http://www.periodicos.uem.br/ojs/index.php/CiencCuidSaude
ISSN on-line1984-7513
DOI: 10.4025/ciencuidsaude.v23i0.72596

ORIGINAL ARTICLE

PHARMACEUTICAL CARE FOR PATIENTS WITH DIABETES MELLITUS: SITUATIONAL ANALYSIS WITH QUALITY INDICATORS

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ABSTRACT

Objective: To make a situational diagnosis of pharmaceutical care for patients with diabetes mellitus in Clinical Pharmacy, using indicators relating to structure, process, and results. **Method:** this was a descriptive, exploratory study with a approach in the 14 Polo Pharmacies of the Primary Health Care Units (PHCUs) located in Fortaleza, Ceará. Data were collected between November 2021 and April 2022 using an instrument developed by the researchers from the perspective of Donabedian's triad. The “structure” and “process” variables were presented as frequencies. For the “outcome” variables, different frequency distribution parameters were applied. **Results:** it was observed that the data relating to “structure” showed “excellent” results in terms of inputs and human resources; on the other hand, they were “precarious” in terms of the environment, furniture, and databases. The analytical variables related to “process” were considered 'insufficient' regarding pharmacovigilance, disposal of expired medicines, and health education. **Conclusion:** The findings reveal social inequality that affects “structure,” “process,” and “results” in the PHCUS. Most PHCUs were considered 'satisfactory,' but some were classified as 'precarious.' The analysis of this triad provided essential data for improving pharmaceutical care.

Keywords: Primary Health Care. Diabetes Mellitus. Pharmaceutical Services. Outcome and Process Assessment in Health Care. Health Services Research.

INTRODUCTION

Diabetes is a global epidemic and a significant challenge for health systems worldwide. Recent estimates (2019–2021) point to a prevalence of 536 million people with the disease worldwide, and in Brazil, 16.8 million adults currently live with diabetes[1]. These high rates highlight the urgent need for countries to focus on prevention and promoting healthy lifestyles. They also demonstrate the importance of guaranteeing access to health care for the population and health units with safety and quality of care indicators.

In this regard, the Primary Health Care Unit (PHCU) is the first level of health care. It is characterized by planning and adopting health actions at an individual and collective level aimed at health promotion and protection, disease prevention, diagnosis, treatment, rehabilitation, data reduction, and health maintenance[2]. For it to function in a way that guarantees the management and comprehensive care of people with chronic illnesses such as diabetes, it must have a structure, work process, and health outcomes.

Using Donabedian's triad[3] to assess the quality of care in health systems allows us to look at the elements of care and their contexts, supporting leaders and managers in identifying weaknesses and strengths and enabling greater assertiveness in initiatives[4]. The use of

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Donabedian's triad for the situational diagnosis of PHCUs can be seen in some national[4,5] and international[6] studies that have already been published, revealing that, through the evaluation of indicators, it has been possible to provide greater access to health for users and control of conditions that are sensitive to primary care.

These indicators have been used in Brazil to assess the quality of care for specific audiences in Brazil's southeastern and southern regions [7]. However, few studies have directly addressed the pharmaceutical care of patients with Diabetes Mellitus in the context of Clinical Pharmacy, focusing on the cities of northeastern Brazil, highlighting the importance of developing research that analyzes how pharmaceutical care can meet the needs of this population, considering the specificities and regional challenges in diabetes management, which justifies the development of this study. In this way, this study seeks to answer the question: how can the quality indicators of health care be improved from the perspective of Clinical Pharmacy for patients with Diabetes Mellitus?

Changing practices at PHCUs require continuous investment in the environment, furniture, equipment, databases, supplies, human resources, work processes, and results that reflect health care. This is even more true in regions marked by intense social inequality and demanding access to health services. Therefore, it is essential to investigate healthcare quality indicators to learn about service quality practices.

Considering the above, our work aimed to carry out a situational diagnosis of pharmaceutical care for patients with diabetes mellitus from the perspective of Donabedian's triad.

METHOD

This descriptive, exploratory study with a quantitative approach was carried out in the Polo Pharmacies of the Primary Health Care Units (PHCUs). The municipality of Fortaleza/Ceará, Brazil, has 118 PHCUs distributed over six regional areas and 15 Polo Pharmacies. All the PHCUs provide care for patients with hypertension and diabetes. It should be noted that, during the study period, one of the Polo Pharmacies was not included because, at the time, it did not offer a clinical service provided by a pharmacist, one of the essential criteria for inclusion in the study.

