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Title

Barriers and facilitators to type 2 diabetes management in the Caribbean region: a systematic review protocol

Review objective

The objective of this systematic review is to summarize the barriers and facilitators to type 2 diabetes management in the Caribbean region.

Introduction

Type 2 diabetes mellitus (T2DM) is a chronic metabolic condition where the pancreas is unable to produce sufficient amounts of insulin or the body is unable to use insulin effectively. As a result, there are high blood glucose levels in the body. T2DM is a type of diabetes that affects approximately 85% of people with the disease (diabetes).[1] It is usually diagnosed in adults.[2]

Global prevalence of T2DM

Globally, around 422 million adults were diagnosed with T2DM in 2014; the number has doubled since 1980.[3] As a result of this increasing trend, it is quickly becoming an epidemic in some countries.[4]

Risk factors for T2DM

Some commonly known risk factors for T2DM are increasing age, ethnicity (such as South Asian, Chinese, African-Caribbean or Black African origin), a family history of T2DM, a history of gestational diabetes in woman, physical inactivity, unhealthy diet, overweight or obesity, dyslipidemia, hypertension and pre-diabetes.[5] Persons are more likely to develop T2DM when more risk factors are present.[5,6]

Impact and complications of T2DM

T2DM has a huge disease burden, experienced by the patients and their families/carers as well as by the country's economy and healthcare system, especially in poorly developed countries.[4] T2DM is associated with long-term macro- and micro-vascular complications.[7] Coronary heart disease, peripheral arterial disease and stroke are macro-vascular complications. Diabetic retinopathy, diabetic nephropathy and diabetic neuropathy are micro-vascular complications. T2DM is associated with reduced quality of life and life expectancy.[8] It can reduce life expectancy by five to seven years when 55 years old.[2,9,10] Globally, T2DM has caused 4.6 million deaths in 2011.[11]

Management of T2DM

People with T2DM can live longer healthier lives if their T2DM is detected early and well managed.[12] Management is likely to include interventions which will control their blood glucose levels (through a combination of healthy diet, physical activity and medication, if necessary); control their blood pressure and blood lipids; and regularly screen their eyes, kidneys and feet to detect any damage and facilitate early management, if required.[2]

T2DM in the Caribbean region

Of people living with diabetes in the Caribbean region, 95% of them have T2DM.[13] The prevalence of T2DM is approximately 9% and is accountable for around 14% of all deaths in the Caribbean region.[14] Majority of T2DM associated morbidity and mortality occurs in the productive age group (18-59 years old), which affects economic growth, negatively impacting the overall productivity of the Caribbean region.[15] T2DM is, therefore, one of the most significant public health challenges in the Caribbean region in this twenty-first century.[15]

Few studies have been published on the complications of T2DM in the Caribbean region. One study conducted in Barbados reported that the cumulative incidence of diabetic retinopathy in people with T2DM was 32% over a four-year period and rose to 40% over a nine-year period.[16,17] Another study conducted among T2DM patients in Trinidad reported that around half of them had symptoms of diabetic neuropathy, 12% had a history of diabetic foot, and 4% had to undergo amputation.[18] In another study conducted in Barbados, the incidence of lower extremity amputation on diabetic foot was 936 per 100,000 persons.[19]

In the 1990s, two studies reported that the overall quality of care of T2DM patients was unsatisfactory in the Caribbean region and more specifically in Barbados, Trinidad, Tobago, Tortola and Jamaica.[20,21] Around 50% of T2DM patients had poor glucose control.[20] The care issues reported were inadequate guidance on diet and physical activity, monitoring of blood glucose levels, and screening for complications.[21]

In the Caribbean region, a guideline is available to manage T2DM at the primary care level.[13] This guideline is for T2DM patients, their families/carers and healthcare professionals whose work involves the management of T2DM (such as providers and commissioners). This guideline focuses on patient education, lifestyle advice, managing blood glucose levels, managing cardiovascular risk, and identifying and managing long-term complications.[13]

The rationale for the systematic review

Several studies have been conducted in the Caribbean region on barriers and facilitators to T2DM management,[21-28] which have identified poor access to health care, difficulty in maintaining behaviour change and negative attitudes about living with T2DM as potential barriers and support from family members as a potential facilitator.

