ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 09, Issue, 12, pp. 32669-32674, December, 2019

RESEARCH ARTICLE OPEN ACCESS

HOW IMPORTANT IS A MULTIDISCIPLINARY TEAM IN THE MANAGEMENT OF PATIENTS WITH TYPE 2 DIABETES MELLITUS? AN INTEGRATIVE REVIEW

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ARTICLE INFO

Article History:
Received 10th September, 2019
Received in revised form
29th October, 2019
Accepted 17th November, 2019
Published online 31th December, 2019

Key Words:
Multidisciplinary team;
Type 2Diabetes; Management.

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ABSTRACT

Introduction: According to the International Diabetes Federation (IDF) 8.8% of the world population aged around 20 to 79 years (415 million people) lived with diabetes in 2015. There has been a growing increase in studies of different forms of management for the type 2 diabetes mellitus treatment. **Objectives**: to promote the development of skills of seeking theoretical resources that instruct health professionals in the knowledge of interdisciplinary care tools employed in the importance of a multidisciplinary team in the type 2 diabetes mellitus treatment. **Materials and Methods**: An integrative review was performed in June and July 2018, and the study inclusion period was from 2013 to 2018, in a single database, Pubmed. For the survey of the articles it was used the multidisciplinary team, diabetes type 2, management, all in English. **Results**: 52 articles were found, with only 17 articles selected to be read in their entirety. **Conclusion**: it was observed that there is no standardization or protocol defined on the multidisciplinary treatment of these patients, this is due to numerous difficulties that the disease itself brings, but it should be noted that in the studies evaluated, multidisciplinary treatment showed significant results in relation to those where there were individualized treatments.

Citation: Gabriel Farhat, Renan Bordini Cardoso, Isabella Maravieski Lipinski *et al.* 2019. "How important is a multidisciplinary team in the management of patients with type 2 diabetes mellitus? an integrative review", *International Journal of Development Research*, 09, (12), 32669-32674.

INTRODUCTION

Important attention has been given to Diabetes Mellitus (DM) as it is a growing health problem for all countries, regardless to their level of development. It is estimated that around 8.8% (95% CI: 7.2 – 11.4) of the world population aged from 20 to 79 years (415 million people) have diabetes. If current trends persist, the estimated number of people with diabetes will exceed 642 million by 2040 (Brussels, 2015). The World Health Organization (WHO) estimates that high blood glucose is the third important factor in the cause of premature mortality, surpassed only by increased blood pressure and tobacco usage. Unfortunately, many governments, public health systems and healthcare professionals have not realized the current relevance of diabetes and its complications yet (Brussels, 2015 and José Egídio Paulo de Oliveira, 2019). DM is a metabolic disorder characterized by persistent hyperglycemia, due to deficiency in insulin production or its action, or both mechanisms, causing long-term complications. Persistent hyperglycemia is associated to chronic micro and macrovascular complications, increased morbidity, reduced quality of life, and increased mortality rate (Brussels, 2015 and José Egídio Paulo de Oliveira, 2019). There are several types of DM, which are classified according to their etiology into type 1 DM (insulin science due to autoimmune destruction of β cells proven by laboratory tests), type 1B (idiopathic insulin deficiency), type 2 DM (loss of progressive insulin secretion combined to insulin resistance), gestational DM and other types secondary to other diseases (Brussels, 2015 and José Egídio Paulo de Oliveira, 2019). Given the characteristics of the disease or for disease control, weight control, physical activity, diet, smoking cessation, as well as the establishment of drug therapy, etc. are important, for this purpose a multidisciplinary team is required. Having an interdisciplinary team requires basic principles for its formation that include knowledge of each specific area, studies, concepts, approaches, obtaining as much information as possible to perform an effective treatment face of varied pathologies and diverse needs, where there is, within the team, exchange of knowledge, experiences, respect, ethics, subjecting oneself to one's own action. Through a diagnosis of the patient's condition, specific professionals are chosen, who are able to

