ISSN: 1815-7696 | RNPS: 2057 | Mendive. Journal on Education. Vol. 24, e4553
Casanova Moreno, M. de la C.; Moreno Iglesias, M.; Machado Reyes, F.; Gómez Guerra, D. B. "Professional development process on education for older adults with type 2 diabetes mellitus".
https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/4553

2026

Review article

Professional development process on education for older adults with type 2 diabetes mellitus

Proceso de superación profesional sobre educación a la persona mayor con diabetes mellitus tipo 2

Processo de desenvolvimento profissional na educação de idosos com diabetes mellitus tipo 2

Maria de la Caridad Casanova Moreno[1] 0000-0002-4778-5269 creciendox2vez@gmail.com
Modesta Moreno Iglesias[2] 0000-0002-1859-3399 modesta.moreno@upr.edu.cu
Francisco Machado Reyes[1] 0009-0001-3347-2990 pakitomachado812@gmail.com
Diana Belkys Gómez Guerra[1] 0000-0002-5165-6240 dianagomez55@gmail.com

[1] University of Medical Sciences of Pinar del Río. Cuba.
[2] University of Pinar del Río "Hermanos Saíz Montes de Oca". Cuba.

Received: 10/02/2026
Accepted: 24/04/2026

ABSTRACT

In the professional development process regarding education for older adults with type 2 diabetes, active diabetes education at the primary care level must be considered and aligned with the family physician's own objectives. The objective was to systematize the historical and theoretical background of the professional development process concerning education for older adults with type 2 diabetes in relation to improving the family physician's performance. Research was conducted in the field of Medical Education with a dialectical-materialist approach, employing theoretical, historical-logical, systemic-structural, and functional methods, as well as analytical-synthetic

Translated from the original in Spanish

methods and systematization. Documentary analysis was also conducted, including the Diabetes Education Program and the National Comprehensive Care Program for Diabetics, both from Cuba, along with postgraduate resolutions and statistical health yearbooks. The study successfully defined the research objective, specifically its relevance to improving the family physician's performance. It was concluded that the professional development process regarding education for older adults with type 2 diabetes mellitus in relation to improving the performance of family physicians was defined as: a system of stages that facilitate the methodological influx of tasks for the consequent updating of the content of the same that complete prevention, health education, health communication, prevention, pharmacological and non-pharmacological treatment, early diagnosis of complications, risk stratification and evaluation.

Keywords: professional development; diabetes mellitus; family physician; comprehensive general practitioner; diabetes education; older adult; performance improvement.

RESUMEN

En el proceso de superación profesional sobre educación a la persona mayor con diabetes mellitus tipo 2, ha de admitirse la educación activa de la diabetes mellitus tipo 2 en el primer nivel de atención y su relación con los propios objetivos del médico de familia. El objetivo estuvo dirigido a sistematizar los antecedentes históricos y teóricos del proceso de superación profesional sobre educación a la persona mayor con diabetes mellitus tipo 2, en relación con el mejoramiento del desempeño del médico familiar. Se desplegó una investigación en el campo de la Educación Médica con enfoque dialéctico materialista, mediante el empleo de métodos del nivel teórico (histórico-lógico, sistémico-estructural y funcional, analítico-sintético y sistematización) y del análisis documental de programas como el de Educación en Diabetes y el Nacional de Atención Integral al Diabético, ambos de Cuba; así como resoluciones de posgrado y anuarios estadísticos de salud. Se logró estudiar el objeto de la investigación en correspondencia con el mejoramiento del desempeño del médico familiar, lo que posibilitó definirlo. Se concluyó que el proceso de superación profesional sobre educación a la persona mayor con diabetes mellitus tipo 2, en relación con el mejoramiento del desempeño del médico familiar, se definió como: un sistema de etapas que facilitan el influjo metodológico de tareas para la actualización consecuente de los contenidos de dicha educación, los cuales completan la prevención, la educación para la salud, la comunicación en salud, el tratamiento farmacológico y no

farmacológico, el diagnóstico precoz de complicaciones, la búsqueda, la estratificación de riesgo y la evaluación.

Palabras clave: superación profesional; diabetes mellitus; médico familiar; médico general integral; educación diabetológica; adulto mayor; mejoramiento del desempeño.