Until now, no systematic review has been conducted on this topic. Our systematic review aims to summarize these barriers and facilitators, which can occur at the patient level (including their family/carer), at the healthcare provider level or at the healthcare commissioner level. By providing a complete picture of the issue, this systematic review may help the health experts to address the barriers and promote the facilitators, by taking necessary actions.

Keywords

Barriers; Caribbean; facilitators; type 2 diabetes management

Methods

The systematic review process will adhere to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)[29] and the Joanna Briggs Institute (JBI) methodology for qualitative evidence systematic reviews guidelines.[30]

Inclusion criteria

Types of participants

This review will include studies conducted among adults (aged 18 and above) with T2DM, their families/ carers (a person who looks after a T2DM patient) and healthcare professionals whose work involves the management of T2DM (such as providers and commissioners).

Phenomena of interest

This review will include studies that focus on the views, experiences, attitudes, understandings, perceptions and perspectives regarding the barriers and facilitators to T2DM management.

Context

The Caribbean region includes Anguilla, Antigua and Barbuda, Aruba, The Bahamas, Barbados, Bonaire, British Virgin Islands, Cayman Islands, Cuba, Curacao, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, Saint Kitts and Nevis, Saint Barthelemy, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten/Saint Martin, Trinidad and Tobago, Turks and Caicos Islands, US Virgin Islands).[31] In the Caribbean region, any study setting will be included such as community, primary care, secondary care and tertiary care.

Type of studies

This review will include studies that focus on qualitative data, including, but not limited to, designs such as phenomenology, ethnography, grounded theory and action research. We will also include cross-sectional surveys where free-text relating to the review question is reported within the paper.

Search strategy

An initial limited search was carried out in MEDLINE and EMBASE databases using the initial keywords, and the keywords were type 2 diabetes management, barriers, facilitators and Caribbean. The titles and abstracts of the studies were screened for keywords, and the index terms used to describe the article were also identified. The search results were inspected to ensure that the relevant articles were identified.

We aim to search a wide range of sources, to find both published and unpublished studies. The following databases will be searched for published studies: MEDLINE (1946-present), EMBASE (1974-present),

CINAHL (1961-present), PsycINFO (1860-present), BNI (1985-present), AMED (1887-present), Web of Science (1900-present) and Scopus (1960-present). The search strategy, to be used in MEDLINE, is detailed in Appendix I. This search strategy will be adopted for other databases, in consultation with an information specialist/librarian. The search for unpublished studies will include EthOS, OpenGrey, ProQuest Dissertations and Theses. The reference list of any identified reviews and primary studies included in the review will be screened for additional studies. We will restrict to the following six official languages of the Caribbean English, Spanish, French, Dutch, Haitian Creole and Papiamento.[31]

Study selection

Following the search, all identified citations will be collated and uploaded into EndNote X8.2,[32] a reference management software, and duplicates will be removed. Titles and abstracts will be screened for eligibility using the inclusion criteria by two reviewers independently (ALN and KC/JLB). Studies identified as potentially eligible or those without an abstract will have their full-text retrieved and their details will be imported into the JBI premier software for systematic review of the literature, a system for the unified management, assessment and review of information (JBI SUMARI).[33] Full-text of the studies will be assessed against the inclusion criteria by two reviewers independently (ALN and KC/JLB). Full-text studies that do not meet the inclusion criteria will be excluded, and the reasons for exclusion will be reported. Any disagreements that arise between the two reviewers will be resolved through discussion. If consensus is not reached, then a third reviewer (KC/JLB) will be involved.

Assessment of methodological quality

Included studies will be critically assessed, independently, by two reviewers (ALN and KC/JLB) using the standardized critical appraisal tools incorporated within JBI SUMARI.[33-35] Any disagreements that arise between the two reviewers will be resolved through discussion. If consensus is not reached, then a third reviewer (KC/JLB) will be involved. All studies, regardless of the results of their methodological quality, will undergo data extraction and synthesis (where possible).