The PHCUs9R5 and PHCUs12R1 units took part in the pilot study and were selected using simple random sampling. In this type of sampling, all population elements have an equal probability of belonging to the sample.

The principal researcher collected data from November 2021 to April 2022, with the help of ten previously trained pharmacists, through structured interviews with the pharmacist in charge of the unit and observation. During the interviews, the researcher recorded the answers in full and in real-time, guaranteeing the fidelity of the information collected.

The researchers developed the instrument used to collect data, which consists of 68 questions that address the three components that underpin quality assessment: structure, processes, and results[3].

The “structure” refers to the characteristics of the health system that reflect its ability to meet the health care needs of the individual or the community. It was evaluated by the environment, furniture, equipment, database, supplies, and human resources, totaling twenty-four items. The environment analysis included three items: an environment reserved for pharmaceutical care, accessibility for physically disabled, visually impaired, and aged patients, and standard operating procedures for all the services provided in the pharmacy.

About furniture, five items were assessed: the presence of a table and chairs for patient care; a sink in an area reserved for cleaning; soap and paper towels also in the cleaning area; a file for storing patient documentation or a book for recording clinical activities, in a private place for filing clinical forms. The equipment analysis covered seven items: printer (as a computer resource); computers/tablets (also computer resources); internet connectivity equipment; weight measuring equipment (anthropometric balance); height measuring equipment (validated anthropometric tape); pressure gauge

(stethoscope and sphygmomanometer or digital device); glucometer.

Regarding databases, three items were checked: books as a source of clinical information, burglaries, and drug databases such as Micromedex, Medscape, UpToDate, Sanford, and Drugs. The analysis of supplies included three items: a lancet kit, a reagent strip kit, and sharps disposal. Finally, in the human resources variable, three items were considered: the availability of the pharmacist to develop clinical services, the availability of the pharmacist for logistics services, and the training of human resources focused on clinical care, focusing on continuing education.

In turn, the "process" component comprises the activities between the patient and healthcare provider, covering the services and products provided to patients and how the services are provided.

Twenty-seven items were analyzed in terms of "process": pharmaceutical consultation in the unit; collective or multi-professional consultations; programming/scheduling for pharmaceutical consultations; pharmacy-therapeutic follow-up of patients; pharmacist carries out analysis of the prescription of the patient consulted; notifies the local health surveillance service or national pharmacovigilance service about suspected adverse drug reactions; pharmacist offers training to staff; collects expired medicines from the community for disposal; records the patient's condition in a way that can be read and interpreted by another health professional in their absence (performs pharmaceutical evolution in the Fast Medic electronic medical record).

Also, in the "process" component, the following items were evaluated: documents all the medicines currently being taken by the patient in a way that can be read and interpreted by another health professional in their absence; uses the medical records to monitor the evolution of the therapeutic results presented by the patients; asks the patient to describe their clinical conditions, including a description of the medical problems and symptomatology; guides each patient on how to administer the medicine; guides each patient on the correct disposal of drugs, especially lancets, blood glucose strips and sharps in general.

Besides considered were items such as providing written material containing instructions on how to take the medication (e.g., insulin administration and general medication recommendations); checking whether the medication has interactions with other medicines in use or with food; checking whether the patient has understood the information presented to them; checking whether the patient is experiencing problems related to the medication; checking whether the patient is adherent to the therapy; contacting the doctor recommending/suggesting a dose adjustment, the addition of a new medication or the elimination of an old medication (pharmaceutical intervention).

Finally, these items were also considered: other professionals make referrals to the clinical service carried out by the pharmacist (Pharmaceutical Care); refer patients to other health services, as well as those with social problems to competent bodies or individuals for help; the pharmacist participates in health team meetings; develops/uses teaching materials for health promotion and disease prevention programs; carries out health education actions in the units (e.g. educational workshops, educational groups); carries out blood glucose testing; and draws up a Pharmaceutical Service Declaration.

