EVIDENCE FOR THE EVALUATION OF THE FEET OF PEOPLE WITH DIABETES MELLITUS

EVIDÊNCIAS PARA A AVALIAÇÃO DOS PÉS DA PESSOA COM DIABETES MELLITUS

EVIDENCIAS PARA EVALUACIÓN DE LOS PIES DE LA PERSONA CON DIABETES MELLITUS

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ABSTRACT

Objective: to identify the evaluation criteria of the feet of the person with Diabetes Mellitus. **Method:** integrative review with search in MEDLINE, LILACS, Cochrane, SCOPUS and SciELO virtual libraries, with temporal delimitation between 2011 and 2017 and final sample of 16 articles categorized in anamnesis, skin and attachment evaluation, neurological evaluation, vascular evaluation, anatomical evaluation of the feet and self-care. **Results:** most articles were from 2013, with level of evidence II. The anamnesis category comprised sociodemographic and clinical issues and the category assessment of the skin and appendages contemplated the affections of skin, nails, hair and interdigital spaces. In the neurological evaluation category, the Semmes-Weinstein monofilament test 10g was predominant for the evaluation of tactile sensitivity. In the vascular evaluation, palpation of the pedis and tibialis pulses was noted. In the anatomical evaluation category of the feet, only two articles portrayed the type of deformity researched and in four studies self-care guidelines were performed. **Conclusion:** in summary, the study allowed to extract important indicators for the evaluation of the feet and consonance was observed between the analyzed studies with what is recommended. **Descriptors:** Diabetes Mellitus; Diabetic Foot; Risk Factors; Prevention; Physical Examination; Signs and Symptoms.

RESUMO

Objetivo: identificar os critérios de avaliação dos pés da pessoa com Diabetes Mellitus. **Método:** revisão integrativa com busca nas bases de dados MEDLINE, LILACS, Cochrane, SCOPUS e biblioteca virtual SciELO, com delimitação temporal entre 2011 e 2017 e amostra final de 16 artigos categorizados em anamnese, avaliação da pele e anexos, avaliação neurológica, avaliação vascular, avaliação anatômica dos pés e autocuidado. **Resultados:** a maioria dos artigos foi de 2013, com nível de evidência II. A categoria anamnese compreendeu questões sociodemográficas e clínicas e a categoria avaliação da pele e anexos contemplou as afecções de pele, unhas, pelos e espaços interdigitais. Na categoria avaliação neurológica, predominou o teste com monofilamento Semmes-Weinstein 10g para a avaliação da sensibilidade tátil. Na avaliação vascular, destacou-se a palpação dos pulsos pediosos e tibiaisposteriores. Na categoria avaliação anatômica dos pés, apenas dois artigos retrataram o tipo de deformidade pesquisada e em quatro estudos foram realizadas orientações de autocuidado. **Conclusão:** Em síntese, o estudo permitiu extrair indicadores importantes para a avaliação dos pés e observou-se consonância entre as pesquisas analisadas com o que é recomendado. **Descritores:** Diabetes Mellitus; Pé Diabético; Fatores de Risco; Prevenção; Exame Físico; Sinais e Sintomas.

RESUMEN

Objetivo: identificar los criterios de evaluación de los pies de la persona con Diabetes Mellitus. **Método:** revisión integrativa con búsqueda en las bases de datos: MEDLINE; LILACS; Cochrane; SCOPUS y biblioteca virtual SciELO y delimitación temporal entre 2011 y 2017, con muestra final de 16 artículos categorizados en: anamnesis, evaluación de la piel y anexos, evaluación neurológica, evaluación vascular, evaluación anatómica de los pies y autocuidado. **Resultados:** la mayoría de los artículos fue de 2013, con nivel de evidencia II. La categoría anamnesis comprendió cuestiones sociodemográficas y clínicas, la categoría evaluación de la piel y anexos contempló las afecciones de piel, uñas, pelos y espacios interdigitales. En la categoría de evaluación neurológica predominó la prueba con monofilamento Semmes-Weinstein 10g para la evaluación de la sensibilidad tátil. En la evaluación vascular destacó la palpación de los pulsos pediosos y tibiosposteriores. En la categoría evaluación anatómica de los pies sólo dos artículos retrataron el tipo de deformidad investigada y cuatro de los estudios se realizaron orientaciones de autocuidado. **Conclusión:** En síntesis, el estudio permitió extraer indicadores importantes para la evaluación de los pies y se observó consonancia entre las investigaciones analizadas con lo que se recomienda. **Descritores:** Diabetes Mellitus; Pie Diabético; Factores de Riesgo; Prevención; Examen Físico; Signos y Síntomas.