RESUMO

No processo de desenvolvimento profissional em educação para idosos com diabetes tipo 2, a educação ativa em diabetes nos cuidados primários deve ser considerada e alinhada com os objetivos do médico de família. O objetivo deste estudo foi sistematizar o contexto histórico e teórico do desenvolvimento profissional em educação para idosos com diabetes tipo 2, visando melhorar o desempenho do médico de família. A investigação foi conduzida na área da Educação Médica, com uma abordagem dialético-materialista, empregando métodos teóricos, histórico-lógicos, sistémico-estruturais e funcionais, bem como métodos analítico-sintéticos e de sistematização. Realizou-se também análise documental, incluindo o Programa de Educação em Diabetes e o Programa Nacional de Atenção Integral ao Diabético, ambos de Cuba, juntamente com resoluções de pós-graduação e anuários estatísticos de saúde. O estudo definiu com sucesso o objetivo da investigação, especificamente a sua relevância para a melhoria do desempenho do médico de família. Concluiu-se que o processo de desenvolvimento profissional em educação para idosos com diabetes mellitus tipo 2, com o objetivo de melhorar o desempenho dos médicos de família, foi definido como: um sistema de etapas que facilitam o influxo metodológico de tarefas para a consequente atualização do conteúdo das mesmas, abrangendo a prevenção, a educação para a saúde, a comunicação em saúde, o tratamento farmacológico e não farmacológico, o diagnóstico precoce de complicações, a estratificação de risco e a avaliação.

Palavras-chave: desenvolvimento profissional; diabetes mellitus; médico de família; clínico geral; educação na diabetes; idosos; melhoria do desempenho.

INTRODUCTION

In the professional development process regarding education for older adults with type 2 diabetes mellitus (T2DM), active screening for non-communicable diseases at the primary care level must be

considered and aligned with the objectives of the family physician, as defined in the Family Physician and Nurse Program of the Cuban Ministry of Public Health. With T2DM classified as one of the epidemics of the century by the World Health Organization (WHO), according to new data published by *The Lancet* on the occasion of World Diabetes Day, the number of adults living with diabetes worldwide has surpassed 800 million; that is, the figure has quadrupled since 1990.

The analysis carried out by the NCD Risk Factor Collaboration (NCD-RisC) with the support of the WHO, emphasizes the magnitude of the diabetes epidemic and the urgent need for more vigorous action on a global scale to address both the rising rates of the disease and the widening therapeutic gap, particularly in low- and middle-income countries (WHO, 2024), which shows the need to address the improvement of professional performance in the context.

If we are to analyze the professional development needs of family physicians at the primary care level, type 2 diabetes in older adults is a priority; taking into consideration that one of the fundamental pillars of treatment is diabetes education, and that the late identification of its complications leads to an inconsistent articulation of its content to the established treatment pillars, which restricts the projection of comprehensive professional development actions.

Type 2 diabetes mellitus (T2DM) is a chronic, degenerative disease characterized by chronic hyperglycemia and alterations in carbohydrate, fat, and protein metabolism. It is currently considered a pandemic due to its increasing prevalence. Worldwide, this type of diabetes accounts for 90% of cases, with an age range of 20 to 79 years, a stage of life that is economically active (Serret *et al.*, 2025).

In Cuba, since 1960, diabetes mellitus has been among the top 10 causes of death, with an increasing trend. In 2024, it ranked eighth, with a total of 2,305 deaths, for a crude rate of 22.5 per 100,000 inhabitants and the same ranking with 2.1 years of potential life lost. That year, Pinar del Río reported 48 deaths from diabetes mellitus, a crude rate of 9.2 per 100,000 inhabitants. The prevalence of the disease in Cuba, according to data from the 2024 Statistical Yearbook of Health, was 71.3. The most affected age groups were 60-64 years and 65 and over, and within these groups, women were disproportionately affected, with rates of 201 and 173.1, respectively. The province of Pinar del Río reported a prevalence of 76.5, higher than the national rate. all these last rates per 1000 inhabitants.

At the same time, population aging in Cuba constitutes a demographic problem, with 25.7% of the population aged 60 and over. According to the statistical yearbook, this figure is expected to increase

in the coming years, and by 2050 Cuba will be among the nations with the highest number of older adults in the world, reaching 34.9% of the population. The same document indicates that 25.6% of the population of Pinar del Río falls into this age group.