Data extraction

Data will be extracted from papers included in the review using the standardized data extraction tool incorporated within JBI SUMARI,[33-35] independently by two reviewers (ALN and KC/JLB). The data extracted will include specific details about the study methods (study type, data collection, data analysis), country, participant (T2DM patients and families/carers, healthcare providers, healthcare commissioners) characteristics and sample size, context (community, primary care, secondary care, tertiary care), phenomena of interest and findings. In the case of cross-sectional surveys, free-text relating to the review question will be extracted as qualitative data. Any disagreements that arise between the two reviewers will be resolved through discussion. If consensus is not reached, then a third reviewer (KC/JLB) will be involved.

Data synthesis

Study findings from all study designs will, where possible, be pooled using JBI SUMARI with the meta-aggregation approach.[33,35,36] This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings. Where textual pooling is not possible, the findings will be presented in narrative form.

Assessing certainty in the findings

The final synthesized findings will be graded according to the ConQual approach for establishing confidence in the output of research synthesis and presented in a summary of findings table.[37] The table will include the major elements of the review and details how the ConQual score is developed. The table will include the title, population, phenomena of interest and context for the specific review. Each synthesized finding from the review will then be presented along with the type of research informing it, a score for dependability, credibility and the overall ConQual score.

Conflict of interest

The authors declare no conflict of interest.

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Appendix I: Search strategy MEDLINE

1. exp diabetes mellitus, type 2/
2. exp diabetes complications/
3. (MODY or NIDDM or T2DM).tw,kf,ot.
4. ((typ? 2 or typ? II or typ?2 or typ?II) adj diabet$).tw,kf,ot.
5. 1 or 2 or 3 or 4
6. (barrier* or impediment* or challenge* or hindrance* or obstacle* or hurdle* or obstruction* or deterrent* or facilitator*).mp.
7. exp qualitative research/
8. exp interview/
9. exp focus groups/
10. exp cross-sectional studies/
11. exp surveys and questionnaires/
12. (qualitative or interview* or focus group* or cross-sectional or cross sectional or survey*).mp.
13. 6 or 7 or 8 or 9 or 10 or 11 or 12
14. exp Caribbean Region/
15. exp Trinidad and Tobago/
16. exp Antigua and Barbuda/
17. exp Barbados/
18. exp Martinique/
19. exp Dominican Republic/
20. exp Haiti/
21. exp Jamaica/
22. exp Puerto Rico/
23. exp Cuba/
24. exp Bahamas/
25. exp Dominica/
26. exp Saint Lucia/
27. exp Grenada/
28. exp Guadeloupe/
29. exp Curacao/
30. exp Aruba/
31. exp Netherlands Antilles/
32. exp United States Virgin Islands/
33. exp British Virgin Islands/
34. exp Saint Kitts and Nevis/
35. exp Sint Maarten/
36. exp West Indies/

37. exp Saint Vincent and the Grenadines/
38. ((Caribbean) or (Trinidad) or (Tobago) or (Antigua) or (Barbuda) or (Barbados) or (Martinique) or (Dominican Republic) or (Haiti) or (Hispaniola) or (Jamaica) or (Puerto Rico) or (Cuba) or (Bahamas) or (Dominica) or (Saint Lucia) or (Grenada) or (Guadeloupe) or (Curacao) or (Bonaire) or (Aruba) or (Saba) or (Saint Eustatius) or (Virgin Islands) or (Tortola) or (Virgin Gorda) or (Jost Van Dyke) or (Anegada) or (Saint Croix) or (Saint Thomas) or (Saint John) or (Saint Kitts) or (Nevis) or (Saint Christopher) or (Sombrero) or (Saint Martin) or (Sint Maarten) or (West Indies) or (Saint Vincent) or (Grenadines) or (Eastern Caribbean) or (Greater Antilles) or (Lesser Antilles) or (Leeward Islands) or (Windward Islands) or (Caribbean Islands) or (Cayman Islands) or (Montserrat) or (Turks and Caicos Islands) or (Anguilla) or (Saint Barthelemy)).mp.
39. 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
40. 5 and 13 and 39