interconnect multiple knowledge, thus assisting in the joint treatment of patients (Petri, 2006). Due to DM2 has a complex and multifactorial etiology as mentioned, it is necessary that its treatment be multidisciplinary, where not only the doctor treats the patient, but a complete multidisciplinary team, in which doctors, nurses, dentists, pharmacists, psychologists, physical educators, nutritionists, among other professionals work together (Chwastiak, 2019; Chatterjee, 2019; Berry, 2016 and Patry, 2013). For the sake of didactics, it was chosen to select those articles that treated type 2 DM in a multidisciplinary way. Type 2 diabetes mellitus (DM2) corresponds to 90 – 95% of all cases of DM. It has a complex and multifactorial etiology, involving genetic and environmental components. Generally, T2DM affects individuals from the fourth decade of life onwards, although in some countries an increase in its incidence in children and young people is described. It is a polygenic disease with a strong family heritage, not yet fully understood, whose occurrence has a significant contribution of environmental factors. Among them, dietary habits and physical inactivity, which contribute to obesity, stand out as the main risk factors.

MATERIALS AND METHODS

This study was performed by the integrative literature review method. This method makes it possible to synthesize the researches and obtain conclusions based on a previously established objective. An integrative review is the broadest methodological approach to reviews, allowing the inclusion of experimental and non-experimental studies for a complete conception of the researched theme. For healthcare professionals, it provides quick access to relevant research results that support procedures or decision-making, providing a more critical view of the subject. This review was performed in six steps: elaboration of the guiding question; literature search, data collection: definition of inclusion and exclusion criteria, critical analysis of included studies (categorization of studies), discussion of results: analysis and interpretation of data, evaluation of studies included in the integrative review and presentation of the review. The bibliographic survey was conducted from June to July 2018, and the period of inclusion of the studies among 2013 and 2018, in a single database called Pubmed. For the survey of the articles it was used the multidisciplinary team, diabetes type 2, management, all in English. The criteria used for bibliographic survey were complete articles, available in that database, in Portuguese, Spanish and English. Inclusion criteria were articles where there was multidisciplinary management in the treatment of diabetes, and exclusion criteria were articles that did not have diabetes management by a multidisciplinary team and did not meet the objectives of the study. In the initial search, 52 articles were found in Pubmed, 28 of which were selected by title. Of these 28 articles, only 17 inclusion articles were read in full.

This study was built up to promote the development of the skills of seeking theoretical resources that instrumentalize health professionals in the knowledge of the interdisciplinary care tools employed in the importance of a multidisciplinary team in type 2 Diabetes Mellitus treatment. Given the proposed, it was established the following question guiding: how important is the multidisciplinary team in the management of type 2 diabetic patients?

The answer to this question will be able to contribute to effective health promotion actions.

RESULTS AND DISCUSSION

The analyzed studies are in Table 1, being distributed in title, journal and qualis and in Table 2, containing the type of study, main results and methods. Through the active search of the articles presented above, it was possible to analyze a high level of qualification of the articles, where 47% are articles B1 and 35% are articles B2, which represents highly relevant articles to assist in the review preparation. There is a variety of journals that make up this integrative review of various areas of health. Even though diabetes is a broad topic, it should also consider the small amount of articles published in the last 05 years that correlate multidisciplinary teams and their treatment, which creates a lack of information given the importance of this theme. After analyzing the selected articles, common points can be found, even in those where the outcome was not the same, such as the emphasis given to the search for the education of diabetic patients and their families (Odgers-Jewell, 2019), where the authors report that “patient education is a vital and integral component of sucessful diabetes management. ” The primary goal of diabetes patient education is to promote and support positive self-management behaviors to optimize metabolic control, improve long-term diabetes outcomes and quality of life, prevent complications, and reduce morbidity and mortality while maintaining good cost benefit relationship.