In Pinar del Río, the health situation is characterized by an increase in non-communicable diseases, primarily cardiovascular diseases, vector-borne diseases, and other communicable diseases. The fact that a quarter of the population is 60 years of age or older indicates the need to focus professional development on educating older adults with type 2 diabetes at the primary care level, given that diabetes mellitus and aging constitute substantial risk factors for this condition. This issue has been investigated and reflects a weak impact on improving the performance of family physicians.

In accordance with the above, the objective of this article is to systematize the historical and theoretical background of the professional development process regarding education for older adults with type 2 diabetes, in relation to improving the performance of family physicians. To achieve this objective, a study was developed based on the dialectical materialist method, which, within the framework of educational research, facilitates the advancement of knowledge—an essential process given its theoretical nature. Therefore, theoretical methods such as the historical-logical, systemic-structural, and functional approaches, as well as documentary analysis, analytical-synthetic methods, and systematization, were employed.

DEVELOPMENT

Historical evolution, demand and systematic updating of content on education for older people with type 2 diabetes

In the context of educational research, every educational process or phenomenon has its own history and, therefore, can be subject to periodization; however, for this periodization to be truly scientific, it must reflect the intrinsic laws of the phenomenon's development and its relationship to the rest of the historical-pedagogical process. Enrique Semo, according to Pastrano-Rivero (2021), states that all periodization is an abstraction, through which a specific moment in history is separated to give it the character of a rupture or turning point. In this sense, the work of Sandrino Sánchez *et al.* (2023) in the field of educational research is useful, as he has argued that a historical approach is necessary to understand the problematic manifestation, clarify the theoretical gap that reveals the scientific problem, and guide its solution from a scientific perspective.

In light of the foregoing, and recognizing the importance of knowledge and systematic updating of education for older adults with type 2 diabetes mellitus (T2DM) among family physicians—given that this is also the cornerstone of DM treatment—the objective of this analysis was to characterize the evolution of the content of this education in professional development programs. The following indicators are required for this historical study: the presence of educational content for older adults with T2DM in professional development programs (based on what has been found to be constant); the transfer of this content to different levels of care (to specify the content relevant to each level of care); and the use of the content on this topic at different levels of care (to determine the necessary content for primary care).

Diabetes education for older adults has been conceived worldwide and in Cuba as a cornerstone of treatment and self-care, with a growing emphasis on structured programs, active patient participation, and a community-based approach. As a result, it is evident that the first references to diabetes education date back to before the beginning of the 20th century (1835); even then, Bouchard spoke of the diabetic's control of glucosuria as a means of improving their diabetes management.

Since 1919, Joslin has dedicated a chapter of his *Manual to diabetic education*, emphasizing that any treatment was a waste of time and money unless the patient was educated about their own management. Diabetes education programs have influenced the decrease in acute metabolic crises and their sequelae, as well as the substantial reduction in the use of diabetes mellitus studies (Martínez *et al.*, 2022).

The insulin era and the expansion of education occurred between the 1920s and 1950s, as the discovery and clinical use of insulin in the 1920s (Banting, Best, Macleod, and Collip) allowed education to focus on teaching patients and families how to manage injections, diet, and prevent hypoglycemia. With the rise of type 2 diabetes and the advent of oral hypoglycemic agents in the 1950s, specific educational goals were defined to improve glycemic control and reduce complications, solidifying education as a standard component of care (Sims *et al.*, 2021).

In the 1960s, "therapeutic diabetes education" was recognized as part of chronic treatment, and specific manuals and guides on diabetes education appeared. In the 1970s, the first formal associations of diabetes educators emerged, and specialized nursing in this field was recognized, thus institutionalizing the role of the diabetes educator. In the 1980s, the WHO declared that

education is a cornerstone of diabetes treatment and essential for integrating the patient into society, which spurred educational programs in many countries (Jansà, 2022).

In the 1990s, studies such as the Diabetes Control and Complications Trial (DCCT) and the UK Prospective Diabetes Study (UKPDS) demonstrated the impact of intensive control on reducing complications, reinforcing the need for structured education programs to support intensive self-management.

Person-centered and specific group-centered approach (2000 onwards)

Since the beginning of the 21st century, the International Diabetes Federation and various clinical societies have proposed that education should be continuous, person-centered and adapted to specific groups (older adults, children, pregnant women), integrating psychosocial and quality of life aspects (Dickinson *et al.,* 2021).

In recent literature on health promotion and prevention in older adults, Cisneros - Zumba *et al.* (2024, Venezuela) highlight health education as a key tool for older people to learn about risk factors, adopt healthy lifestyles and improve their quality of life, emphasizing the need for programs adapted to their characteristics.