Finally, the "results" covered achieving the desirable characteristics of the products or services, portraying the effects of health care on the user and the population. The variables relating to "results" totaled eighteen items: the number of appointments scheduled, the number of appointments scheduled but not attended; the number of appointments scheduled and attended; the number of complementary appointments, number of appointments attended (scheduled and complementary); the number of Clinical Pharmacy patients; the number of appointments attended at the Clinical Pharmacy; the number of educational talks attended; the number of care appointments attended; the number of pharmaceutical orientations attended; the number of Drug-Related Problems (DRPs) identified; total interventions proposed; total interventions accepted by professionals; total interventions

accepted by patients; the number of patients with improved target health indicators; percentage of patients with enhanced target health indicators; total interventions not accepted by patients; total interventions not accepted by professionals.

For analysis, the data was organized in a Microsoft Excel spreadsheet and then exported to SPSS, version 23. The analytical variables of the "structure" and "process" component classification were expressed in absolute and relative frequencies. The different parameters of a frequency distribution were then applied to the analytical variables of the outcome component, such as measures of central tendency (mean and median), measures of dispersion (standard deviation), and measures of position (25% and 75% percentiles). The Shapiro-Wilk normality test was used to assess the distribution of the data.

The variables related to the "structure" and "process" indicators of the PHCUs, and their services provided by pharmacists were analyzed and measured using scales: 'insufficient' when <49.9%; 'precarious': 50-74.9%; 'satisfactory' 75-89.9% and 'excellent' 90-100%. The percentage values were calculated by assigning "1 point" for each positive response, divided by the number of items analyzed in the category, and the result multiplied by 100, as proposed in another study [8]. In the end, the results of all the variables were averaged to generate a general classification for each site studied.

Initially, contact was made with the unit coordinator. The objectives and benefits of the research were explained, and if they agreed to participate, they signed the Informed Consent Form (ICF). Soon afterward, systematic observation of the sites began. The research was approved by the Research Ethics Committee of the Federal University of Ceará (UFC), under opinion number 5.802.055 (CAAE: 44388221.9.0000.5054), and respected the ethical principles of CNS/MS resolution 466/12. The Coordination of Health Education, Teaching, Research, and Special Programs (COEPP) of the Municipal Health Department (SMS)/Fortaleza - Ceará also appraised the study to strengthen the partnership and promptly disseminate the results, having acquired institutional consent.

When presenting the results, the PHCUs were coded based on the number of the Polo Pharmacy (1 to 14) and the regional health office (R: 1 to 6) to make it easier to identify the data (example: PHCUs1R4).

RESULTS

The results of this investigation analyzed the conditions of the PHCUs in terms of the "structure," "processes," and "results" of pharmaceutical care for patients with diabetes mellitus. Positive aspects and deficiencies affecting the quality of care were identified. The main findings regarding the variables studied in the 14 health units are presented below.

Table 1 shows the values for the analytical dimensions of "structure" and their items. Among the analytical variables, it was observed that the units had 'excellent' results in the dimensions relating to inputs (97.6%) and human resources (97.6%), 'satisfactory' in terms of equipment (88.8%), and 'precarious' in terms of the environment (71.4%), furniture (71.4%) and database (57.1%).

Table 1. Distribution of analytical variables related to the "structure" of healthcare units. Fortaleza, CE, Brazil, 2023

Analytical variables (yes)	n	%
Environment		**71.4**
1. Reserved area for pharmaceutical care.	08	57.1
2. Accessibility for physically disabled, visually impaired and elderly patients.	09	64.3
3. Standard operating procedures for all services provided in the pharmacy.	13	92.9
Furniture		**71.4**
4. Tables and chairs for patient care.	10	71.4
5. Sink (area reserved for cleaning).	09	64.3
6. Soap (area reserved for cleaning).	09	64.3
7. Paper towels (area reserved for cleaning).	08	57.1
8. File for storing patient documentation and/or clinical activity record book (private place for filing	14	100.0

clinical forms).

