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Type 2 Diabetes Mellitus, Educational Challenges in Rural Settings

Worldwide, chronic diseases are considered an increasing public health issue. For the individual, these diseases lead to progressive deterioration, gradual loss of autonomy, and a decline in quality of life. Their high morbidity and mortality contribute to a significant increase in the use of healthcare resources, especially in primary care. It is estimated that 80% of primary care consultations are generated by patients with chronic diseases (1). Among these diseases is diabetes mellitus, which the WHO has identified as a global epidemic (2).

IMPORTANCE OF THE PRIMARY CARE NURSE (PCN) IN EDUCATING PEOPLE WITH TYPE 2 DIABETES MELLITUS

Primary care centers are the first place where people go if they have a health problem or want to prevent a disease. Currently, the primary care model is the basic and initial level of care provided by the health care system. We find a group of professionals trained to offer comprehensive, high-quality care, resulting from the coordinated teamwork of family medicine, nursing, pediatrics, and public health professionals, among others. Socioeconomic and cultural differences in the population pose a challenge to overcome, as does the geographic dispersion in certain areas. Educational programs must always be structured but flexible, easily adaptable to all populations.

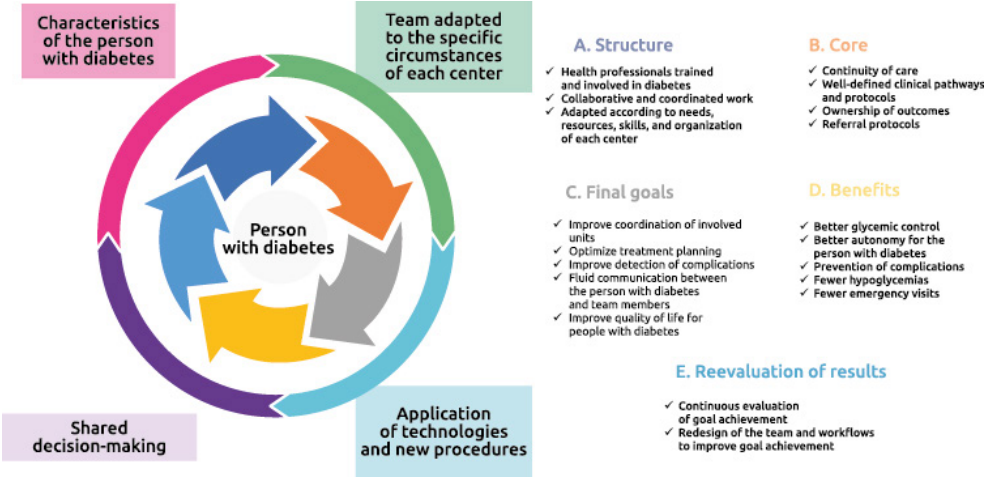
The work of the multidisciplinary team is key in the management and treatment of diabetes, to ensure high-quality care for people with diabetes, as it helps them understand and manage the disease effectively, improving their quality of life and preventing long-term complications (3).

Quoting Carmen Ferrer, "interdisciplinary collaboration in primary care involves the visibility of the specific contribution of nurses to teams and their ability to resolve citizens' problems from their own identity, in a purposeful way, with a particular focus on the crucial role nurses play in addressing current and future challenges in health service delivery, promoting quality care, coordinating between the healthcare and social sectors, and improving service efficiency, etc. It is the responsibility of everyone, especially the leaders of our institutions and health policies, to recognize and promote the specific contribution of community nurses" (4).

Primary care nurses provide care to patients in the community, dealing with both acute and chronic problems. Their activities include health promotion, health education, disease prevention, health care services, health maintenance and recovery, as well as physical rehabilitation and social work.

Type 2 diabetes mellitus is still a poorly understood disease, even by those who suffer from it. Who hasn't heard phrases like: "I have a bit of sugar, but I'm not diabetic," or "but his diabetes is not the bad one, he doesn't inject"... and many other expressions used even by professionals over the years that downplay a disease that is becoming increasingly prevalent. The challenge lies in education. If we do not educate society in general, and people with diabetes in particular, to understand this pathology and recognize its significance, we will not be able to stop its progression. »

SOCIOECONOMIC AND CULTURAL DIFFERENCES AMONG THE POPULATION PRESENT A CHALLENGE TO OVERCOME, AS WELL AS DISPERSION IN GEOGRAPHIC AREAS. EDUCATIONAL PROGRAMS MUST ALWAYS BE STRUCTURED BUT FLEXIBLE AND EASILY ADAPTABLE TO ALL POPULATIONS



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As Dr. Joslin points out: "Education is not a part of diabetes treatment, it is the treatment," and "The diabetic who knows the most is the one who lives the longest" (5). These statements highlight the importance of education in diabetes.

The educational process must first involve the person with diabetes in their environment, and in our case, we must bring that education closer to the rural population.

OBJECTIVES

In this article, we aim to analyze the educational challenges in type 2 diabetes mellitus in primary care in general, and specifically in the patients of our rural environment. We would like to share potential educational approaches from the rural nurse consultation, utilizing the resources available in our surroundings.

We will begin by discussing the context and general challenges in rural areas, followed by a focus on the specific educational challenges related to diabetes in our centers.

CONTEXT AND CHALLENGES IN THE MANAGEMENT OF T2DM IN RURAL AREAS

In studies on the incidence of type 2 diabetes mellitus, specific data from rural areas are not always disaggregated. It is known that type 2 diabetes mellitus is an increasing problem influenced by several socioeconomic and lifestyle factors (6, 7):

1. Low Educational Level: People with lower educational levels have less knowledge about the prevention and management of diabetes, as well as lower disease awareness, which can increase the risk of developing and early detection of this disease.