Another key point related to the multidisciplinary management of these patients is the improvement in glycemic control and glycated hemoglobin levels, which had a significant reduction in these levels (Davis, 2019 and McGill, 2019). In another study[6], to be successful in controlling diabetes, the authors highlight 07 elements of care outlined by the American Diabetes Educators Association (AADE7 Self-Care Behaviors TM): healthy eating, physical activity, blood glucose monitoring, medications, problem solving, healthy coping and risk reduction. However, many patients find it difficult to follow diabetes self-care management recommendations, and low-income patients face specific challenges to improve diet and exercise, blood glucose monitoring, and glycated hemoglobin monitoring. An important point observed in some articles is the attempt to create a model or multidisciplinary treatment program for type 2 diabetes, each trying to work towards a strategy to respond to the demands of this disease. In another strategy (Chwastiak, 2019), Collaborative Care was described, which is an integrated care model that provides systematic, evidence-based treatment of common mental health conditions such as depression and anxiety through a multidisciplinary team in the general medical setting. Through this study they also obtained significant results with diabetes care compared to usual care.

Another methodology adopted through the IMPACT (Project IM Proving America's Communities Together) project was to insert the clinical pharmacist into multidisciplinary groups, who reviewed medications and advised patients on medications and possible interactions, thus providing the opportunity for drug counseling dosages and possible interactions in dosage and drug. This was reported in a study that made visits every 03 months, where the pharmacist accompanied the multidisciplinary team, the visits not only addressed diabetes, but also hypertension, dyslipidemia and obesity for comprehensive cardiometabolic treatment.

Table 1. Classification of articles by title, journal and quails

Study	Articletitles	Periodical	Qualis
S1	A collaborative care team to integrate behavioral health care and treatment of poorly-controlled type 2 diabetes in an urban safety net primary care clinic (4)	General Hospital Psychiatry	B1
S2	Alphabet Strategy for diabetes care: A multi-professional, evidence-based, outcome-directed approach to management (8)	World Journal of Diabetes	B1
S3	Aspectos metodológicos de losprocesosasistenciales integrados (PAI)(9)	Revista de CalidadAsistencial	B1
S4	Current management of diabetes mellitus and future directions in care (5).	Postgraduate medical journal	B2
S5	Effectiveness of group-based self-management education for individuals with Type 2 diabetes: a systematic review with meta-analyses and meta-regression(10).	Diabetic Medicine: a journal of the British diabetic association	B1
S6	Effects of the Multidisciplinary Risk Assessment and Management Program for Patients with Diabetes Mellitus (RAMP-DM) on biomedical outcomes, observed cardiovascular events and cardiovascular risks in primary care: a longitudinal comparative study(11).	Cardiovascular Diabetology	A1
S7	Exploring the Effectiveness of Smart Technologies in the Management of Type 2 Diabetes Mellitus(12).	Journal of Diabetes and science technology	B2
S8	Holistic approach to prevention and management of type 2 diabetes mellitus in a family setting(13).	Diabetes, metabolic syndrome and obesity: targets and therapy	B1
S9	Imbedding Interdisciplinary Diabetes Group Visits Into a Community-Based Medical Setting(6).	The diabetes educator	B1
S10	Impact of a quality improvement program on primary healthcare in Canada: a mixed-method evaluation(14).	Health Policy	B1
S11	Impact of pharmacist-involved collaborative care on the clinical, humanistic and cost outcomes of high-risk patients with type 2 diabetes (IMPACT): a randomized controlled trial(15).	Journal of clinical pharmacy and therapeutics	B1
S12	Impact of pharmaceutical care interventions on glycemic control and other health-related clinical outcomes in patients with type 2 diabetes: Randomized controlled trial(16).	Diabetes & metabolicsyndrome	B2
S13	Management of diabetes in Indigenous communities: lessons from the Australian Aboriginal population(17).	Internal medicine journal	B2
S14	Multidisciplinary care: experience of patients with complex needs(18).	Australian Journal of primary health	Notfound
S15	The impact of an intervention to improve diabetes management in primary healthcare professionals' practices in Brazi(19)l.	Primary care diabetes	B1
S16	The Impact of Clinical Pharmacist Integration on a Collaborative InterdisciplinaryDiabetes Management Team(20).	Journal of pharmacypractice	B3
S17	The interdisciplinary team in type 2 diabetes management: Challenges and best practice solutions from real-world scenarios(21).	Journal of clinical and translational endocrinology	B2