Equipment		**88.8**
9. Printer (computer resources).	10	71.4
10. Computers/tablets (IT resources).	14	100.0
11. Equipment for internet connectivity.	14	100.0
12. Weight measuring equipment (anthropometric scales).	14	100.0
13. Height measuring equipment (validated anthropometric tape).	07	50.0
14. Blood pressure monitor (stethoscope and sphygmomanometer or digital device).	14	100.0
15. Glucometer.	14	100.0
Database		**57.1**
16. Books (source of clinical information).	08	57.1
17. Bulletins (source of clinical information).	08	57.1
18. Drug databases (Micromedex, Medscape, UpToDate, Sanford, Drugs).	08	57.1
Inputs		**97.6**
19. Lancet kit.	14	100.0
20. Reagent strips kit.	14	100.0
21. Disposal of sharp materials.	13	92.9
Human Resources		**97.6**
22. Pharmacist available to develop clinical services.	14	100.0
23. Pharmacist available to develop logistics services;	14	100.0
24. Training of human resources for clinical care (continuing education).	13	92.9

n: absolute frequency; %: relative frequency.
Source: own elaboration.

Regarding the analytical variables relating to the "process" in the units, shown in Table 2, some work processes were considered "insufficient" in the following areas: collective or multi-professional consultations (35.7%) and the pharmacist's participation in meetings with the health team (28.6%); notification to the surveillance or pharmacovigilance service in the event of suspected adverse reactions to medicines (21.4%); collection of expired drugs (14.3%) and the development of health education actions (42.9%).

Table 2. Distribution of analytical variables related to the "process" of healthcare units. Fortaleza, CE, Brazil, 2023

Analytical variables (yes)	n	%
1. Offer pharmaceutical consultation at the unit	14	100.0
2. Provides collective or multi-professional consultations	05	35.7
3. Has a schedule for pharmaceutical consultations	14	100.0
4. The pharmacist carries out pharmacotherapeutic monitoring of patients	14	100.0
5. The pharmacist analyzes the patient's prescription	12	85.7
6. Notifies the local health surveillance service or national pharmacovigilance service of suspected adverse drug reactions	03	21.4
7. Pharmacist offers some training to employees	07	50.0
8. Collects expired medicines from the community for disposal	02	14.3
9. Records the patient's condition in a way that can be read and interpreted by another health professional in their absence (performs pharmaceutical evolution in the Fast Medic electronic medical record)	14	100.0
10. Documents all the medicines currently being taken by the patient in a way that can be read and interpreted by another healthcare professional in their absence	14	100.0
11. Uses medical records to monitor the progress of patients' therapeutic results	14	100.0
12. Pharmacist asks patients to describe their clinical conditions, including a description of medical problems and symptoms	13	92.9
13. Advises each patient on how to administer the medication (e.g., inhalation devices, injectables (including insulin administration), suppositories, vaginal cream, etc.)	13	92.9
14. Guides each patient on the correct disposal of medicines.	14	100.0
15. Do you provide any written material containing instructions on how to take the medication? (e.g., insulin administration and general medication recommendations).	13	92.9
16. Checks if the medicines interact with other drugs or food.	13	92.9
17. Checks that the patient has understood the information presented to them	14	100.0
18. Checks if the patient is experiencing any problems related to the medicine	14	100.0
19. Checks that the patient is adherent to the therapy	14	100.0

20. Contacts the doctor recommending/suggesting a dose adjustment, the addition of a new medicine, or the elimination of an old medicine (pharmaceutical intervention)	13	92.9
21. Other professionals make referrals to the Pharmaceutical Care Service	13	92.9
22. Referring patients to other health services, as well as those with social problems to the relevant agencies or individuals for help	09	64.3
23. Participation of the pharmacist in health team meetings	04	28.6
24. Develops and/or use educational materials for health promotion and disease prevention programs	10	71.4
25. Develops health education actions in the units (e.g., educational workshops, educational groups)	06	42.9
26. Performs blood glucose testing	14	100.0
27. Draws up a Pharmaceutical Service Declaration	13	92.9
TOTAL		**80.2**

n: absolute frequency; %: relative frequency.

Source: Own elaboration.

The classification of the indicators, shown in Table 1, shows that the majority were considered 'satisfactory' (71.4%) in terms of "structure. " Seven were classified as "satisfactory" (50%) regarding "process," but five units were classified as having a "precarious" process (35.7%).

