Characterization of Clinical Services Performed by Pharmacists in Oncology in the State of Pernambuco

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Caracterização de Serviços Clínicos Realizados por Farmacêuticos em Oncologia no Estado de Pernambuco

Caracterización de los Servicios Clínicos Realizados por Farmacéuticos en Oncología en el Estado de Pernambuco

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ABSTRACT

Introduction: Cancer treatment requires multi-professional care. Among these professionals, the clinical pharmacist promotes the management of pharmacotherapy and the management of adverse reactions. **Objective:** To characterize the clinical pharmacy service provided to patients in oncology services in the state of Pernambuco. **Method:** A descriptive, cross-sectional and quantitative study which used an online form for pharmacists qualified in oncology working in institutions with oncology services in Pernambuco. The questionnaire was applied between September and December 2023. **Results:** Of the 35 participating oncology pharmacists (OPs), only 33 met the research criteria. The data shows that clinical pharmacy is practiced by 60% of OPs, which is also the percentage of pharmacists who are part of the multiprofessional team, and only approximately 33% of these have a space dedicated to clinical duties. The most frequently performed activities are evaluating/validating prescriptions, 84.85% (28), dispensing oral antineoplastics, 66.67% (22), and providing guidance on the rational use of medication, 63.64% (21). Whenever there are incompatibilities in the prescription, the pharmacist contacts the prescriber/nurse and their interventions are accepted with a good rate of acceptability. **Conclusion:** The results show that not all oncology pharmacists work in clinical pharmacy in oncology units in Pernambuco, but some clinical activities can already be carried out, adding to patient safety.

Keywords: Pharmacists; Pharmacy Service, Hospital; Medical Oncology.

RESUMO

Introdução: O tratamento do câncer exige uma assistência multiprofissional. Entre esses profissionais, o farmacêutico clínico promove o gerenciamento da farmacoterapia e o manejo das reações adversas. **Objetivo:** Caracterizar o serviço de farmácia clínica prestado a pacientes atendidos em serviços de oncologia no Estado de Pernambuco. **Método:** Estudo descritivo, transversal e quantitativo, que aplicou formulário on-line para farmacêuticos habilitados em oncologia atuantes em instituições com serviço oncológico em Pernambuco. O questionário foi aplicado entre setembro e dezembro de 2023. **Resultados:** Dos 35 farmacêuticos em oncologia (FO) participantes, apenas 33 atenderam aos critérios da pesquisa. Os dados apontam que a farmácia clínica é exercida por 60% dos FO, sendo esta também a porcentagem dos farmacêuticos inseridos na equipe multiprofissional, e apenas 33% deles possuem espaço destinado às atribuições clínicas. As atividades mais desempenhadas são avaliação/validação de prescrições 84,85% (28), dispensação de antineoplásicos orais 66,67% (22) e orientação do uso racional do medicamento 63,64% (21). Sempre que há incompatibilidades na prescrição, o farmacêutico contata o prescritor/enfermagem e suas intervenções são acatadas com boa taxa de aceitabilidade. **Conclusão:** Os resultados obtidos apontam que nem todos os farmacêuticos em oncologia desempenham a farmácia clínica nas unidades de oncologia de Pernambuco, contudo, algumas atividades clínicas já conseguem ser desempenhadas agregando segurança ao paciente.

Palavras-chave: Farmacêuticos; Serviço de Farmácia Hospitalar; Oncologia.