Table 2. Classification of articles by study type, results and method

Study	Kindofstudy	Classification of articles by kind of study, results and method.	Method
S1	Retrospective Cohort	During the 18-month study period, there was an average reduction in HbA1c of 0.9 (10.6 to 9.4) among those referred to the team, compared to an average reduction of 0.2 (9.4 to 9.4). 9.2) among those not referred.	Evaluation of the multidisciplinary care approach to 634 diabetics inpatients in a primary care safety clinic with hemoglobin A1c (HbA1c)> 9%.
S2	NarrativeReview	The alphabet strategy can offer real clinical benefits in treating diabetes and has the scope to be adopted extensively in different economies.	Authors' opinion based on scientific evidence.
S3	Case management; LiteratureReview	The multi-territorial nature of this PPE will require that, during its implementation, adjustments be made to the specificities of each health area and / or institution that applies it.	This article presents and discusses the methodology for the elaboration of an PPE, as well as its effective implementation.
S4	NarrativeReview	The better we understand the hyperglycemia physiology, the more effective treatments and procedures emerge, bringing us the hope that over the next 90 years, there will be better management of the diabetes patient, with prevention strategies and ultimately diabetes cure.	Authors' opinion based on scientific evidence.
S5	Systematic review with meta-analyzes and meta-regression	Larger reductions in HbA1c occurred in group education compared to controls at 6-10 months [n = 30 studies; mean difference (MD) = 3 mmol / mole (0.3%); Results also favored group education for fasting blood glucose, body weight, waist circumference, triglyceride levels, and diabetes knowledge, but not at all times.	Fifty-three publications describing 47 studies were included (n = 8,533 participants). Group education programs for adults with type 2 diabeteswho measured glycated hemoglobin and followed participants for ≥ 6 months.
S6	RandomizedTrial	Compared to the usual care group, the RAMP-DM group had a lower incidence of cardiovascular events, and a net decrease in HbA1c PAS and 10-year risk of cardiovascular disease (CVD), risk of coronary artery disease, and stroke risk. Subjects with RAMP-DM witnessed significant increases in the proportion of reaching HbA1c and PAS / PAD treatment targets. After adjusting for confounding variables, significance remained for HbA1c, predicted risks for CHD and stroke.	A random sample of 1,248 people with diabetes enrolled in RAMP-DM for at least 12 months was selected and 1,248 people with diabetes under usual primary care were matched for age, sex and HbA1c level at baseline as the usual treatment group. . Biomedical and cardiovascular outcomes were measured at baseline and at 12 months after inclusion. Cardiovascular risks observed and predicted.
S7	NarrativeReview	The introduction of smart devices in diabetes management can provide significant improvements in clinical outcomes, well-being and patient involvement, and cost reductions for the healthcare system.	Authors' opinion based on scientific evidence.
S8	LiteratureReview	The benefits, effectiveness and disadvantages of evidence-based management strategies, being considered in the context of an individual's characteristics, and decisions regarding their usage should be made with the individual.	The purpose of this review was to discuss the evidence-based lifestyle strategies and multifactorial medical approaches that can be implemented in any family with DM members to reduce the risk of developing DM and prevent or delay the onset of complications in those who already have DM.