Chart 1. Classification of Primary Health Care Units' "structure" and "process" indicators and their pharmaceutical services. Fortaleza, CE, Brazil, 2023

Units	"Structure" (n items = 24)		"Process" (n items = 27)	
	Score n(%)	Classification	Score (%)	Classification
PHCUs1R4	21 (87.5)	Satisfactory	20 (74.1)	Precarious
PHCUs2R3	20 (83.3)	Satisfactory	22 (81.5)	Satisfactory
PHCUs3R1	23 (95.8)	Great	24 (88.9)	Satisfactory
PHCUs4R5	21 (87.5)	Satisfactory	20 (74.1)	Precarious
PHCUs5R3	21 (87.5)	Satisfactory	24 (88.9)	Satisfactory
PHCUs6R4	14 (58.3)	Precarious	21 (77.8)	Satisfactory
PHCUs7R2	18 (75.0)	Satisfactory	22 (81.5)	Satisfactory
PHCUs8R2	15 (62.5)	Precarious	17 (63.0)	Precarious
PHCUs9R5	19 (79.2)	Satisfactory	20 (74.1)	Precarious
PHCUs10R5	21 (87.5)	Satisfactory	25 (92.6)	Great
PHCUs11R1	24 (100.0)	Great	25 (92.6)	Great
PHCUs12R1	20 (83.3)	Satisfactory	22 (81.5)	Satisfactory
PHCUs13R6	18 (75.0)	Satisfactory	19 (70.4)	Precarious
PHCUs14R6	18 (75.0)	Satisfactory	22 (81.5)	Satisfactory

Source: Own elaboration.

Some data stand out in analyzing the analytical variables of the "results" indicator over the six months in the 14 PHCUs surveyed. In the months evaluated, there were 7,437 scheduled consultations, 2,757 scheduled consultations that were not attended, and 4,734 consultations that were participated in. Complementary and scheduled consultations totaled 6,596. 1,070 patients were seen in the clinical pharmacy, with 1,155 consultations and 5,441 care consultations. There were 2,279 pharmaceutical orientations, 1,119 DRPs identified, 2,073 interventions proposed, 315 accepted by professionals, and 1,614 by patients. It should be noted that only 11 educational talks were held at the PHCUs during the study period (Table 3).

Table 3. Analytical variables relating to the "results" component. Fortaleza, CE, Brazil, 2023.

Variables	n	Minimum	Maximum	Average	SD	Median	p(25-p75)
Consultations scheduled	7.437	0.0	867.0	-	-	615.0	383.5-747.0
Scheduled appointments not	2.757	0.0	559.0	192.2	166.6	-	-

attended							
Appointments scheduled and attended	4.734	0.0	732.0	337.9	220.6	-	-
Additional consultations	1.960	5.0	771.0	-	-	63.5	25.0-215.8
Consultations performed (scheduled +complete)	6.596	5.0	771.0	467.6	231.2	-	-
Clinical pharmacy patients	1.070	6.0	235.0	75.6	65.7	-	-
Clinical pharmacy consultations	1.155	4.0	252.0	81.6	71.4	-	-
Educational activities performed	11	0.0	3.0	-	-	1.0	0.0-1.0
Consultations performed for assistance	5.441	0.0	725.0	386.1	230.5	-	-
Pharmaceutical advice given	2.279	1.0	571.0	-	-	88.0	23.3-229.3
Identified DRPs	1.119	7.0	272.0	-	-	44.5	22.0-97.8
Proposed interventions	2.073	11.0	468.0	-	-	102.0	22.5-276.5
Interventions accepted by professionals	315	0.0	164.0	-	-	3.0	0.0-23.8
Interventions accepted by patients	1.614	7.0	445.0	-	-	89.0	20.0-162.5
Patients with improved target health indicators	143	0.0	12.0	-	-	1.0	0.0-5.5
Interventions not accepted by patients	29	0.0	11.0	-	-	6.5	2.5-16.0
Interventions not accepted by professionals	14	0.0	12.0	-	-	0.0	0.0-2.5

n: absolute frequency; SD: standard deviation; p25-p75: 25% and 75% percentiles.
Source: Own elaboration.

DISCUSSION

Our study proposed a situational diagnosis of the clinical service provided by pharmacists to people with diabetes mellitus from the perspective of Donabedian's triad[3], which involves indicators of structure, process, and results in PHCUs located in a city in northeastern Brazil (Fortaleza). It, therefore, sought to portray the quality of pharmaceutical care in these units, which is fundamental for achieving better health outcomes.

