and their interactions. The macro level encompasses broader systems, such as policies or government structures at institutional, national or international levels and their interactions.

In this framework, mechanisms are stratified at each level.[31] For example, at the micro level, IDEA encourages the consideration of sociodemographic factors (including age, gender, residence, socioeconomic status and marital status); sociocultural factors (such as race or ethnicity, religion, health literacy, cultural or traditional practices, immigration or acculturation and family or peer or community-based influences) and psychobiological factors (including their health beliefs, attitude, emotions, self-esteem and perceived health status).[31] At the meso level, the framework emphasises health systems fostering the integration of IDEA within the lifecycle of AI in healthcare while considering the provision of a culturally safe environment for patients and care providers and ensuring the presence of proficient professionals. Community infrastructure also needs to be considered while working on AI-IDEA to have a better representation of all community members irrespective of physical location, rurality or remoteness, representativity and accessibility.[31] At the macro level, however, the framework focuses on intersectionality that can aid in understanding the complex interactions of various factors at micro and meso levels, thereby striving to achieve healthcare equity.[31] The framework also underscores decolonisation during the integration of IDEA within the development of AI by minimising the impact of settler colonialism, racism and discrimination and acknowledging the historical injustices and systemic inequalities that have impacted marginalised communities.[31]

Considering these mechanisms, the expected outcomes can include increasing awareness of IDEA principles, thereby reducing inherent biases and ensuring that development teams are diverse and inclusive, leading to more equitable and effective AI solutions in healthcare. This framework can also optimise resource allocation and patient scheduling to prioritise accessibility and minimise disparities in care delivery. Furthermore, this framework can guide the development of AI tools for patient education and engagement, ensuring that materials are culturally relevant and accessible to all, thereby improving health literacy and patient autonomy across diverse communities.

Step 2: search for the evidence

Following the creation of the initial PrT, an information specialist in collaboration with the team will conduct a comprehensive search of the literature in multiple research databases, including MEDLINE, Embase, CINAHL, Cochrane library and Scopus along with relevant sources of grey literature Google Scholar, including issue papers, conference proceedings, research or organisational reports and theses. The search strategy will include a comprehensive set of terms to describe the population of interest and the intervention.

The research team will codesign, pilot and refine the search strategy with the input of an experienced information specialist. As the search for evidence in a realist review is iterative, the search may be progressively extended and refocused as the review evolves. Additional searching may be undertaken in response to new information requirements identified until the project team has obtained sufficient data ('data saturation') to conclude that the refined PrT is coherent and plausible.

Step 3: screen/select articles

All retrieved citations from the searches will be exported to an EndNote library. The first author will screen titles and abstracts for eligibility against inclusion and exclusion criteria (table 1). The full texts of potentially eligible articles will be retrieved and screened. A timeline sheet in Excel will record search activities, including the databases searched, the date of each search and the number of articles found, selected and excluded. A random sample of 20% of articles will be screened in duplicate at each stage by another member of the project team. Disagreements will be resolved through discussions. This method has been repeatedly used for article selection in multiple peer-reviewed realist review publications[9 32 33] that ensure consistency in the application of the inclusion criteria.

Step 4: appraise the evidence

The included evidence will be appraised for relevance and rigour using a 'fitness for purpose' approach,[34] following the criteria outlined in the RAMESES (realist

Table 1 Inclusion/exclusion criteria

Study characteristics	Inclusion criteria
Language	English
Status	Published peer-reviewed and grey literature.
Dates	No restrictions
Design	RCTs, cluster RCTs, all quasi-experimental and observational designs (including cohort, cross-sectional and longitudinal studies), case series and case reports and qualitative studies.
Settings	Community-based programmes or community-based organisations
Population	Underserved populations or marginalised groups, including low-income groups, ethnic minorities, rural and remote communities and those experiencing homelessness
Intervention	Community-led diabetic preventive and primary care programmes, including screening, risk stratification, education or wound care targeting marginalised communities using artificial intelligence (AI) applications, including machine learning, digital health, telemedicine, mobile applications for self-management, smart devices, predictive population risk stratification algorithms, automated patient charts, sensors or AI models for diabetic foot/eye monitoring, telemedicine and digital platforms.
Measures	Both quantitative and qualitative measures.
Outcomes	Satisfaction with care, the experience of care, awareness, knowledge and quality of care. Care utilisation, screening, referral or amputation rates.
Exclusion criteria	
► Articles that do not provide information on programme mechanisms, contextual factors or outcomes. ► Duplicates, conference abstracts, cost-effectiveness analyses or economic evaluations, as well as protocols of studies and reviews. ► Studies focused solely on hospital or specialist care settings. ► Articles not addressing underserved populations.	

RCTs, Randomized Controlled Trials.

and metanarrative evidence synthesis group) Quality Standards for Realist Synthesis.[23]

Step 5: extract and synthesise evidence

We will extract the key characteristics of each included article into an Excel spreadsheet. The key characteristics will include quantitative data being focused on context and outcomes and qualitative data based on generative mechanisms.