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S9	RandomizedclinicalTrial	Patients in the experimental group decreased their A1C, triglyceride and heart rate levels from time 1 to time 5 and maintained their high-density lipoprotein significantly more than the control group. In the exit interviews, patients said that group diabetes visits helped them be more responsible about their diabetes self-management goals.	A randomized repeated measures design was used with 40 patients in the experimental group and 40 patients in the control group. The diabetes group visit consisted of individualized sessions with a doctor or nurse to review medications and conduct a medical examination and group sessions to provide diabetes self-management education.
S10	Mixed method Evaluation	Chart audit data were collected from 34 group physicians (88% of whom provided access data). Differences between groups were not statistically significant.	This article highlights the key findings from a QIIP-LC retrospective, multi-measure, mixed assessment, including: pre-post diabetes control audit (A1c / foot exams) and CRC screening rate; post-only advanced access search (next available next appointment); and post-only semi-structured interviews (team work).
S11	Randomized controlled Trial	HbA1c average decreased from 8.6% ± 1.5% at baseline to 8.1% ± 1.3% at 6 months in the intervention arm (P = 0.04), with a HbA1c average improvement of 0.8 % in patients with higher uncontrolled blood glucose levels. Considering that the HbA1c average in the control arm remained unchanged (8.5% ± 1.4%) over the 6 month period. Improvements in PAID and DTSQ scores, reduction in physician workload, and average cost savings of $ 91.01 per patient were seen in the intervention arm at 06 months.	A 6-month prospective open-label randomized controlled trial was conducted at four outpatient health facilities. High-risk patients aged ≥ 21 years with uncontrolled type 2 diabetes, polypharmacy and comorbidities were included. Patients with type 1 diabetes or those who could not communicate independently were excluded. The control arm received usual care with referrals as needed. The intervention arm(multidisciplinary collaborative care) was regularly monitored by pharmacists, in addition to receiving usual care.
S12	Randomized Trial	After six-month follow-up, the HbA1c average and FBS of the patients in the intervention group decreased significantly compared to the control group (P <0.05). In addition, the results indicated that the average scores of patients' drug knowledge, diabetes knowledge and medication adherence, and diabetes self-care activities of patients in the intervention group increased significantly compared to the control group (P <0.05).	A randomized controlled trial was performed in 106 patients with uncontrolled type 2 diabetes at the diabetes clinics at Jordan University Hospital. The patients were randomlyallocated to the control and intervention group. Patients in the intervention group received care intervention medications developed by the clinical pharmacist in collaboration with the physician, while patients in the control group received usual care without input from the clinical pharmacist. Fasting blood glucose and HbA1c were measured at baseline, at three months and at six months apart for bothand control groups.
S13	NarrativeReview	Key strategies to address these challenges include working in partnership with patients, communities and controlled aboriginal community and government services (PHC) services, and working in a multidisciplinary team.	Authors' opinion based on scientific evidence.
S14	QualitativeStudy	The results showed that patients found it inconvenient to be referred to many health professionals because of multiple physical and psychosocial barriers. The presence of multiple comorbidities has made it more difficult for patients to manipulate priorities for many health professionals. In addition, complex socioeconomic and cultural issues such as lack of transportation and language have intensified the challenge for these patients to navigate the healthcare system.	Thirteen patients with type 2 diabetes admitted to the emergency department of a local NMS hospital were interviewed andcompleted a demographic questionnaire. Patients were asked what they thought about diabetes care and communication barriers between the patient and healthcare professionals.
S15	Cross-sectionalStudy	The percentage of professionals who measured treatment adherence, developed educational actions to control high-risk situations or prevent complications, or stated that they “explained” the disease to patients were higher in the control group.	The intervention was implemented in 2011-2012 in two towns of the Pernambuco state, Brazil, and evaluated in 2013, interviewing health professionals about theirin all basic health units of these two towns (intervention group) and twopaired control cities (control group).
S16	Prospective Cohort	There were statistically significant results including a HbA1c average reduction of 1.2% in SBP and DBP of 8.3 mmHg and 3.5 mmHg, respectively, and a reduction in low density lipoprotein of 16.6 mg / dL, all of which were greater improvements compared to overall results from combined sites.	This national prospective study followed up patients withhemoglobin A1c (HbA1c)> 7% from September 2011 to January 2013. Pharmacists collaborated with providers and other healthcare professionals to provide drug therapy management services for a minimum of 03 visits. Outcome measures included HbA1c, systolic and diastolic blood pressure (SBP and DBP), fasting cholesterol panel, body mass index (BMI), influenza vaccination and smoking status, and feet and eye examination dates.
S17	LiteratureReview	Real-world practices discussed show that the implementation of successful interdisciplinary diabetes care is possible despite significant barriers such as established hierarchical structures and constraints on financial resources. Instituting collaborative, Integrated working relationships across multiple disciplines under strong leadership, coupled with improved and active communication and better patient access to appropriate specialties is essential.	This article discusses some of the key contributors to success as well as the challenges faced in applying RTD care, examining case studies and examples from around the world.