Quality in healthcare is the provision of improved patient outcomes, achieved by engaging staff and patients in building a safety culture, using improvement processes and measurement tools that enable operational changes and are based on a commitment to continuous learning and knowledge exchange[9]. Avedis Donabedian's ideas emerge from the history of studies into healthcare quality, in which the quality evaluation triad enables comprehensive care insofar as the use of instruments and resources (structure) enables the provision of care (processes) and the meeting of health needs (results)[3].

In a qualitative study carried out in Slovenia to describe the quality of care in a Community Health Center[6], from the perspective of the health team, the authors observed that the statements translated mainly to "structure"[10]. The findings of this study show that the "structure" indicator, evaluated by six dimensions, had a varied classification since while good results were observed in inputs, human resources, and equipment, precariousness was found in the environment, furniture, and database.

The environment included items relating to the place reserved for pharmaceutical care and accessibility for patients with physical and visual disabilities, as well as for aged people. The complexity of managing diabetes makes the disease even more challenging for patients, family members, health professionals, and

managers. Pharmaceutical care is carried out in cooperation with a multi-professional team and goes beyond the peculiarities of the drugs; it involves guidance on preparation, administration, and storage, as well as understanding and interpreting the determinants of each patient's historical context.

The benefits of pharmaceutical care for people with diabetes are well documented in the literature. One study demonstrated benefits such as better identification of patients' health problems, which contribute to rational, safe, and effective pharmacotherapy[11]. Another study showed the development of personalized interventions to address barriers to adherence and follow-up care following guidelines in the field[12]. It is, therefore, necessary for pharmacists to have a private and quiet environment in which to see and assist their patients, bearing in mind that the relationship between the health professional and the user presupposes a new paradigm in which the user seeks a professional, not only to cure a defined disease but also to relieve their suffering[13].

Regarding accessibility, it is worth highlighting the difficulty people with disabilities have in getting around in public and private places in Brazil. This includes the health service, which often has physical, architectural, organizational, and transport barriers[14]. A survey of 157 health facilities in the Baturité massif, Ceará, Brazil, showed that the majority had stairs, ramps, and inaccessible floors. There was also inaccessibility in common circulation areas, counters, seats, and drinking fountains [15].

To approach accessibility from the perspective of the aged, one must consider that they have peculiarities related to the physical, psychological, and social aging process, which can lead to changes in their lifestyle. Therefore, some factors can influence access to healthcare for the aged, such as schooling, socioeconomic status, family composition, income, functional capacity, self-rated health, health needs, social support, and personal beliefs[16].

Concerning furniture, the results presented here corroborate research carried out in PHCUs in the capital and interior of Pernambuco. In these, precarious flaws in the infrastructure were identified, as the pharmacist often occupied an improvised physical space, which made it difficult to access the areas reserved for cleaning. Only 5.7% of pharmacies in the capital and 2.7% in the countryside had a pharmacist. In addition, 48.6% of the units in the capital and 59.5% in the interior lacked refrigerators for storing insulin, which is essential for the drug's stability. These infrastructure problems compromise the quality of care, as also pointed out by studies highlighting the recurring structural limitations in PHCUs in other regions, affecting the safety and effectiveness of care for chronic patients[17].

Still, the most significant weakness in the "structure" evaluation was the database domain, in which few PHCUs had clinical information sources and drug databases. Pharmacological databases provide patients reliable information on drug therapy, toxicology, and emergency care[18]. Polypharmacy monitoring patients with diabetes who are subject to polypharmacy is an ideal tool and strategy for minimizing risks, reducing the incidence of adverse events, and promoting the rational use of medicines. The organization, accessibility, and interactivity of knowledge facilitate it.

In one study, an essential aspect of the “structure” indicator was based on the pharmacist's broad knowledge of pharmacotherapy and the excellent accessibility and complementarity of the professions[6]. These factors show the importance of human resources, the dimension of “structure” best evaluated in our investigation here in Fortaleza. Undoubtedly, this structure analysis allows us to understand the challenges faced by the PHCUs and how this directly reflects on work processes.