In Cuba, the key figures are concentrated around the National Institute of Endocrinology (INEN) and the design and deployment of the Cuban Strategy for Diabetes Education and the National Program for Comprehensive Care for Diabetics in 1975.

National leaders of the educational strategy

- Team from INEN and the Diabetic Care Center (CAD): since 1972, this group promoted the idea that therapeutic education was a "strong link" in treatment, created the CAD (first in Latin America and the Caribbean) and developed cyclical courses of basic information for people with diabetes and their families.
- García R. and collaborators: documented the "Results of the Cuban strategy for diabetes education after 25 years of experience", showing the transition from isolated actions to a true national educational program, with improved knowledge, therapeutic adherence, metabolic control and reduction of complications.

Yanes *et al.* (2018) argue that therapeutic education is one of the fundamental aspects of the treatment of people with diabetes, and that in older adults it has peculiarities that require: initial comprehensive evaluation, adaptation of the content to the subject and conceiving education as treatment, with the central objective of promoting self-care and therapeutic adherence without deteriorating the quality of life.

Crook *et al.* (2019) analyze diabetes education in the context of family medicine in Cuba, noting that the prevalence and mortality from diabetes is higher in older adults, which necessitates strengthening the role of the primary care team in the continuous and personalized education of this age group.

In the authors' opinion, these works coincide in highlighting the need to professionalize diabetes education, train health teams as educators, and systematically evaluate the programs implemented.

In Pinar del Río, Casanova *et al.* (2015, 2016, 2018), working from 2011 to the present, have established a line of applied research within Primary Health Care (PHC). They first evaluated the existing program, then designed a new program, and later formulated a comprehensive educational strategy involving healthcare providers and the community, targeting older adults with diabetes mellitus. This strategy identifies learning needs (the relationship between diet, exercise, and diabetes, family communication, and medication use) and proposes educational activities focused on community participation and collaborative work with the family physician and nurse.

Therefore, given the need for contextualization in that space, approaches to the solution are made by designing a strategy with the objective of achieving the improvement of the performance of the family doctor.

The above allowed the establishment of three milestones or historical moments for the professional development process regarding education for older adults with type 2 diabetes mellitus (DM2):

- Recognition of the need for diabetes education for elderly diabetics.
- Gradual introduction of technologies for diabetes education to elderly diabetics.
- Integration of clinical, epidemiological and technological factors into the content of diabetes education for elderly diabetics.

The last milestone or historical moment is still held today and is linked to the obligation to incorporate and transform the improvement plans in postgraduate studies.

The precision of the three milestones or historical moments as a result of the historical-logical analysis allowed defining three stages in the determination in improvement programs.

- Empirical
- Incipient projection
- Integrative

Historical research allows us to understand and reflect on a phenomenon, highlighting key concepts and hypotheses, and understanding the relationships between history, time, memory, and space. Historical research is defined as the effort undertaken to establish events, occurrences, or occurrences within a field of interest to the historian; methodology refers to the approach taken to problems and the search for answers (Sánchez & Murillo, 2021).

Source-based historical research helps readers who don't conduct research to learn about these sources without consulting them directly. In education, it allows teachers and students to access not only the research results, which stem from a problem-solving process and are guided by a classroom research methodology, but also the specific locations where these results were obtained. Furthermore, it provides the opportunity to review these sources to view them from a different perspective or with specific knowledge. This fosters the development of competence in handling historical information, the development of historical thinking, and communicative, digital, and creative skills, culminating in the presentation of the research results or findings as a final product (Sánchez & Murillo, 2021).

Finally, the following features characterize the evolution of content on education for diabetics and older people with type 2 diabetes in the recovery programs:

- The year 1919: these were the first descriptions on diabetic education.
- 1960s-70s: in the United States and Europe, "therapeutic diabetes education" was formalized, so the specific content in improvement plans was imprecise.
- 1980s-1990s: the number of structured, patient-centered diabetes education programs grows, and the adaptation of content for older adults begins to differentiate.
- Since 2000: the International Diabetes Federation (IDF) and other societies have recommended individualized diabetes education programs, with special emphasis on vulnerable groups such as the elderly.