A. Quantitative data
- Programme design and context
- Targeted underserved or systematically marginalised populations
- Type of the intervention, duration and focus
- Outcomes reported

A. Qualitative data
- Frameworks, contexts, theories or models adopted or reported by authors
- Mechanisms postulated by authors to explain the success or failure of the intervention. Existing diabetes-related complications care facilitators and challenges or barriers.
- Priorities for future service changes or modifications

The research team will consider relevant data first on a study-by-study basis in terms of the interaction between CMO and then across the different studies to detect patterns and idiosyncrasies. Data synthesis will involve the use of a realist logic of analysis or realist evaluations of the data that appreciate the importance of contextual factors in mediating the success or failure of complex interventions. We will analyse relationships between contexts (eg, organisational capacity, population characteristics), mechanisms (eg, AI functionalities, user engagement) and outcomes (eg, improved screening rates, reduced disparities). As such, the realist review will provide the chance to understand what works, for whom, in what respects, to what extent and in what contexts interventions would succeed or fail to further inform and guide the refinement of the initial PrT.

Synthesis of the data will be conducted through an iterative process of reasoning guided by the research questions and objectives of the review and structured as follows: Qualitative data will be uploaded to NVIVO (a qualitative data analysis software). Relevant data will be coded to identify CMO configurations.[25] Coding will be deductive (informed by the initial PrT), inductive (coming from the data within included documents) and retroductive (where inferences are made about underlying causal processes or mechanisms). We will also use thematic synthesis and narrative analysis to identify patterns and generate insights. Quantitative data will be analysed using appropriate methods for analysing quantitative data.

Patient and public involvement

Patient and community engagement is a cornerstone of this realist review protocol, ensuring that the perspectives, priorities, contexts, preferences and experiences of marginalised communities are central to the research process.[28] The success and sustainability of community-led programmes for diabetes are deeply intertwined with the active involvement of the communities they serve. As such, this review will prioritise engagement with both patients and community stakeholders throughout the research process.

To ensure cultural appropriateness and responsiveness, the team will establish a partnership with representatives of community-based organisations, meeting regularly from the start to guide the process, ensuring that it aligns with their priorities for diabetes-related complication care programmes and health outcomes. Throughout the review, the team will also conduct consultation with community members, people with living experience, staff and healthcare providers. These consultations will be integral to understanding their experiences, challenges and successes. This collaborative approach will respect their worldviews, values and health practices while addressing local realities and challenges. It will also create feedback loops to provide continuous updates and feedback.

Step 6: conclude

Once the team confirms the findings and reaches a consensus with the community representatives, the research team will then compare the evidence with the initial PrT. The contexts in which mechanisms did or did not support the initial PrT will also be determined. The team will then use the findings to modify the initial PrT to explain (a) how and why AI applications in community-based diabetes-related complications care programmes cause change and generate outcomes within particular contexts and (b) which contextual factors mediate the outcomes and how, when and for whom these factors influence outcomes.

ETHICS AND DISSEMINATION

Ethics approval is not required for conducting this realist review. Ethics approval will be obtained from the University of Toronto Research Ethics Board following the guidelines in the revised Tri-Council Policy Statement in Canada, following the completion of the realist review for patients and community members' engagement to support knowledge mobilisation and dissemination to ensure practical application and reciprocity. The team will also develop a comprehensive report that includes visual representations of data for easier understanding. To ensure reciprocity, the team will organise a 1-day knowledge-sharing event to present the results to the participating communities in a culturally sensitive manner and disseminate the report in the form of presentations to stakeholders and peer-reviewed publications.

DISCUSSION

This realist review protocol examines how, why and under what conditions AI applications can be effectively integrated into diabetes-related complications care within community organisations serving marginalised populations. It aims to develop a PrT that identifies the social, cultural and environmental factors influencing AI adoption, ensuring culturally appropriate and sustainable implementation. The review will explore mechanisms for successful AI integration, embedding IDEA principles to mitigate biases and promote inclusive healthcare. The review is integral to understanding and improving health policies for AI applications in community settings. The review can help optimise the services provided and inform decisions about policy of support, funding and sustainability. It can also provide insights into the population-specific health impact and relevancy and provide recommendations on how to maintain and sustain these applications. This exploration will also contribute valuable insights to healthcare professionals, policy makers and community leaders working towards enhancing AI applications within community-based initiatives. The review will provide the information and theory needed to develop a successful AI application in community healthcare settings, aiming to optimise diabetes-related complications care for marginalised communities. It will provide all stakeholders with a rich, detailed and highly practical understanding of these complex interventions and why they may or may not work in specific contexts and populations. An anticipated challenge to our protocol, however, will be to capture the variability of presented methods in a logical sequence and identify common characteristics across methods. Excluding non-English studies might also introduce language bias, overlooking significant findings in other languages.

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