The “process” indicator, in turn, revealed essential items classified as “insufficient”, with the item relating to the collection of expired medicines being carried out by only two PHCUs. The non-disposal or improper disposal of drugs is a feasible and increasingly common reality, causing damage to health and the environment[19]. In this scenario, the clinical pharmacist, who has a range of knowledge about medicines and adverse effects, has become an increasingly sought-after professional in healthcare establishments, not

only to ensure proper management of healthcare waste but also to encourage the rational and appropriate use of medicines by the population[20].

Another important aspect within the "process" indicator was the failure to notify the surveillance or pharmacovigilance service of suspected adverse drug reactions. Pharmacovigilance is the science and activities relating to identifying, evaluating, understanding, and preventing adverse effects or other medicines-related problems. Pharmacists have technical knowledge and fundamental skills in identifying possible adverse drug reactions, suspected drug interactions, adverse events, detecting possible therapeutic ineffectiveness, and technical complaints of drug quality deviation alone, among other reportable situations[21].

The low occurrence of collective or multi-professional consultations that included the pharmacist's participation with the health team was also found. Multidisciplinary consultations, including pharmacists, are associated with better health outcomes, covering promotion, disease prevention, and rehabilitation[22]. To overcome the challenges surrounding the inclusion of pharmacists in health team consultations, US research suggests raising awareness, building trust with other health professionals, and defining clinical competencies to establish referral relationships for full integration[23].

Finally, a fact observed in the "process" indicator and corroborated by the "result" indicator was the almost non-existent development of health education actions/lectures in all units during the collection period. In a recently published scoping review, health education, as a pharmaceutical intervention strategy, involving information about the disease, medication review and counseling, lifestyle adjustments, self-care, and peer support and behavioral counseling, was considered essential for diabetes management[24].

The evaluations of the PHCUs show significant disparities in the quality of "structure" and "processes." For example, PHCUs3R1 was classified as 'excellent' in 'structure' and 'satisfactory' in 'process'. Recent research indicates that units with high scores in these criteria tend to provide better quality care and greater user satisfaction, highlighting the importance of good organizational practices and adequate resources[25, 26]. This evidence reinforces that strengthening structure and processes is essential for positive health outcomes[27].

In contrast, PHCU8R2 was classified as 'precarious' regarding both "structure" and "process." This situation may be related to challenges such as insufficient resources and inadequate infrastructure. A recent study points out that weaknesses in essential components of primary care compromise comprehensive care and patient safety[28]. The lack of adequate public policies and administrative support has been identified as one of the main obstacles to improving health services[29].

Brazil is marked by intense social and health inequalities, which have become even more evident in the COVID-19 pandemic[30]. However, inequality is not only present in Brazilian regions but also within the same state and its regional regions. In health, one of the repercussions of social inequality is the incidence of neglected diseases, an increase in chronicity, and, consequently, more significant impacts on individuals and the community and costs for the health system.

As for the "results" indicator, during the collection period, many appointments were scheduled and attended to; however, just over a thousand patients were followed up by pharmacists in the clinical services of the 14 PHCUs. Despite the good number of pharmaceutical orientations and interventions, few were accepted by the other professionals. This demonstrates the need for the team to be more aware of the clinical services pharmacists provide [23].

CONCLUSION

Our findings show significant differences in the quality indicators of the care provided in 14 PHCUs distributed between different regions of Fortaleza in the context of the clinical services provided by pharmacists. Although the "structure" was classified as "satisfactory," in most units, shortcomings were identified

concerning the environment, furniture, and database, limiting the ability to provide quality care. As for the "process" indicator, although most units were rated "satisfactory" or "excellent," there were a significant number of units with "unsatisfactory" conditions, especially with essential aspects such as pharmacovigilance, removal of expired medicines, health education and collective consultations with the multidisciplinary team.

These disparities indicate the need to reinforce material and human resources in certain regions to standardize and improve care processes. Thus, the differences highlighted between health regions in their respective health territories reinforce the impact of the unequal distribution of resources, contributing to variations in the quality of care. Understanding these differences is fundamental to justifying targeted intervention strategies to guarantee more equitable and quality care for all the populations served. Furthermore, carrying out a local situational diagnosis is relevant and essential to enable actions and strategies to improve pharmaceutical care for patients with diabetes, certainly advocating the assertion of 'knowing to intervene'.