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INTRODUCTION

The occurrence of diabetic foot is one of the most disabling repercussions related to Diabetes Mellitus. The association of risk factors, such as peripheral neuropathy and peripheral vascular disease, predisposes to the appearance of this recurrent complication in the diabetic population and of complex clinical handling.¹⁻²

Injuries to the lower limbs are more commonly seen in people with MD compared to non-diabetics and reach 6.4% of the world's population, increasing ten to twenty times the chances of progressing to amputation.

This complication affects people's quality of life by negatively influencing the subject's productivity and independence and is sometimes disabling because of the high amputation rate associated with diabetic foot.⁴ In addition, it provides high public expenditures for hospital admissions and long hospital stays, which result in socioeconomic consequences for the person and society.⁵

The main ways of preventing and reducing the incidence of foot ulceration and amputation in individuals with diabetes is through a detailed and systematic evaluation of physical aspects, recognition of risk factors for the development of this condition, and comprehensive educational programs.⁴

In this aspect, it is necessary to develop multidisciplinary preventive measures, capable of including an adequate examination of the feet, considering the dermatological, structural, circulatory and sensory characteristics that suggest risk of injury, in order to diagnose the problem early and prevent such as, for example, amputation.^{2,6-7}

To this end, it is important that health professionals, involved in the management of diabetic foot, know adequate and up-to-date methodologies that can be used in clinical practice and establish a standardized line of conduct in order to tailor care to appropriate diabetic foot control and its implications.⁸

Faced with this need, it was opportune to seek in the literature the indicators that best portray a careful evaluation of the feet of the person with DM in order to assist health professionals with inspection criteria and examination of the most appropriate feet to adequately measure the risk of diabetic foot. In addition, once the criteria are established, they can support the development of tools to guide health professionals during care, as well as the development of tools for use in scientific research.

Thus, the objective of this study was to identify, in scientific production, the

evaluation criteria of the feet of the person with Diabetes Mellitus.

OBJECTIVE

- To identify the evaluation criteria of the feet of people with Diabetes Mellitus.

METHOD

Integrative review conducted by the following steps: establishment of the hypothesis; search in literature; categorization of studies and formation of the database; evaluation of the studies included in the review; interpretation of results; and synthesis of knowledge.⁹

Data collection was performed from January to March, 2017 in the databases: Medical Literature Analysis and Online Retrieval System (MEDLINE); Latin American and Caribbean Literature in Health Sciences (LILACS); Cochrane; SCOPUS and the Scientific Electronic Library Online (SciELO).

The question that guided the study was: What are the criteria used to evaluate the feet of the person with Diabetes Mellitus?

Based on the guiding question, the following descriptors of DeCS (Health Sciences Descriptors) and MeSH (Medical Subject Headings) were used: diabetes mellitus (diabetes mellitus); diabetic foot; risk factors; prevention; physical examination; signs and symptoms. These descriptors were combined two by two using the Boolean AND operator on all bases.

Original articles in Portuguese, English and Spanish were included in the study, with a five-year time cut, covering the researches published between 2011 and March 2017. Exclusion criteria were articles with only abstracts available and those who did not respond to the guiding question of the study.

After crossing the descriptors in the abovementioned databases, there were 3280 publications referring to the researched topic. Following the reading of the titles and summaries of the respective studies, 3199 publications were excluded, with 81 studies remaining in line with the eligibility criteria. Subsequently, the refinement of the search was carried out, with a thorough reading of the eligible publications in full, when 65 studies were excluded and the final sample with a total of 16 articles was determined. The selection discriminated by databases is shown in figure 1.

Figure 1. Flowchart of the selection of articles found and selected for integrative revision adapted from the prism. Alfenas (MG), Brazil, 2017.

After reading the selected studies, a table was prepared based on the PRISMA guidelines (Main Items for Reporting Systematic Reviews and Meta-analyzes) to collect information with: title, authors, year of publication, periodical, language, objectives, target population, sample, instrument used, data collection, inclusion and exclusion criteria, statistical analysis, results, conclusions and updated references.