At the end of the study, patients had a statistically significant reduction in glycated hemoglobin, blood pressure, LDL and HDL levels, triglycerides and total cholesterol (Davis, 2017). According to some researchers (da Silva Marinho, 2019), one of the models that advocates and guides the implementation of health system modification is the Chronic Care Model (MCC), which works with six basic components: health system organization, clinical decision support, project care systems, self-management support, community resources and policies, and clinical information systems. In Brazil, a program based on this model was developed by the government, QualiDia, with the objective of strengthening the multidisciplinary care of type 2 Diabetes Mellitus in primary care, focusing on the reorganization of the municipal health system and on the improvement of care practices of health professionals from Family Health Strategy (FHS). However, the results were

negative, there was an improvement in the diabetic condition in the control group and in the non-intervention group. A possibility of interpreting these results according to the author of the article was to suppose that the professionals in the intervention group became more critical and more aware in the discrepancies between the recommendations and their practices. This effect of intervention has been observed by the author in other studies too. Another explanation would be the short duration of the study, only one year, and several authors report a minimum period of at least three years. Another aggravating factor was the discontinuity of the study by the same team, due to the change of health managers during the elections. According to the studies shown, it is clear that multidisciplinary teams excel over individualized and non-patient-centered treatments. It should be emphasized that there is still a search for an ideal treatment that will compose all health professionals with the patient in mind. Central to the treatment, many studies still have to be carried out to reach the ideal, but it is worth mentioning the complexity that type 2 Diabetes Mellitus presents and the series of difficulties that will be encountered until the final goal is reached.

Conclusion

From the evaluation of the studies, it can be observed that there is no standardization, protocol or ideal program for the multidisciplinary treatment of type 2 diabetes mellitus, which shows such difficulty of multidisciplinary teams in creating strategies to assist in the treatment of diabetes. Each article brings a new way of seeking different multidisciplinary treatment involving more than one disease in the study, which correlates diabetes with behavioral health and in other studies addressing diabetes, blood pressure, lipid levels, lifestyle, management of diabetes complications, and patient priorities. There is also no definition of what an ideal team would be composed by health professionals, some involving only doctors and nurses, others addressing nutritionists, psychologists, dental surgeons and medical specialists. Despite all the study on new forms of treatment, the attempt to find an ideal treatment is still in evidence for diabetes, such complexity that this disease involves, what it can evidenced from the studies is that multidisciplinary treatment has advantages over individual habitual treatment, being the tool of choice in the search for a complete treatment to the patient.