- In Cuba: the National Diabetes Group of MINSAP/INEN developed in 1975 the National Program for Comprehensive Care for Diabetics, which integrates prevention, treatment and education, and which in 1992 was prioritized at the level of health policy with concrete goals of reducing mortality.
- In Pinar del Río: from 2011 to the present, an applied research line related to the professional development of the family doctor is being formed, which includes health providers, diabetics, older adults with type 2 diabetes mellitus (DM2) and the community.

From a historical-logical perspective, insufficient clarity has been revealed regarding the approach to content from the first level of health care in Cuba.

Education for older adults with type 2 diabetes as a necessary path to self-improvement from a conscious and contextualized perspective

The family physician, with a holistic view of the health-disease process, employs, among other actions in their daily practice, the clinical-epidemiological method and measures for health promotion, prevention, recovery, and rehabilitation in response to adverse deviations in this process. They promote health actions that contribute to improving knowledge, attitudes, and healthy practices within the population, emphasizing the active participation of organized communities and intersectoral collaboration. Furthermore, they develop initiatives that foster positive changes in the social integration of individuals, families, and communities, as well as promote individual, family, and community self-responsibility regarding health, encouraging healthy hygiene habits.

The challenge is extensive, given the need to focus efforts on the prevention and education of non-communicable diseases, including type 2 diabetes mellitus (T2DM). Therefore, family physicians are tenaciously addressing the impact of diabetes education on older adults. Managing this disease is multidisciplinary for all patients and requires effective coordination among different levels of care, where family physicians and members of the Basic Work Group (BWG) play a crucial role.

Education of older adults with type 2 diabetes can be carried out by various health professionals; however, because patients live in Primary Health Care (PHC) settings, family doctors have a unique opportunity to educate them and identify their risks and complications (Tafurt *et al.*, 2024).

Care for people with diabetes should be based on a comprehensive, person-centered approach, fostering a close relationship between patients and the healthcare professionals who plan their

treatment. This care should be delivered by a coordinated, interdisciplinary team, in which the family physician plays a fundamental role. Communication is key to establishing a collaborative relationship in treatment planning, monitoring complications, and promoting a healthy lifestyle. The goal of patient-centered care is to significantly improve disease outcomes, enhance patient well-being, and assess and address barriers to self-care. It is worth remembering that "the overall goals of diabetes treatment are to prevent or delay complications and optimize quality of life" (Peral *et al.*, 2024, p. 10).

According to Casanova Moreno, cited by Wong *et al.* (2021), primary care physicians and multidisciplinary teams are particularly involved in educating older adults with type 2 diabetes. While education for older adults with type 2 diabetes can be managed through primary care, changes in the organization of care are essential: training and communication between different levels of care are mandatory.

In recent years, diabetes education has shifted towards focusing on the participation of people with diabetes in education and support for self-management of the disease, enabling them to make informed decisions. In this regard, there are five critical moments for assessing the need for education and support to promote the acquisition of skills to aid in the implementation of the treatment plan, nutritional therapy, and overall well-being: at the time of diagnosis; when annual therapeutic goals are not met; when factors complicating the situation (medical, physical, and psychosocial) develop; and when life and care transitions occur. Another important aspect is adapting diabetes education to cultural sensitivities and individual preferences and values, offering it in group or individual settings and utilizing technology to break down access barriers and improve satisfaction (Dimas *et al.*, 2024).

Family physicians perceive both the benefits and risks of interprofessional team care for the care of patients with type 2 diabetes. The success of team care in family medicine requires overcoming traditional professional roles (Torti *et al.*, 2022).

The professional development process regarding education for older adults with type 2 diabetes in Primary Health Care

Postgraduate education in Cuba, according to the Postgraduate Education Regulations of the Republic of Cuba, Resolution No. 140/2019, constitutes the highest level of the National Education System. Its implementation is structured into: professional development, postgraduate academic training,

and doctoral studies. Its central objectives are postgraduate academic training and the continuous professional development of university graduates throughout their careers.

Continuing professional development is a priority in today's world. International organizations place special emphasis on this aspect, aiming to improve performance in different spheres of activity so that professionals can successfully respond to new social changes. To meet the demands of our time, professional development contributes to the systematic updating of university graduates, the improvement of their professional and academic performance, and the enrichment of their cultural background. Furthermore, it helps solve the professional problems faced by graduates and equips them with the knowledge, skills, and values necessary to prepare them to meet the demands of the current context (Ramírez & Rodríguez, 2023).