In addition, the selected studies were classified according to the level of evidence as follows: I - systematic reviews or meta-analysis of relevant clinical trials; II - evidence of at least one well-delineated randomized controlled trial; III - well-delineated clinical trials without randomization; IV - well-delineated cohort and case-control studies; V - systematic review of descriptive and qualitative studies; VI - evidence derived from a single descriptive or qualitative study; VII - opinion of authorities or committees of experts including interpretations of information not based on research.¹⁰

After the information was collected, the studies were analyzed based on the

categorization of the criteria used to evaluate the diabetic foot, which comprised the following categories: Anamnesis; Skin inspection and attachments; Neurological evaluation; Vascular evaluation; Presence of deformities and self-care guidelines with the feet, totaling six categories.⁷

This review followed the ethical precepts that guide scientific research, respecting the originality of the studies, the idea of the authors, as well as the concepts and explicit definitions of selected research.

RESULTS

The searches resulted in 16 publications. Of these, eight were written in Portuguese; seven in English and one in Spanish. Regarding the year of publication, it was verified that the majority was in the year 2013, with the total of four published studies, followed by the years 2015 and 2016, with a total of three articles each. Regarding the level of evidence, it was verified that the majority is composed by descriptive studies (n = 10) that do not present strong evidence. Only three studies have level of evidence II.

Figure 2 shows the studies included in this review and presented according to: article,

authors, year of publication, type of study, level of evidence, sample and objective.

Article	Authors/Year	Type of study/ Level of evidence	Sample/Objective
11	Cisneiros LL, Gonçalves LAO / 2011.	Qualitative/ VI	30 patients / Knowing and to present meanings attributed by diabetic patients and their families to primary care aimed at preventing complications in the feet..
12	Hu H1, Han CM, Hu XL, Ye WL, Huang WJ, Smit AJ / 2012	Observational cross sectional/ VI	19 patients Evaluate the association between autofluorescence of the skin and ulcers in the feet of people with diabetes and identify other factors that affect their role in determining the risk of ulcer.
13	Santos HC, Ronsoni MF, Colombo BS, Oliveira CSS, Hohl A, Coral MHC, Sande-Lee SV/2015	Observational study cross sectional / VI	116 patients / Evaluate the degree of neuropathy in diabetics through the Neuropathic Symptom Score and Neuropathic Compromise Score to homogenize the diagnosis, quantify the prevalence and promote preventive measures.
14	Silva JV, Souza-Munoz RL, Figueredo AS, Fernandes BM, Melo JFG/2013	Observational control case/ IV	90 patients / Evaluate risk factors for loss of protective plantar sensitivity in diabetic patients and to correlate this loss with neuropathic symptoms.
15	Altaf QA, Sadiqi H, Piya MK, Tahrani AA/2016	Prospective observational cohort / IV	228 patients / Evaluate the impact of lack of foot sensitivity through the estimated value of the glomerular filtration rate in patients with type 2 diabetes.
16	Barros MFA, Mendes JC, Nascimento JA, Carvalho AGC/2012	Intervention study/ II	24 patients / Evaluate the impact of a physiotherapeutic intervention in the prevention of diabetic foot.
17	Freire APCF, Palma MR, Lacombe JCA, Lima RAO, Pacagnelli FL/2015	Descriptive cross sectional/ VI	17 individuals / Implement actions for evaluate and guide patients with type 2 DM in relation to diabetic foot and regular exercise to control DM complications.
18	Dyck PJ, et al/2014	Multicenter clinical trial / II	12 individuals / Evaluate intra and inter-subject accuracy and reproducibility of quantitative sensitivity tests in individuals with and without diabetic sensory motor polyneuropathy.
19	Ponirakis G, et al /2016	Clinical trial/ II	130 individuals / Establish the reproducibility and diagnostic validity of NerveCheck to detect neuropathy.
20	Pereira FGF, Diógenes MAR, Freire DF, Meneses MS, Xavier ATF, Ataíde MBC/2013	Descriptive/ VI	12 Nurses / Identify the conducts used during the nursing consultation to the person with diabetes mellitus for the prevention of diabetic foot.
21	Cubas MA, Santos OM,, Retzlaff EMA, Telma HLC, Andrade IPS, Moser ADL, et al/2013	Field explorer / VI	40 patients / Check the knowledge of users of the diabetes program about preventive care to diabetic foot, identify the guidelines that the patient receives regarding this prevention and observe in the participants of the diabetes program adherence to self-care procedures.
22	Amaral Junior AH, Amaral LAH, Bastos MG, Nascimento LC, Alves MJM, Andrade MAP/2014	Observational, prospective cases / VI	77 patients / Evaluate the impact of Paid Diabetic Foot Ambulatory in reducing diabetic patient morbidity, with emphasis on lower limb injuries.
23	Skafjeld A, Iversen MM, Holme I, Ribu L, Kjetil H, et al/ 2015	Randomized clinical trial / II	41 patients / Test the feasibility of monitoring foot temperature in combination with theory-based counseling with the ultimate goal of preventing recurrent ulcers of the diabetic foot.
24	Oliveira PS, Bezerra EP, Andrade LL, Gomes PLF, Soares MJGO,	Quantitative description / VI	38 nurses / Identify guidelines provided by nurses to people with DM on foot care; investigate the frequency of the foot exam and the aspects evaluated; to verify what health education activities are performed by nurses