REFERENCES

Berry DC, Williams W, Hall EG, Heroux R, Bennett-Lewis T. Imbedding Interdisciplinary Diabetes Group Visits Into a Community-Based Medical Setting. Diabetes Educ [Internet]. 7 de fevereiro de 2016 [citado 7 de julho de 2018]; 42(1):96–107. Available at: http://journals.sagepub.com/doi/10.1177/0145721715620022

Chatterjee S, Davies MJ. Current management of diabetes mellitus and future directions in care. Postgrad Med J [Internet]. 2015 [citado 3 de março de 2019]; 91(1081):612–621. Available at: http://pmj.bmj.com/

Chwastiak LA, Jackson SL, Russo J, DeKeyser P, Kiefer M, Belyeu B, et al. A collaborative care team to integrate behavioral health care and treatment of poorly-controlled type 2 diabetes in an urban safety net primary care clinic. Gen Hosp Psychiatry [Internet]. janeiro de 2017 [citado 3 de março de 2019];44:10–5. Available at: http://www.ncbi.nlm.nih.gov/pubmed/28041570

Coda A, Sculley D, Santos D, Girones X, Acharya S. Exploring the Effectiveness of Smart Technologies in the Management of Type 2 Diabetes Mellitus. J Diabetes Sci Technol [Internet]. 25 de janeiro de 2018 [citado 3 de março de 2019]; 12(1):199–201. Available at: http://journals.sagepub.com/doi/10.1177/1932296817711198

da Silva Marinho MG, Fontbonne A, Vasconcelos Barbosa JM, de Melo Rodrigues H, Freese de Carvalho E, Vieira de Souza W, et al. The impact of an intervention to improve diabetes management in primary healthcare professionals' practices in Brazil. Prim Care Diabetes [Internet]. dezembro de 2017 [citado 3 de março de 2019];11(6):538–45. Available at: http://www.ncbi.nlm.nih.gov/pubmed/28663022

Davis CS, Ross LAR, Bloodworth LS. The Impact of Clinical Pharmacist Integration on a Collaborative Interdisciplinary Diabetes Management Team. J Pharm Pract [Internet]. 17 de junho de 2017 [citado 3 de março de 2019];30(3):286–90. Available at: http://www.ncbi.nlm.nih.gov/pubmed/26888261

Harris SB, Green ME, Brown JB, Roberts S, Russell G, Fournie M, et al. Impact of a quality improvement program on primary healthcare in Canada: a mixed-method evaluation. Health Policy [Internet]. abril de 2015 [citado 7 de julho de 2018];119(4):405–16. Available at: http://linkinghub.elsevier.com/retrieve/pii/S0168851014002838

International Diabetes Federation. IDF Diabetes Atlas [Internet]. Brussels, Belgium. 2015 [citado 3 de março de 2019]. p. 7th ed. Available at: https://www.idf.org/e-library/epidemiology-research/diabetes-atlas/13-diabetes-atlas-seventh-edition.html

Jiao FF, Fung CSC, Wong CKH, Wan YF, Dai D, Kwok R, et al. Effects of the Multidisciplinary Risk Assessment and Management Program for Patients with Diabetes Mellitus (RAMP-DM) on biomedical outcomes, observed cardiovascular events and cardiovascular risks in primary care: a longitudinal comparative study. Cardiovasc Diabetol [Internet]. 21 de dezembro de 2014 [citado 3 de março de 2019];13(1):127. Available at: http://cardiab.biomedcentral.com/articles/10.1186/s12933-014-0127-6

José Egídio Paulo de Oliveira, Renan Magalhães Montenegro Junior SV. 2. Diretrizes da Sociedade Brasileira de Diabetes 2017-2018 [Internet]. Editora Clannad, organizador. São Paulo; 2017 [citado 3 de março de 2019]. 383 p. Available at: www.editoraclannad.com.br

Lee JD, Saravanan P, Patel V. Alphabet Strategy for diabetes care: A multi-professional, evidence-based, outcome-directed approach to management. World J Diabetes [Internet]. 25 de junho de 2015 [citado 3 de março de 2019];6(6):874–9. Available at: http://www.ncbi.nlm.nih.gov/pubmed/26131328