RESUMEN

Introducción: El tratamiento del cáncer requiere atención multiprofesional. Entre estos profesionales, el farmacéutico clínico promueve la gestión de la farmacoterapia y el manejo de las reacciones adversas. **Objetivo:** Caracterizar el servicio de farmacia clínica prestado a los pacientes en los servicios de oncología del estado de Pernambuco. **Método:** Estudio descriptivo, transversal y cuantitativo, que utilizó un formulario *online* para farmacéuticos cualificados en oncología que trabajan en instituciones con servicios de oncología en Pernambuco. El cuestionario fue aplicado entre septiembre y diciembre de 2023. **Resultados:** De los 35 farmacéuticos participantes en oncología (FO), solo 33 cumplieron los criterios de la investigación. Los datos muestran que la farmacia clínica es practicada por el 60% de los FO, que es también el porcentaje de farmacéuticos que forman parte del equipo multiprofesional, y solo aproximadamente el 33% de ellos tiene un espacio dedicado a las funciones clínicas. Las actividades más frecuentemente realizadas son evaluar/validar prescripciones 84,85% (28), dispensar antineoplásicos orales 66,67% (22) y orientar sobre el uso racional del medicamento 63,64% (21). Siempre que hay incompatibilidades en la prescripción, el farmacéutico contacta con el prescriptor/enfermero y sus intervenciones son acatadas con un buen índice de aceptabilidad. **Conclusión:** Los resultados muestran que no todos los farmacéuticos oncológicos trabajan en farmacia clínica en las unidades de oncología de Pernambuco, pero algunas actividades clínicas ya pueden ser realizadas, agregando seguridad al paciente.

Palabras clave: Farmacéuticos; Servicio de Farmacia en Hospital; Oncología Médica.

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INTRODUCTION

Cancer is a world public health issue and one of the reasons for premature death in several countries[1]. In 2020, 19.3 million cancer cases were recorded globally[2]. In Brazil, for the 2023-2025 period, 704 thousand new cases are expected for each year[3]. Factors that favor incidence and mortality are related to population growth and aging, which are tied to socioeconomic conditions regarding life habits amidst urbanization, including poor nutrition, sedentary lifestyle, occupational and environmental exposures, among others[4].

In oncology, given the complexity of chemotherapeutic treatment protocols, use of support medication and yearly release of several antineoplastics, follow-up by a multi-professional team becomes essential to ensure patient safety when using those therapies[5]. Pharmacists are one of the required professionals in those teams, given that antineoplastic drugs have high toxicity, low therapeutic index and high cost. In this regard, pharmacists should manage therapy and prevent drug-related problems (DRP)[6].

For a long period of time, pharmacists have dealt only with dispensing, manipulating medication and administrative activities, however, clinical pharmacy initiatives have been growing and bring with them several benefits for oncological patients[5]. According to the Brazilian Federal Pharmacy Council (*Conselho Federal de Farmácia* – CFF), through Resolution number 565/2012, the oncology pharmacist (OPs) may manage antineoplastic medication, assess prescriptions, train and guide the multi-professional team, manipulate antineoplastic drugs, offer pharmaceutical care to patients in treatment, elaborate clinical protocols, participate in the discussion of clinical cases, among other activities[7].

To qualify pharmacists to work in oncology, CFF requires they are a specialist accredited by the Brazilian Society of Oncology Pharmacists (Sobrafo), have a residency focused on oncology or post-graduate degree related to oncological pharmacy recognized by the Ministry of Education (MEC), or have worked for at least three years in oncology. Those requirements aim to ensure the safety of team professionals, patients, and the environment[8].

Activities regarding have become more consolidated in health assistance in Brazil. Development of those attributions is extremely important in the care of oncology patients, contributing to optimize the therapeutic approach adopted to treat this clinical condition[5,9]. In 1998, the National Medicines Policy (*Política Nacional de Medicamentos*)[10], through the National Pharmaceutical Assistance Policy (*Política Nacional de Assistência Farmacêutica*)[11], presented actions that would lead to the development of the idea of having a pharmacist in the clinic. However, only in 2013, clinical attributions were regulated by CFF through Resolution number 585[12]. It is worth highlighting that, despite its progress, there are still many challenges ahead, according to the Brazilian Society of Clinical Pharmacy (SBFC)[13].

Barros, Garcia and Machado[14] report that CP in Brazil has developed with a focus on patient care. However, this attribution is not fully established due to several factors that interfere with its implantation. The identified obstacles in the exercise of clinical activities come in the shape of excess administrative tasks, superficial professional training in the clinical field, lack of time and physical space intended for clinic purposes, low autonomy, lack of professional recognition, and identity crisis[14].