	Costa MML/2016		for people with DM.
25	Pinilla AE, Sánchez AL, Mejía A; Barrera MP/2011	Cross-sectional description / VI	307 patients / Determine the prevalence of diabetic foot prevention in patients attended in general medical outpatient clinic.
26	Barrile Ribeiro Costa Viana Conti Martinelli B/2013	SR, AA, APR, AA, MHS, IV	68 individuals / Cohort study / Classify the lower limb sensitivity in diabetic individuals and correlate with factors that contribute to the development of diabetic foot.

Figure 2. Distribution of the articles of the integrative review. Alfenas (MG), Brazil, 2017.

Samples of the studies analyzed ranged from 12 to 307 participants, who consisted of nurses or people diagnosed with Diabetes Mellitus. As a research tool, 12 studies used questionnaires to screen the data. The great majority did not show the dominant sex among the participants. Among the main impairments related to diabetic foot were vascular, neurological and deformity alterations.

Regarding the methodological design, there was a higher prevalence of cross-sectional studies. The statistical analysis used in the majority of the studies was chi-square, Spearman, Kruskal-Wallis and Mann-Whitney

correlation analysis, McNemar's test, Student's t-test and test from Shapiro-Wilk.

The studies used different tests and materials for diabetic foot evaluation. Figure 3 shows the evaluation criteria and the form of evaluation used during the examination of the feet according to each category:

Category	Evaluation Criteria / Quantity articles	Evaluation form
Anamnesis (n=11)	<ul style="list-style-type: none">- Age, Sex; (10), History of Amputation, Deformity (10), History of Amputation (10), History of Amputation,- Body Mass Index (1)- By-pass on lower limbs (1),- Intermittent claudication (5)- Burning and / or stabbing pain, Numbness, Paresthesia, Weakness in feet, Ataxia (2).- Glycated Hemoglobin and Glomerular filtration rate (1).	Interview for collection of clinical and epidemiological history.
Skin and attachment evaluation (n=08)	<ul style="list-style-type: none">- Skin: Presence of mycoses, ulcerations, dehydration, cracks, cracks. Interdigital spaces with humidity (8).- Coloration (Cyanosis-3, Redness-2, Postural Flush-1)- Temperature (Hot foot, Cold foot - 6), (Hair distribution - 3).- Calosities -3, Edema, Bruising, Dorsal Vasodilatation-1.-Unails: nail cutting, nail dystrophies (brittle, thickened nails, ingrown - 2).	Inspection and palpitation
Neurological Evaluation (n=12)	Protective and Tactile Sensitivity (9)	Semmes-Weinstein monofilament stereo meter 10g, cotton balls
	Thermal sensitivity (4)	test tubes with cold and hot water
	Pain sensitivity (3)	pins
	Vibration Sensitivity (5)	biotensiometer, tuning fork 128 Hz
	Patellar reflex (1)	reflex hammer
	Tendon reflex (1)	reflex hammer
	Scores of neuropathic symptoms: pain or discomfort, sensory and locational symptoms, time and improvement of symptoms (4)	Standard Scales Classification of the symptomatology: mild - ESN between three and four, moderate between five and six or severe between seven and nine points.
Vascular	Evaluation of the pulses: dorsal pedicle and posterior	Palpitation