CUIDADO FARMACÊUTICO AO PACIENTE COM DIABETES MELLITUS: ANÁLISE SITUACIONAL COM INDICADORES DE QUALIDADE

RESUMO

Objetivo: realizar diagnóstico situacional do cuidado farmacêutico aos pacientes com diabetes mellitus, no contexto da Farmácia Clínica, por meio de indicadores relativos à estrutura, processo e resultados. **Método:** estudo de natureza descritiva, exploratória e de abordagem quantitativa, realizado nas 14 Farmácias Polos, das Unidades de Atenção Primária à Saúde (UAPS) situadas no município de Fortaleza, Ceará. A coleta de dados ocorreu entre os meses de novembro de 2021 e abril de 2022, feita por meio de instrumento desenvolvido pelos pesquisadores, sob a ótica da tríade de Donabedian. As variáveis de "estrutura" e "processo" foram apresentadas na forma de frequência. Para as de "resultado", aplicaram-se diferentes parâmetros de distribuição de frequência. **Resultados:** observou-se que os dados referentes à "estrutura" apresentaram 'ótimos' resultados quanto aos insumos e recursos humanos; em contrapartida, foram 'precários' quanto ao ambiente, mobiliários e bases de dados. As variáveis analíticas relacionadas ao "processo" foram consideradas 'insuficientes' quanto à farmacovigilância, descarte de medicamentos vencidos e educação em saúde. **Conclusão:** os achados revelam desigualdade social que afeta "estrutura", "processo" e "resultados" nas UAPS. A maioria das UAPS foi considerada 'satisfatória', mas algumas foram classificadas como 'precárias'. A análise dessa tríade forneceu dados importantes para melhorar o cuidado farmacêutico.

Palavras-chave: Atenção primária à saúde. Diabetes Mellitus. Assistência Farmacêutica. Avaliação de Processos e Resultados em Cuidados de Saúde. Pesquisa sobre Serviços de Saúde.

ATENCIÓN FARMACÉUTICA AL PACIENTE CON DIABETES MELLITUS: ANÁLISIS SITUACIONAL CON INDICADORES DE CALIDAD

RESUMEN

Objetivo: realizar diagnóstico situacional de la atención farmacéutica a los pacientes con diabetes mellitus, en el contexto de la Farmacia Clínica, por medio de indicadores relativos a la estructura, al proceso y a los resultados. **Método**: estudio de naturaleza descriptiva, exploratoria y de enfoque cuantitativo, realizado en las 14 *Farmácias Pólos*, de las Unidades de Atención Primaria de Salud (UAPS) ubicadas en el municipio de Fortaleza, Ceará/Brasil. La recolección de datos se llevó a cabo entre los meses de noviembre 2021 y abril 2022, realizada mediante un instrumento desarrollado por los investigadores, bajo la óptica de la tríada de Donabedian. Las variables de "estructura" y "proceso" se presentaron en forma de frecuencia. Para las de "resultado", se aplicaron diferentes parámetros de distribución de frecuencia. **Resultados**: se observó que los datos referentes a la "estructura" presentaron 'óptimos' resultados en cuanto a los insumos y recursos humanos; en cambio, fueron 'precarios' en cuanto al ambiente, muebles y bases de datos. Las variables analíticas relacionadas con el "proceso" fueron consideradas 'insuficientes' en cuanto a la farmacovigilancia, eliminación de medicamentos vencidos y educación en salud. **Conclusión**: los hallazgos revelan desigualdad social que afecta la "estructura", el "proceso" y los "resultados" en las UAPS. La mayoría de las UAPS fueron consideradas 'satisfactorias', pero algunas fueron clasificadas como 'precarias'. El análisis de esta tríada proporcionó datos importantes para mejorar la atención farmacéutica.

Palabras clave: Atención primaria de salud. Diabetes Mellitus. Asistencia Farmacéutica. Evaluación de Procesos y Resultados en Cuidados de Salud. Investigación sobre Servicios de Salud.

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Submitted:09/09/2023
Accepted: 22/10/2024

Financial support

National Council for Scientific and Technological Development (CNPq) (Conselho Nacional de Desenvolvimento Científico e Tecnológico), call no. 27/2020 - Research into Chronic Non-Communicable Diseases and Associated Risk Factors and Coordination for the Improvement of Higher Education Personnel (CAPES) (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior).