IDENTIFICATION OF KEY ELEMENTS FOR IMPROVING PRIMARY CARE FOR CANCER PATIENTS USING THE ACIC QUESTIONNAIRE

Identificação de Dimensões-Chave para a Melhoria do Cuidado ao Paciente com Câncer na Atenção Primária em Saúde pelo Questionário ACIC

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ABSTRACT

Objectives: To identify key elements for the improvement of cancer patient care in the primary care setting. **Methods:** This is an analytical, cross-sectional and quantitative study. Healthcare professionals from all primary care teams of the city of Votuporanga (Brazil) answered the Assessment of Chronic Illness Care (ACIC) questionnaire, used by the Pan-American Health Organization/World Health Organization for the assessment of the quality of chronic care. **Results:** The average score obtained in the seven evaluated elements was 5.4±2.0 on a scale from zero to 11. The integration of the elements of the care model, with an average of 3.9±2.3, and support for clinical decisions, with an average of 3.5±2.4, were the elements with the lowest scores. **Conclusion:** The average score obtained in the ACIC tool, according to the responses of primary care professionals in Votuporanga, indicates the city has a fair capacity to care for patients with cancer. On the other hand, the items integration components of the healthcare system, and clinical support for care, received the lowest scores, which indicates that these elements should be prioritized in the implementation of improvements.

Keywords: Continuity of Patient Care. Oncology. Primary health care.

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INTRODUCTION

Cancer is a prevalent disease with a high mortality rate. Its care has worrisome deficiencies, especially in developing countries. However, the number of patients living with it has increased due to greater survival, which was possible by the expansion of the care network and technological advances in oncology[1]. Advances such as genetic and molecular studies, the discovery of new drugs, and new procedures already incorporated into clinical protocols allow, in many cases, adequate control of the disease and lower mortality[2,3]. Due to these advancements, many patients now live with the disease for long periods, a fact that has led many authors to consider cancer a chronic disease[4].

The Brazilian public health system – Sistema Único de Saúde (SUS) – already recognizes cancer as a noncommunicable chronic disease (NCD). In 2013, the ordinance of the Brazilian Ministry of Health (Portaria no 874) established the National Policy for the Prevention and Control of Cancer (Política Nacional para a Prevenção e Controle do Câncer - PNPCC), recognizing cancer as a preventable chronic disease that requires comprehensive care[5]. The PNPCC also defined that the follow-up of patients diagnosed with cancer should be carried out in highly complex oncology care units and centers, which should offer timely and safe treatment as close as possible to the patient's home. However, for cancer care to be offered comprehensively, a referral and counter-referral system is necessary, in which primary health care (PHC) services also play a fundamental role, often accompanying cancer patients in parallel to more specialized services6. In this system, the PHC service refers the patient to a more specialized service to start their treatment, which must start within 60 days after the diagnosis[7]. The counter-referral process, which is the referral back to the PHC service of origin, guarantees the continuity of the necessary care, ensuring the principle of comprehensive care.

In this comprehensive care network for cancer patients, PHC is much more than just the system's "gate keeper". On the contrary, PHC has a strategic role in providing qualified health services, important for humanized care, which also includes primary prevention, early detection and palliative care. It acts therefore at all levels of the natural history of the disease. Because it is closer to the population, PHC also has a greater reach for health promotion actions, which reinforces its importance in cancer control[8]. However, a study carried out in the Brazilian Federal District indicated that 35.5% of patients diagnosed with breast cancer started their treatment only 60 days after the initial diagnosis, which reveals gaps and deficiencies in the integration of the system, a sharp contrast to what is ideally enshrined in the law[9]. Thus, it is essential that studies are carried out to assess the quality of care for patients with cancer in PHC services, to diagnose its main problems.

Following the concept that cancer has characteristics in common with other NCDs, studies have shown that some tools for assessing outcomes in chronic diseases may also be applicable to cancer, as is the case of the EQ-5D questionnaire[10]. Therefore, the same principle could be applied to assess the quality of care for cancer patients, by using instruments that assess the quality of care for NCDs, such as the Assessment of Chronic Illness Care (ACIC) questionnaire, used by the Pan American Health Organization (PAHO) for this purpose[11,12].