Though there are many challenges in putting pharmaceutical clinic to practice, its benefits in oncology are undeniable. Thus, a characterization of the clinical services performed by OPs in the State of Pernambuco may generate information that present some of the achieved results, in addition to pointing to challenges in the clinical practice, enabling the creation of strategies that strengthen patient safety. In this scenario, this research aims at characterizing the CP service provided to patients that receive oncological care in the State of Pernambuco.

METHOD

Descriptive, cross-sectional study with a quality and quantitative approach, conducted with qualified pharmacists working in oncology. The research's target population were oncology pharmacists (OPs) registered in Pernambuco's Regional Pharmacy Council (*Conselho Regional de Farmácia de Pernambuco*). Data was collected from September to December 2023.

This study included OPs that work in the State of Pernambuco, in compliance with CFF requirements in its Resolution number 640/2017[8]. OPs that worked in an oncology service for less than a year were excluded from this study.

Data collection was performed through the application of an online 21-questions questionnaire adapted from Sobrafo[15-17], de Silva et al.[18], and Aguiar et al.[19]. The questions were made available through Google Forms®, with the first 20 questions being mandatory and the 21st, optional. The questionnaire addressed variables regarding demographic, professional characteristics of the institutions where the OPs work and their clinical attributions.

The data collected from the Google Forms® were compiled in graphs and worksheets from the form itself, however, Microsoft Excel® 2019 was used to enhance the presentation of some variables through absolute and relative frequencies, grouped in graphs and tables.

This research has been approved by the Research Ethics Committee of *Centro Universitário Tabosa de Almeida (Asces-Unita)*, report number 6.139.553 (CAAE (submission for ethical review): 70586023.0.0000.5203). All the ethical norms of Resolution number 466/12[20] of the National Health Council (CNS), that deals with research in human beings, and Law number 13.709[21] of August 14th, 2018, regarding General Data Protection Law, were followed.

RESULTS

Of the 95 professionals who received the form, 35 oncology pharmacists responded, who worked in 18 of the 41 oncology services with an active record in the State of Pernambuco in January 2024, according to the National Registry of Health Clinics (CNES)[22]. Among the 35 pharmacists that participated in the study, two were excluded for not having at least a year of work in oncology services.

Demographic variables revealed that, of the 33 participants, 21 (63.64%) were aged 26 to 39 years old and 12 (36.36%) were aged 40 to 52 years old. The majority (18; 54.55%) were female and 15 (45.45%) were male. Regarding professional characteristics, 17 (51.52%) had been working in oncology pharmacy for one to six years and 16 (48.48%) for over six years. Thirteen (39.39%) OPs qualified through post-graduate degree, 13 (39.39%) qualified for having over three years of expertise in the field[8], six (18.19%) through residency and one (3.03%) was accredited by Sobrafo.

Table 1 gathers information regarding the institutions where the participating pharmacists worked. Most OPs worked in a hospital (42.42%) or mixed institution (33.33%), being mostly present in private initiative services (51.52%). Teams had one to 15 OPs, with teams composed of two (15.15%), three (87.28%) and five (15.15%) pharmacists. Thirteen (39.39%) OPs reported that the institution had no clinical pharmacy in practice and 20 (60.61%) provided the service, having one to seven pharmacists working in the clinic, and most teams relied on the support of one (12.12%), two (21.22%) or three (12.12%) pharmacists.

As shown in Table 1, in a scenario where 29 (87.88%) OPs worked in institutions that cared for patients using a multidisciplinary approach, only 20 (60.61%) OPs felt that the pharmacist was properly inserted in those teams. Regarding dispensation of oral antineoplastic drugs, only two (6.06%) OPs informed not having this service in their institution, while the institutions of the other 31 (93.94%) OPs that dispense medication, only 11 (33.33%) have a dedicated space for this activity.

Graph 1 shows eight roles performed by participants in this research, with the most practiced activities being assessment/validation of medical prescription (84.85%), dispensation of oral antineoplastic drugs (66.67%) and guidance on the rational use of medication (RUM) (63.64%).

During clinical activities, 30 (90.91%) OPs confirmed there is a dialog with the prescriber and/or nursing team with the goal to solve possible prescription incompatibilities (Table 2). From those nonconformities, pharmaceutical interventions are generated. In this regard, 12 (36.36%) OPs reported always being successful in their interventions and 21 (63.64%) reported being successful most of the time.

Several interventions are performed. Most pharmacists (31; 93.94%) declared mediating change in the diluent volume, 27 (81.82%) interpose dosage alteration, 24 (72.73%) ask for changes in infusion time and 19 (57.58%) seek inclusion of omitted information. In addition to the interventions presented in Graph 2, other interventions were also reported, such as diluent substitution, change in infusion equipment, medication inclusion and interventions towards enhancing therapy adherence.

The last variable in the research investigated what are the challenges that OPs find in exercising pharmaceutical care in the oncology service where they worked. Twenty-three reports were received, organized in Chart 1.

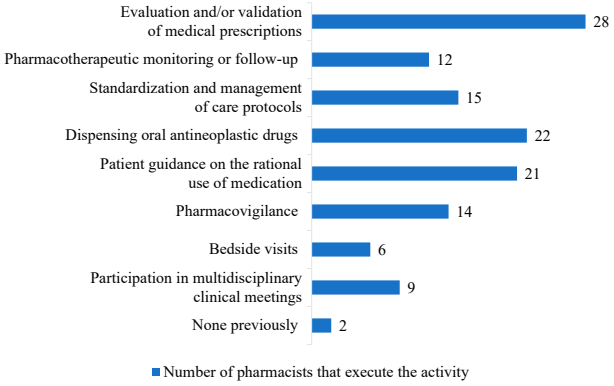
DISCUSSION

In oncology, pharmaceutical assistance (PA) must promote high quality care by protecting professionals regarding the risks of exposure to osteoblastic drugs, reducing medication errors, ethical management and optimization in osteoblastic therapy (AT) results. PA is efficient when it develops good management of technical-assistant actions and care process based on the patient, wielding good results in the clinical, economic and humanistic scope[23].

Clinical pharmacy (CP) is a way to approach the pharmacist to the patient and the multi-professional team to optimize pharmacotherapy[24]. Thus, clinical pharmacy promotes, protects and recovers the patient's health, preventing aggravation through RUM[10]. That way, the pharmacist performs clinical pharmacy to strengthen RUM, decrease DRP risks and promote

Table 1. Characteristics of the institutions where oncology pharmacists work in the State of Pernambuco

Variables	n (%)	Variables	n (%)
Type of institution worked		**Pharmacists that perform clinical pharmacy**	
Hospital	14 (42.42%)	None	13 (39.39%)
Outpatient clinic	1 (3.04%)	One	4 (12.12%)
Mixed (Hospital/outpatient clinic)	11 (33.33%)	Two	7 (21.22%)
Clinic	7 (21.21%)	Three	4 (12.12%)
Institution's health system		Four	2 (6.06%)
Public	10 (30.30%)	Five	1 (3.03%)
Private	17 (51.52%)	Six	1 (3.03%)
Philanthropic	6 (18.18%)	Seven	1 (3.03%)
Pharmacists in the oncology team		**Oncology patient assisted by a multidisciplinary approach**	
01	2 (6.06%)	Yes	29 (87.88%)
02	5 (15.15%)	No	4 (12.12%)
03	9 (27.28%)	**Pharmacist properly inserted in the multidisciplinary team**	
04	2 (6.06%)	Yes	20 (60.61%)
05	2 (6.06%)	No	13 (39.39%)
07	5 (15.15%)	**Institution dispenses oral antineoplastic drugs**	
08	1 (3.03%)	Yes	31 (93.94%)
10	2 (6.06%)	No	2 (6.06%)
11	2 (6.06%)	**Private space for dispensation and/or pharmaceutical assistance**	
12	1 (3.03%)	Yes	11 (33.33%)
14	1 (3.03%)	No	22 (66.67%)
15	1 (3.03%)		
Application of clinical pharmacy in the institution			
Fully applied	4 (12.12%)		
Partially applied	16 (48.49%)		
Not applied	13 (39.39%)		