2. Access to Health care Services: In rural areas, the availability and accessibility of specialized medical services are limited, making early detection and proper treatment of diabetes more difficult. Additionally, this difficulty in accessibility can lead to poor adherence to treatment and therapeutic inertia by professionals due to a lack of necessary material, human, or time resources for proper patient follow-up.

» **3. Economic Income:** People with lower incomes typically have less access to healthy foods and facilities for physical activity, increasing risk factors like obesity and sedentary behavior.

4. Lifestyle and Diet: To achieve the objectives of nutritional therapy, the primary care nurse plays a key role in health education by promoting balanced diets along with the following recommendations:

- Promoting regular physical exercise.
- Achieving and maintaining an ideal weight, reducing the risk of cardiovascular diseases.
- Achieving individualized goals for blood glucose, blood pressure, and lipids.
- Preventing or delaying complications of diabetes.
- Maintaining the pleasure of eating by offering messages about food choices.

Rural areas may have traditional diets rich in carbohydrates and fats, along with fewer opportunities for regular physical activity, contributing to the incidence of diabetes. Lifestyle changes can be difficult for these patients, with deeply ingrained traditional customs.

5. Obesity: Obesity is a significant risk factor for type 2 diabetes. In rural areas, obesity rates can be high due to a combination of inadequate diet and lack of exercise.

6. Labor Conditions: Heavy physical work in rural areas can lead to exhaustion, which discourages further physical activity. Additionally, stress associated with difficult labor conditions, economic struggles, higher unemployment, etc., can also be a contributing factor.

These interrelated factors create an environment where the risk of developing type 2 diabetes is higher, highlighting the need for specific interventions from health centers, tailored to the characteristics and needs of rural communities (6,7).

On the other hand, Information and Communication Technologies (ICT) play a crucial role, for example, in the use of glucose sen- »

» sors, but present particular challenges in rural contexts:

- **Internet access and devices:** Internet connectivity and the availability of mobile devices are essential for the operation of CGM sensors, but in rural areas, these resources may be limited.
- **Education and digital literacy:** Many patients in rural areas, especially the elderly, may not be familiar with using mobile applications and digital technology.
- **Data security and privacy:** Concerns about the security and privacy of health data may pose an additional barrier for some patients.

PROFESSIONAL, MATERIAL, AND EDUCATIONAL RESOURCES IN RURAL AREAS

In the current network of health centers, we can find a variety of rural clinics with very different characteristics, all depending on the same head office. For example, there are small clinics with single professionals (doctor and nurse), where care has traditionally focused on the medical side and on-demand services. In these centers, nurses face more difficulties in changing the traditional medical model toward health education and disease prevention, which is at the heart of primary care. These professionals may also be itinerant, working certain hours in one center and others in another nearby one, or working by days depending on the organization at that time, and they must also perform other administrative tasks. These are usually small centers with limited infrastructure for group education. Material resources in these centers can be scarce and less available, which may hinder patient education and care.

In clinics serving an older population, a full primary care team is available, along with better infrastructure for group training. The proximity between clinics dependent on the same head office allows for the sharing of these resources, both human and material, by grouping both populations together. This requires adapting the education to each type of »

» patient, while considering their different educational and socioeconomic characteristics.

Rural clinics may be assigned patients who live in nursing homes. In this case, diabetes education must be provided not only to the patient but also to the caregiver and the closest family member. Education will take place at the nursing home per se, as these are typically frail patients who cannot travel to the clinic. The same applies to immobilized patients, who must be educated in their own homes.

The family and community nurse, to develop health education (HE) as a fundamental tool for health promotion, has 3 levels of community participation:

1. **Individual:** This takes place in the consultation between the professional and the patients (the most common in small clinics) or in group education rooms. It usually focuses on modifying unhealthy lifestyles.

2. **Community:** This involves specific community interventions, such as those on World Health Days, with groups of associations or volunteers, etc., leveraging human resources (politicians, teachers, pharmacists, etc.) and material resources (social centers, sports centers, schools, etc.) to reach the largest number of people. In small clinics, we must therefore take advantage of the community resources, overcoming this structural barrier.

3. **Community in the planning process:** This includes community action interventions, pressure groups, etc.

Level 3 intervention is the most complicated because in rural areas, political interests are more likely to interfere, displacing the health interests and needs of the population.

"Nurses must also recognize and value cultural differences, such as beliefs about health, practices, and the linguistic needs of diverse populations. They must take steps to identify subpopulations that are vulnerable to health disparities and further investigate the causes and potential interventions for these disparities" (8). D

CONCLUSIONS

- Education on type 2 diabetes is the foundation of treatment, and it is essential to provide patients with the necessary tools for self-care.

- In rural areas, we face many challenges: lack of material, human, and infrastructural resources, etc., which we must adapt to achieve our goals.

- The challenges in diabetes education in rural areas are conditioned by socioeconomic, labor, educational, etc., factors specific to this population.

- The population in rural areas can be entirely different, even within the same head office, and we need to adapt diabetes education to their needs.

- Diabetes education must always be carried out through structured programs, tailored to the population, both in individual and group sessions, taking advantage of community resources.

- In conclusion, after all the effort involved, the results of diabetes education in particular, and health education in general, in rural areas are very rewarding, both for patients and for professionals involved in a common goal.

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