Advanced Education, as a Cuban pedagogical theory, is a theoretical and practical proposal that arose from reality itself, in response to the need to enrich the conceptual and scientific-methodological foundation of all processes. Its application makes it possible to increase the quality of educational practice. A country does not necessarily have to be wealthy to have a good education system; human capital is more important. The qualitative composition of the teaching staff is influential (Añorga, 2014).

Advanced Education constitutes an educational theory that fosters personal satisfaction and the resolution of social problems, thereby contributing to the improvement of human behavior. To achieve its objectives, performance is identified as an essential variable within the pedagogical and educational process. In this sense, the theory defines performance improvement as the conscious pedagogical process, developed through the system of relationships and interrelationships established by the individuals involved and the contributions of professionalization to achieve professional and human improvement, new levels of professionalism, and enhanced human behavior (Añorga, 2014).

That is, the investigative logic of Advanced Education developed from professionalization to performance improvement and, from this to the development of competencies, by affirming that continuous approaches to performance improvement lead to professional and human improvement (Añorga, 2014).

In the authors' opinion, the theory of Advanced Education grants the investigated topic the suitability of contextualizing knowledge by initiating, from actions that manage to be applied to innovative

circumstances, different learnings, by incorporating as part of a continuous and interactive process that generates new experiences and facilitates systematizing the theoretical approaches of the identification of the need for education of the elderly person with DM2.

On the topic of professional development, several authors have conducted research revealing its characteristics and forms, the importance of designing it based on training needs, and the necessity of using active learning methods in its implementation. Among these authors, according to Estevez *et al.* (2023), are, to name a few: Valle; López and Rojas (2021); Huguet *et al.* (2021); and Diéguez. This research has allowed the authors to see how their opinions coincide in the following aspects:

- It has a constant and uninterrupted character, based on the need to delve deeper and transform the contents in accordance with the updating of knowledge that becomes obsolete very quickly.
- It has an impact on improving the quality of services, the level of satisfaction, and the social recognition of the profession.
- It incorporates learning needs and social demands, within the social context of each member.
- A process that enables the renewal, expansion, and uninterrupted optimization of the knowledge, basic and specialized skills of professionals, contributes to the preparation of the professional through a conscious and contextualized training process.

From a philosophical perspective, education, as a pedagogical phenomenon, unfolds throughout history, adopting diverse characteristics and forms of manifestation that allow us to appreciate it as a process—a term that the Philosophical Dictionary defines as "the systematic, law-governed transformation of a phenomenon" (Rosental & Ludin, 1981, p. 376). Thus, we can refer to the historical-pedagogical process, which reveals the constant transformations occurring in education, in the school as an educational institution, and in the ideas that explain the pedagogical act in its diversity. These transformations, as in any social process, are gradual and exhibit characteristics specific to the historical stages and periods in which they manifest, evolving in subsequent ones, in a constant dynamic governed by historical, philosophical, sociological, and pedagogical laws.

This definition constitutes a first step towards understanding and appropriating the reasoning of those who argue that professional development, with a perpetual, dynamic, and innovative character, is defined as the set of teaching-learning processes that enable the acquisition and continuous improvement of the knowledge and skills of university graduates, required for a better performance

of their responsibilities and work functions; in addition, it provides the advancement of different sectors and branches of production, services, scientific research, technology, art, and the economic and social needs of the country.

All of the above allows the authors to conclude that professional development is obtained from a general configuration and the process of professional development is perennial, developmental, delimited and specific for the overcoming of a topic, in this case the education of the elderly person with DM2.

It is reasonable to reason that this "consequent mutation," which enables the judicious and contextualized renewal, refinement, and deepening of the educational content for older adults with type 2 diabetes, allows for a higher level of efficiency in the performance of family physicians. This is improvement, and it is what distinguishes the professional development process from other professional development.

Based on these foundations, the main theoretical and conceptual sources guiding the research were identified as: professional development, education for older adults with type 2 diabetes mellitus (T2DM), and the content of this education. This facilitated the professional development process regarding education for older adults with T2DM in relation to the improvement of the family physician's performance. This process was defined as a system of stages that facilitate the methodological influx of tasks for the ongoing updating of the content, which includes prevention, health education, health communication, pharmacological and non-pharmacological treatment, early diagnosis of complications, as well as the search for, stratification of, and appropriate evaluation of risk by the family physician, thus contributing to improved performance.