Graph 1. Clinical attributions performed by pharmacists

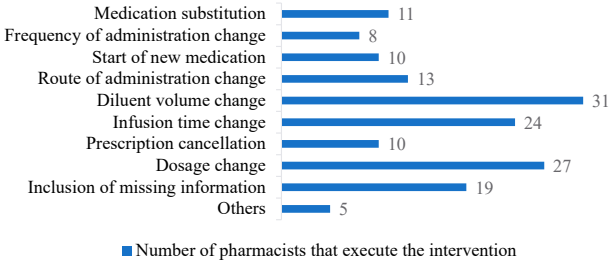
improvements in the patient's quality of life, interacting with the team to reduce adverse events and increase safety[9]. There are reports on the presence of clinical pharmacy in Pernambuco, especially in the scope of oncology, which strengthens the culture of patient safety and exerts a strong influence in pharmacoeconomics[18,25-27].

Duarte et al.[5] corroborate with this research by describing a scenario in which the pharmacist, for many years, worked only in the dispensation and manipulation of drugs, situation that represents partially 39.39% of patients (Table 1) in the variable referring to non-applicability of CP in their working institution. Efforts to implement CP are growing, a context experienced by 48.49% of oncology pharmacists, who see a partial implementation of the clinic, and by 12.12% who see full implementation of CP (Table 1). Clinical competencies and technology advancement enabled the evolution of the clinical role of the pharmacist, releasing them from performing strictly administrative activities[5].

Souza et al.[28] confirmed that OPs, given the complexity of AT protocols of several drugs, prevents and manages

Table 2. Activities that need reaching out to other team members

Contacts the prescriber and/or nurse to solve possible prescription incompatibilities	n (%)
Always	30 (90.91%)
Almost always	3 (9.09%)
Frequency with which pharmaceutical interventions are accepted	**n (%)**
Always	12 (36.36%)
Almost always	21 (63.64%)



Graph 2. Interventions performed by pharmacists during their practice

DRP, acts in pharmacoeconomics, in the patient safety culture and education of the multidisciplinary team[28]. Among the clinical attributions performed by participants (Graph 1), the following are highlighted: Twenty-eight (84.85%) assess/validate medical prescriptions and 12 (36.36%) follow up with pharmacotherapy, preventing DRP; 15 (45.45%) standardize and manage protocols, facilitating pharmacoeconomics; 21 (63.64%) offer guidance regarding RUM and 14 (42.42%) employ pharmacosurveillance, strengthening patient safety culture and; 9 (27.27%) participate in clinical meetings, suitable space for the education of multidisciplinary team.

The use of oral chemotherapy has been growing in the preference of many patients for generating a sense of therapy control, since, for health professionals, it represents savings in healthcare costs in the volume of work, in the use of health equipment and other patient administration supplies, among others[29], a scenario enabled by the institutions of 93.94% of OP (Table 1). OP in the clinical scope deals with clinically complex patients, reviews and monitors pharmacotherapy and its adverse effects, improves therapeutic adherence, reduces DRP and promotes better quality of life[30].

Pharmacosurveillance may detect and prevent medical errors (ME) and adverse reactions, avoiding damage that affect the quality of treatment[31]. Thus, it is possible the OP and the prescriber interfere positively with AT[31]. Therefore, it is important to visit the patient, discuss cases and create protocols to assess adverse reactions of polychemotherapy and support medication[31]. In Graph 1, 57.58% of OP were observed to not practice pharmacosurveillance, 72.73% do not participate in clinical meetings, 81.82% do not visit the patient's bedside, 54.55% do not standardize protocols. Moreover, miscommunication and connection failure among the team members has been reported (Chart 1), a suitable setting for low pharmacotherapy adherence and reduction of patient safety.

PA should deal with the gaps of cancer treatment, but its structure, in the scope of oncology, has faced difficulties in access and therapy continuity with insufficient funding and deficient offer of services[23], perspective that is reinforced by some testimonials (Chart 1) regarding the challenges found in the exercise of CP. RUM is a world public health issue that has been yielding uneven results in the clinical, economic and humanistic scope[32]. When prescription is incorrect, costs rise from 50% to 70% of resources[9]. If corrected, waste is avoided and patient safety preserved[9].