Maneze D, Dennis S, Chen H-Y, Taggart J, Vagholkar S, Bunker J, et al. Multidisciplinary care: experience of patients with complex needs. Aust J Prim Health [Internet]. 2014 [citado 3 de março de 2019];20(1):20. Available at: http://www.publish.csiro.au/?paper=PY12072

McGill M, Blonde L, Chan JCN, Khunti K, Lavalle FJ, Bailey CJ. The interdisciplinary team in type 2 diabetes management: Challenges and best practice solutions from real-world scenarios. J Clin Transl Endocrinol [Internet]. 1 de março de 2017 [citado 3 de março de 2019];7:21–7.

Available at: https://www.sciencedirect.com/science/article/pii/S2214623716300370

Nguyen HD, Chitturi S, Maple-Brown LJ. Management of diabetes in Indigenous communities: lessons from the Australian Aboriginal population. Intern Med J [Internet]. novembro de 2016 [citado 3 de março de 2019];46(11):1252–9. Available at: http://www.ncbi.nlm.nih.gov/pubmed/27130346

Odgers-Jewell K, Ball LE, Kelly JT, Isenring EA, Reidlinger DP, Thomas R. Effectiveness of group-based self-management education for individuals with Type 2 diabetes: a systematic review with meta-analyses and meta-regression. Diabet Med [Internet]. agosto de 2017 [citado 3 de março de 2019];34(8):1027–39. Available at: http://www.ncbi.nlm.nih.gov/pubmed/28226200

Ofori SN, Unachukwu CN. Holistic approach to prevention and management of type 2 diabetes mellitus in a family setting. Diabetes Metab Syndr Obes [Internet]. 2014 [citado 3 de março de 2019];7:159–68. Available at: http://www.ncbi.nlm.nih.gov/pubmed/24920929

Patry J, Belley R, Cote M, Chateau-Degat M-L. Plantar pressures, plantar forces, and their influence on the pathogenesis of diabetic foot ulcers: a review. *J Am Podiatr Med Assoc.* 2013;103(4):322–32.

Petri FC, CPF:80171575091, http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4509196E5. HISTÓRIA E INTERDISCIPLINARIDADE NO PROCESSO DE HUMANIZAÇÃO DA FISIOTERAPIA. 26 de maio de 2006 [citado 3 de março de 2019]; Available at: https://repositorio.ufsm.br/handle/1/9722?show=full

Siaw MYL, Ko Y, Malone DC, Tsou KYK, Lew Y-J, Foo D, et al. Impact of pharmacist-involved collaborative care on the clinical, humanistic and cost outcomes of high-risk patients with type 2 diabetes (IMPACT): a randomized controlled trial. J Clin Pharm Ther [Internet]. agosto de 2017 [citado 7 de julho de 2018];42(4):475–82. Available at: http://www.ncbi.nlm.nih.gov/pubmed/28449205

Sociedad Española de Calidad Asistencial. R, Mata Cases M, Mauricio Puente D, Artola Menéndez S, Ena Muñoz J, Mediavilla Bravo JJ, et al. Revista de calidad asistencial : organo de la Sociedad Española de Calidad Asistencial. [Internet]. Vol. 32, Revista de calidad asistencial, ISSN 1134-282X, Vol. 32, Nº. 4, 2017, págs. 234-239. SG Editores; 2017 [citado 3 de março de 2019]. 234-239 p. Available at: https://dialnet.unirioja.es/servlet/articulo?codigo=6045373

Wishah RA, Al-Khawaldeh OA, Albsoul AM. Impact of pharmaceutical care interventions on glycemic control and other health-related clinical outcomes in patients with type 2 diabetes: Randomized controlled trial. Diabetes Metab Syndr Clin Res Rev [Internet]. outubro de 2015 [citado 3 de março de 2019];9(4):271–6. Available at: http://www.ncbi.nlm.nih.gov/pubmed/25301007

****