CONCLUSIONS

The professional development process described reflects a historical evolution in the care of older adults with type 2 diabetes, from traditional approaches focused on medical treatment to comprehensive educational models that prioritize patient empowerment. This trajectory underscores the importance of continuously training professionals to adapt interventions to the changing needs of the aging population. In this way, the foundations are laid for more humane and effective care in the future.

At the same time, identifying the main theoretical and conceptual sources guiding the research made it possible to define the professional development process for educating older adults with type 2 diabetes in relation to improving the performance of family physicians. This process was defined as a system of stages that facilitate the methodological influx of tasks for the ongoing updating of the content, encompassing prevention, health education, health communication, pharmacological and non-pharmacological treatment, and early diagnosis of complications, as well as the appropriate risk assessment, stratification, and evaluation by the family physician, thus contributing to improved performance.

REFERENCES

Añorga, J. A. (2014). La Educación Avanzada y el Mejoramiento Profesional y Humano. *Varona*, (58), 19-31. https://www.redalyc.org/articulo.oa?id=360634165003

Casanova Moreno, M. de la C., Bayarre Vea, H. D., Navarro Despaigne, D. A., Sanabria Ramos, G., & Trasancos Delgado, M. (2015). Guía para evaluar el programa de educación en diabetes en la Atención Primaria de Salud. *Revista Cubana de Medicina General Integral*, *31*(1), 17-26. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252015000100004&lng=es&tlng=es

Casanova Moreno, M. de la C., Navarro Despaigne, D. A., Bayarre Vea, H. D., Sanabria Ramos, G., Trasancos Delgado, M., & Moreno Iglesias, M. (2016). Diseño de un programa de educación para la salud dirigido a adultos mayores con diabetes mellitus. *Revista Archivo Médico de Camagüey*, *20*(4), 394-402. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1025-02552016000400008&lng=es&tlng=es

Crook, A., Garrido Amable, O., Fernández Díaz, I. E., & Castro, A. (2019). Educación del diabético en el contexto de la medicina familiar en Cuba. *Revista Cubana de Medicina General Integral*, *35*(2). http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252019000200013&lng=es&tlng=es

Cisneros-Zumba, N. B., Tumbaco-Galarza, A., Peralta-Palacios, B. M., & Avendaño-Valenzuela, L. G. (2024). Efectividad de la educación en salud para la prevención de diabetes en adultos mayores. *Revista Arbitrada Interdisciplinaria de Ciencias de la Salud. Salud y Vida*, *8*(16), 99-107. https://doi.org/10.35381/s.v.v8i16.4146

Dimas-Altamirano, B., Dimas-Altamirano, C. R., Santana-González, C. C., Gómez-Ortega, M., Bobadilla-Serrano, M. E., & Maciel-Vilchis, A. del C. (2024). Estudio de caso: Educación terapéutica a adulto mayor con diabetes mellitus tipo 2 y osteoporosis. *Sanus*, *9*, e408. https://doi.org/10.36789/revsanus.vi1.408

Dickinson, J. K., Drozdz Burke, S., & Traficano, S. (2021). From Diabetes Educators to Diabetes Care and Education Specialists: Time for Change. *ADCES in Practice*, *9*(5), 52-55. https://doi.org/10.1177/2633559X211029960

Estévez Arias, Y., Llivina Lavigne, M. J., & Rodney Rodríguez, Y. (2023). La superación profesional de los docentes ante situaciones de violencia en la comunidad educativa. *Mendive. Revista de Educación*, *21*(3). http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1815-76962023000300007&lng=es&tlng=es

Huguet, Y., Quintana, F., & Endo, J. (2021). La superación profesional psicopedagógica del docente universitario en educación médica. *Edumecentro*, *13*(2), 307-313. https://www.medigraphic.com/pdfs/edumecentro/ed-2021/ed212u.pdf

Jansà i Morato M. (2022). La hora del cambio: de educadores en diabetes a especialistas en la atención y educación en diabetes. Dominios y competencias. *Ciencia al día. Sociedad Española de Diabetes*, 9 febrero. https://www.revistadiabetes.org/wp-content/uploads/12_La_hora_del_cambio_OK.pdf

López, L., & Rojas, M. (2021). Programa de superación profesional como vía para la formación doctoral. *Conrado*, *17*(80), 304-311. https://conrado.ucf.edu.cu/index.php/conrado/article/view/1848

Martínez Fernández, I., Vázquez López, I. Elena, & Álvarez Flores, Y. B. (2022). Impacto de una intervención educativa en diabéticos tipo 2. *Medicentro Electrónica*, *26*(2), 458-466. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30432022000200458&lng=es&tlng=es

OMS. (2024). *Ante el aumento en el número de casos en todo el mundo, que se han cuadruplicado en los últimos decenios, es necesario tomar medidas urgentes contra la diabetes*. Ginebra.

https://www.who.int/es/news/item/13-11-2024-urgent-action-needed-as-global-diabetes-cases-increase-four-fold-over-past-decades

Pastrano Quintana, E. V., & Lissabet Rivero, J. L. (2021). Caracterización histórica del establecimiento de las relaciones interdisciplinarias de las matemáticas en la carrera de administración de empresas en la Universidad Técnica Estatal de Quevedo en Ecuador. *Conrado*, *17*(83), 55-63. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1990-86442021000600055

Peral Martínez, I., Miravet Jiménez, S., Rubio, A. A., Bravo, A. A., Arranz Martínez, E., Durán, M. B., Simarro, F. L., Bravo, J. M., Novillo López, C., Loro, A. O., Paz, M., Unanua, P., Ruiz García, A., & Turégano, M. (2024). *Manejo práctico del paciente con dm2 en atención primaria*. Semergen.es. https://semergen.es/files/docs/biblioteca/guias/2024/guiasClinicasDiabetes2024.pdf

Ramírez-Lara, E. J., & Rodríguez-Companioni, O. (2023). Superación profesional del Médico General Integral en atención de úlceras por presión. *Educación Y Sociedad*, *21*(Especial), 71–91. https://revistas.unica.cu/index.php/edusoc/article/view/4821

Sandrino Sánchez, M., Hernández Rodríguez, I. M., & Ferro González, B. (2023). El proceso de superación profesional sobre fibrilación auricular en la Atención Primaria de Salud. *Universidad y Sociedad*, *15*(6), 710-716. https://rus.ucf.edu.cu/index.php/rus/article/view/4191

Sánchez Molina, A. A., & Murillo Garza, A. (2021). Enfoques metodológicos en la investigación histórica: cuantitativa, cualitativa y comparativa. *Debates por la historia*, *9*(2), 147-181. https://doi.org/10.54167/debates-por-la-historia.v9i2.792

Serret-López, D., Rodríguez-Salvá, A., Díaz-Piñera, A., & Maldonado-Cantillo, G. Caracterización clínico-epidemiológica de personas con diabetes mellitus tipo 2 en el Policlínico Docente de Playa. *Revista Finlay*, *15*. https://www.revfinlay.sld.cu/index.php/finlay/article/view/1510

Sims, E. K., Carr, A. L. J., A Oram, R. A., DiMeglio, L. A., & Evans-Molina, C. (2021). 100 años de insulina: celebrando el pasado, el presente y el futuro de la terapia para la diabetes. *Nat Med, 27*(7), 1154–1164. https://doi.org/10.1038/s41591-021-01418-2

Tafurt Cardona, Y., Ramón Collazos, R. A., Murillo Cumber, C. A., Ortiz Tique, J. P., Mendoza Pérez, P., & Peralta-Pineda, E. (2024). Impacto de la intervención educativa en una población con Diabetes Mellitus tipo 2. *Revista de la Facultad de Ciencias Médicas (Córdoba, Argentina)*, *81*(4), 752–767. https://doi.org/10.31053/1853.0605.v81.n4.44579

Torti, J. M. I., Szafran, O., Kennett, S. L., Bell, N. R. (2022). Atención interprofesional de pacientes con diabetes mellitus tipo 2 en atención primaria: perspectivas de los médicos de familia. *Cuidado primario de BMC*, *23*(74). https://doi.org/10.1186/s12875-022-01688-w

Yanes Quesada, M., Cruz Hernández, J., González Calero, T. M., Conesa González, A. I., Padilla Ledesma, L., & Hernández García, P. (2018). Educación terapéutica sobre diabetes a adultos mayores. *Revista Cubana de Endocrinología*, *29*(3), 1-10. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-29532018000300010&lng=es&tlng=es

Wong Corrales, L. A., Aguilar Hernández, I., Álvarez Rodríguez, Y., & Perera Milian, L. S. (2021). Validación de un programa educativo para brigadistas sanitarias. *Medimay*, *28*(2), 224–235. https://medimay.sld.cu/index.php/rcmh/article/view/1862

Conflict of interest

Authors declare no conflict of interests.

Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.

Translated from the original in Spanish