evaluation (n=6)	tibial (3).	Doppler and sphygmomanometer System Systoe Photophlethysmograph Inspection
	Arterial evaluation by ankle-brachial index - ABI (2)	
Anatomical evaluation of the feet (n=5)	Evaluation of the systolic pressure of the first and second fingers (1)	
	Deformities (5) - Finger overlap (1), - Foot of Charcot (1)	
Selfcare(n=3)	- Smoking restriction, Incentive to practice physical activity, Use of proper footwear, Use of sandpaper, Do not walk barefoot, Presence of pets to avoid injury and, Do not use alcohol on feet (1). Daily foot exam, Use of moisturizers, Foot washing and drying, Frequency of feet examination (2), - Care with nails (3).	Questionnaire directed to nursing professionals. Educational Lectures, Flyers Nursing consultation

Figure 3. Categorization of Diabetic Foot Evaluation Criteria. Alfenas (MG), Brazil, 2017.

As shown in figure 3, in the anamnesis category, the concern was to seek the main risk factors related to diabetic foot with regard to sociodemographic and clinical data of the person.

On the other hand, the results of the skin evaluation category and the appendixes examined the conditions that most affect the skin, nails, and interdigital spaces of the person with Diabetes Mellitus, which are primary indicators in a clinical evaluation of the foot.

In relation to the neurological evaluation category, different tests were registered to investigate changes in sensitivity and reflexes. They are: protective and tactile sensitivity with the Semmes-Weinstein 10g monofilament stereoisometer and cotton balls; thermal sensitivity with hot and cold water test tubes; painful sensitivity with the use of pins; vibration sensitivity with biotensiometer and 128 Hz tuning fork; reflex patellar and tendine Aquileu with reflex hammer; measurement of neuropathic symptoms such as pain and tingling by means of standardized scales for the measurement of neuropathic symptoms.

In the vascular evaluation category, the posterior pediatric and tibial pulses were identified by palpation, arterial examination by the ankle arm index (ABI) with Doppler and sphygmomanometer and evaluation of the pressure of the first and second fingers by System Systoe Photophlethysmograph.

In relation to the category anatomical evaluation of the feet, five articles investigated the problem, but only two of them portrayed the type of deformity researched, such as finger overlap and Foot of Charcot. Regarding self-care, three studies carried out the guidelines through questionnaires, lectures and leaflets that emphasized the care needed to avoid secondary complications and the importance of practicing physical activities.

DISCUSSION

In this review, in response to the question that guided the study, it was observed that different indicators were pointed out by the scholars in the analyzed publications and that, in categorizing them, it was possible to obtain a better vision of which are the criteria commonly used for the evaluation of the foot of the person with Diabetes Mellitus.

In the meantime, it was possible to verify that, in the anamnesis category, most studies (n = 10) were concerned with investigating the main risk factors that contribute to diabetic foot impairment, such as smoking, hypertension visual impairment, history of ulcer, amputation and / or deformities in the feet.

According to the Brazilian Society of Diabetes, it is of great importance during the anamnesis to investigate the clinical history and risk factors associated with the development of diabetic foot as: the history of micro and macrovascular complications; poor vision; the history of ulcers or amputation in the feet; arterial hypertension; obesity; smoking and poor glycemic control.⁵

The identification of risk factors for the development of diabetic foot is extremely necessary for the adequate prevention of ulcers and amputations. Health professionals who know the risk factors are potential supporters of self-care and decrease, in a relevant way, the appearance of complications.²⁷

Most of the research focused on investigating the presence of mycoses, ulcerations, dehydration, cracks, cracks and interdigital spaces with humidity (n = 8). In order to investigate the presence of signs suggestive of the risk of injury. These are changes frequently found in the feet of people with DM and their presence, associated with loss of peripheral sensitivity, is often triggering the diabetic foot.⁷ However, other

indicators, such as callosities and nail dystrophies, were few portrayed in the studies, which indicates that more extensive and detailed investigations are necessary.