DRP may be caused by ME, generating additional expenditure, longer hospitalization time and damage to the patient, an avoidable event[33]. ME are caused by miscommunication or in steps in the pharmaceutical assistance cycle, professional competency, education of patients and collaborators, in the process of quality and risk management, among other factors[19]. Prevention of ME involves assessing prescriptions regarding quality, amount, compatibility, stability and interactions, monitoring pharmacotherapy and applying pharmaceutical interventions (PI), if needed[19].

Aguiar et al.[19] assessed 6.104 prescriptions in an oncological hospital, 274 (4.5%) showed 324 ME. After identifying ME, interventions were performed and 98% of those were accepted. By analyzing resources spent and saved with PI, a monthly saving of R$ 33,217.65 was discovered, around 200 thousand Reais a year[19]. Duarte et al.[5] assessed 3,526 prescriptions of an oncology outpatient clinic and found that 220 (6.24%) had errors regarding over-dosage or under-dosage, dilution, lack of dosage information, incorrect patient identification,

Chart 1. Oncology pharmacists report on the daily obstacles regarding clinical pharmacy

Reports on the daily challenges that impair pharmaceutical care in oncology
"Minimal team and non-exclusive pharmacist for this activity"
"Aged patients or reluctant regarding home care"
"Having a private space to assist the patient. Having time to participate in meetings and clinical rounds"
"Clinical pharmacy practice, monthly follow-up with patients that use oral oncology drugs, doctors don't report changes and medication suspension, for instance"
"Many times, the work related to pharmaceutical intervention, in face of oncological prescription nonconformities, is seen by many professionals as "surveillance", something that delays the service flow and impairs medical care, and not as an activity that contributes to patient safety and rational use of medication. The great flow of patients to assist, in contrast with the number of human resources available"
"Difficulty in searching for missing data in medical records. Difficulties in the multidisciplinary team understanding correlations between nursing/pharmacy/doctors"
"High demand"
"Space to work properly. Better interaction between multidisciplinary team in decision-making"
"Small number of professionals for such attribution"
"Lack of clinical pharmacist on duty"
"Lack of personnel to care for all patients"
"Lack of human resources and physical structure"
"Lack of understanding of the team, especially multi-residents, of the relevance of the pharmacist in follow-up"
"Constant change of protocols. Care in managing a high-cost inventory. Patients who don't adequately adhere to therapy"
"Patient education"
"Lack of clinical pharmacy"
"Delay in medical response through phone call or WhatsApp chat, when there's an intervention; prescription with wrong weight, height and body surface; the pharmacist has to perform calculations to evaluate the patient's dosage; it's very common for doctors to put in the prescription a solution incompatible with the medication; volume of the solution prescribed below the final concentration determined by the lab"
"High demand of patients"
"Intervention with the prescriber"
"Human resources, time"
"Demand. When the demand is high, it makes it harder to care with excellence. Multidisciplinary team, sometimes the situation turns difficult, depending on how the other professional works within the team."
"Time"
"We're often forgotten and not valued enough even by the pharmacy coordination. We want to contribute more, but sometimes we don't have enough manpower"

among other issues. Of the performed PI, only two prescriptions were kept unchanged.

The errors found in the analysis by Duarte et al.[5] are similar to the ones presented in Graph 2. However, the acceptability of the PI seen in the works by Duarte et al.[5] and Aguiar et al.[19] differ from what can be seen in Table 2. In the first study, 36.36% of the OPs performed PI that were accepted 100% of the time, and in the second study, 63.64% of the OPs had their PI partially accepted. When the CP service is integrated into a multidisciplinary team, DRP can be reduced through PI, conferring service quality, assistance safety and rationalization of resources. The high acceptability rates of PI show the clinical body's recognition of pharmacists as a safe source of information on drugs[5,9].