Regarding the neurological evaluation, the studies investigated in this review used different tests to evaluate the sensitivity and reflexes. Currently, it is recommended, for the identification of diabetic neuropathy, the evaluation of pain sensitivity through the test of the bite with the use of pins or needles; of thermal sensitivity with the use of a hot and cold water test tube; of the vibratory using a tuning fork of 128 Hz and the tactile sensitivity with a cotton or monofilament of Semmes-Weinstein ten grams. The reflex tests, however, include the evaluation of the patellar and tendinous reflex Aquileus by means of the percussion of the tendons with a reflex hammer.^{2,27}

Among these, the method of choice is Semmes-Weinstein's monofilament test at ten grams for the ability to identify sensitivity changes associated with good specificity, simplicity, and low cost. This fact may have contributed to the greater number of studies (n = 9) in this review choosing to do so. However, the performance of this test does not eliminate the need to add other tests, because, to confirm the change, it is suggested to associate at least one more method.^{2,28}

It is also observed that a great part of the objectives of the evaluated articles had as a purpose to search for neuropathic signs, which allows to infer that the concern in identifying the presence of diabetic neuropathy is due to this being one of the main causes of the diabetic foot.²⁹ In this sense, it is important to emphasize the importance of incorporating neurological assessment, with appropriate tests, in all evaluations of the feet of the person with DM.

Another determinant condition for diabetic foot is the presence of Peripheral Arterial Disease (PAD), and vascular evaluation is paramount in examining the feet. As seen, the studies in this survey prioritized the assessment of the tibia and pedis pulses (n = 3). PAD screening, in addition to palpation of the pulses, should be carried out in the search for claudication, pain at rest at night or during walking, and reduced gait speed. Also, it is recommended to evaluate the Arm Ankle Pressure Index (AAI), in which values lower than 0.9 are a sign of changes in the vascular level, and the observation of the color of the skin for signs of cyanosis or pallor, temperature of the feet and the decrease of the pilification.^{2,7-8}

It was possible to observe that, in evaluating the anatomy of the feet, the studies did not elaborate on the deformities due to diabetic neuropathy, so that only one study cited finger overlap and one, Charcot's Arthropathy. Deformities result from atrophy and weakness of small dorsal muscles and can be classified as hammer toes, claw toes, metatarsal prominences, hallux valgus, and Charcot arthropathy.²⁹⁻³⁰

The bony prominences resulting from these deformities, due to hyperpressure and excessive friction, can lead to hyperkeratosis, gait limitations, risk of ulcerations and secondary infections. Changes such as claw toes, hammer toes and metatarsal prominences can lead to a burning metatarsalgia. Hallux valgus, which consists of lateral hallux deviation, accompanied by a deviation in the medial portion of the head of the first metatarsal bone, has, as an implication, localized pain and in the plantar region of the first metatarsus, which is aggravated by ambulation, contributing to the claudicating march. Charcot arthropathy, called the "foot of Charcot", is an osteoarticular deformity that generates intense inflammatory activity and bone destruction resulting from the sensorial loss associated with repetitive mechanical trauma in the lower limbs leading to the clinical picture of intense pain and postural instability, factors that increase the risk of falls.³¹⁻³

All of these implications should alert health workers to the opportunity to assess plantar pressure and advise the individual on the use of appropriate therapeutic and shoe insoles for pressure relief.^{7,30}

Regarding the guidelines and self-care measures for the prevention of diabetic foot, in the studies analyzed (n = 3), the daily foot inspection, the use of moisturizers, the drying of the feet and interdigital spaces, the use of proper shoes, avoid walking barefoot, nail care, such as using sanding and correct cutting, in addition to encouraging the practice of physical activity, avoid smoking and increase the frequency of examination of the feet. In addition to these measures, it is important for health professionals to address injury prevention issues such as monitoring of water temperature during foot hygiene to avoid burns due to decreased thermal sensitivity; the use of socks to promote the detection of exudate; shoes and socks of appropriate size and without seams to avoid excessive friction; check daily the internal portion of the footwear to detect the presence of objects that could injure the feet,

if necessary, with the use of mirrors; do not remove corns and calluses, as these should be evaluated and treated by the health team.^{7,34}

CONCLUSION

In summary, the study allowed to extract important indicators for the evaluation of the feet and the consonance among the analyzed studies was observed with what is recommended in the main guidelines and guides referring to the problematic. And, although there are limitations, such as the presence of studies with a low level of evidence, the variety of instruments for foot evaluation and the absence of studies that include systematic and standardized evaluations, it is worth mentioning that this survey brings new perspectives by providing a consensus among the criteria that may support wider assessments in the feet and promote a more holistic assistance to the person with DM. It is also suggested to apply this knowledge in the elaboration of instruments in order to better guide the professional during the evaluation of the feet of the person with DM in clinical practice, as well as in scientific investigations.

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