Considering there are 41 oncology services in the State[22], most of them in the capital (27; 65.85%)[22], three studies conducted with professionals that work in

Recife institutions were found that match this study and allow for a closer comparison regarding some variables. Silva et al.[18] applied an electronic questionnaire to 36 clinical pharmacists working in oncology. Barros et al.[26] applied an in-person questionnaire to professionals in six oncology clinics/hospitals and Souza, Santos e Rolim[34] interviewed pharmacists from 11 oncology hospitals.

Regarding oncology pharmacists' workplace, the care process of patients in oncology treatment is multidisciplinary (Table 1) among 87.88% (29) participants of this study, differing a bit from the results obtained by Silva et al.[18], which was 100% (36). As to pharmacists' integration in the multidisciplinary team (Table 1), a percentage of 60.61% was obtained, result close to the one by Barros et al.[24], with 67%, and further away from Silva et al.[18], with 97.22%, and Souza, Santos and Rolim[32] with 100%.

Regarding incompatibilities in the prescriptions (Table 2), the situation in which OPs reach out to the doctor/nurse to solve prescription issues, the results by Silva et al.[18] corroborate the findings of this study, since both 100% of participants perform such activity. Regarding visits to the hospitalized patients (Graph 1), a percentage of 18.18% (6) was observed, similar to the results by Souza, Santos and Rolim[34] who obtained 18.18%. Such similarity was also observed regarding participation in clinical meetings (Graph 1) in which Souza, Santos and Rolim[3] pointed out that 27.27% of participants mentioned this activity, which happened with nine participants of this research.

Regarding patient care (Graph 1), 63.64% (21) of OPs guide families and caregivers, not in line with Silva et al.[18], who showed that 100% (36) of their participants performed this activity at different rates. As to the variable, in the same graph, in which the pharmacist assesses support medication and antineoplastic drugs prescriptions, Silva et al.[18] described that 100% (36) of participants perform this attribution, different from the present research, in which 84.85% (28) perform the activity.

Considering the general context of this study, which covers OPs in the whole State, and the studies by Silva et al.[18], Barros et al.[26] and Souza, Santos and Rolim[34], performed in Recife alone, some differences among the results are verified. This can mean that other Regions, apart from Recife, are not implementing actions and seeking to improve infrastructure and/or human and financial resources to pharmacists conduct the clinical activity that will make a significant difference in assisting the patients.

One must admit that optimized resources are essential for good healthcare[19]. According to participants in this study, there are more patients than oncology pharmacists. Santos et al.[35] and Pinho et al.[36] argue that, to ensure effective pharmacotherapy, more pharmacists need to be employed, so they can work without being overwhelmed and are able to provide quality care to oncology patients, offering some lightness amidst the hardships. In this scenario, patients and institutions benefit from reduced DRP, hospitalization time and costs, relying on a resident pharmacist, a common practice in oncology[36,37].

CONCLUSION

Results found in this research point to some frailties in the exercise of clinical pharmacy in health units that provide oncology services. Oncology pharmacists who work in one or more of the 41 units spread over the State of Pernambuco are not fully inserted in the multidisciplinary team dynamics but are able to perform some clinical activities such as assessment/validation of prescriptions, dispensation and guidance on the rational use of oral antineoplastic drugs. The pharmaceutical interventions have a good acceptability rate and there is some connection between nursing and prescribers to solve eventual incompatibilities.

Pharmacotherapy follow-up, pharmacosurveillance, team meetings and multidisciplinary visits are still rare, reality that needs to change as those practices are extremely important to ensure better quality care and safety to patients. Moreover, there are challenges that prevent the good practice of oncology pharmacists, such as high number of patients, lack of human and financial resources, lack of infrastructure, lack of communication and not enough time for team activities, lack of support, valuation and understanding of the clinical pharmacist's role in the patient safety and saving for the institution. Thus, other studies that map out the Pernambuco Regions to identify their needs in terms of optimization of healthcare support are encouraged.

CONTRIBUTIONS

All the authors have substantially contributed to the study design, acquisition, analysis and interpretation of the data, wording, and critical review. They approved the final version for publication.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

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