Based on this rationale, the present study employed the ACIC in the context of PHC services provided to cancer patients, aiming to make a situational diagnosis of the quality of care. Thus, the objective of this study is to identify the key elements of the Chronic Care Model (CCM) that need improvement in the context of PHC for cancer patients.

METHODS

This is a cross-sectional, quantitative and analytical study. It was carried out in Votuporanga, a city in the countryside of the State of São Paulo, Brazil, which had an estimated population of 96,106 inhabitants, in 2021[13]. At the time of the study, 19 healthcare teams from the Family Health Program (*Programa de Saúde da Família* – PSF), a national PHC program of SUS, participated. These teams were responsible for a catchment area covering 89.3% of the city, and were distributed across 12 Family Health Clinics (Unidades de Saúde da Família – USF), which are PHC clinics.

Descriptive data on the characteristics of each USF were obtained, namely: number of teams on site, of doctors and nurses, catchment population and number of cancer patients being cared for at the USF. To anonymize the final scores, each clinic was identified with a letter, and each team received a number when the USF had more than one.

For the evaluation of the PHC service regarding the care of cancer patients, the Brazilian version of the ACIC, which was adapted to Brazilian Portuguese in 2012[12,14] was used. The ACIC evaluates the elements of the CCM[15], measuring the capacity of the health institution to care for NCDs, and establishing a situational diagnosis of the operational environment in which the care is provided. The tool divides the assessment into seven essential elements: organization of the health care system, community resources, self-management support, delivery system design, clinical decision support, clinical information systems and integration of the elements. Each of these aspects receives a score of zero to 11. The highest value indicates the described action has been completely put into practice, and the lowest, that further action is still needed.

The tool was applied in one USF every two weeks. The researchers first presented the ACIC to the clinic's staff, detailing the objectives and methods of the study, and then trained each group to apply it. Between three and 11 members of each healthcare team were then selected and invited by their peers to answer the ACIC, according to the member's involvement in the care of cancer patients, in addition to their interest in participating in the study. The questionnaire was then answered at the USF, on a scheduled date, in a face-to-face meeting, in which the researchers, who acted as facilitators, also participated without influencing the answers. The ACIC was answered individually after an initial debate between the participants of each group.

The final score for each clinic was obtained by averaging the participants' responses, after evaluating the data for normal distribution and sphericity. For descriptive purposes, scores between 0 and 2 were considered "limited capacity"; between 3 and 5 were considered "basic"; between 6 and 8, "fair"; and between 9 and 11, "excellent". The ANOVA test was used to compare the differences between the final score of each team and clinic, with a 95% confidence interval. The seven elements of the CCM were also analyzed individually. The final score of each element was compared between the different clinics using the ANOVA test, but due to the multiple comparisons performed, the Bonferroni correction was used, establishing a p value for statistical significance of 0.007.

To control possible confounding variables influencing the final scores, the study also analyzed demographic data of each of the participants, such as gender, age, training and experience, such

as time worked in public health, time working at the same USF and their education. The following variables were also analyzed: number of cancer patients treated at the clinic, population catchment of the team, and number of staff members participating in the research. At this stage, the Pearson's chi-square test was used to investigate a possible relationship between the categorical variables (gender and professional training) and the final scores given by participants in the questionnaire. Pearson's linear correlation coefficient, in turn, assessed the association of continuous variables such as age, time working in public health, and time working at the same USF with the final scores given to each service.

RESULTS

The characteristics of the USF included in the study are described in Table 1. Of the 453 healthcare professionals working in the USF studied, 81 (17.9%) were invited to participate in the research, including seven of the 19 physicians (36.8%), with no refusals. The population catchment averaged 4,909±3,306 patients per team, ranging from 2,120 to 15,600. On average, each participating USF had 10.9±8.3 patients with cancer treated at the location. Of the 12 participating PHC clinics, six had 10 or more patients with cancer, comprising 107 patients in these services (81.68% of the total sample).

The 81 healthcare professionals participating in this study were mostly female (76%), with a mean age of 39.5±10 years, ranging from 20 to 68. The professionals worked at the USF in eight-hour shifts, have been in the public health area for an average of 7 years, and have worked at the same USF for an average of 4.5 years. Furthermore, 28.9% of the participating professionals declared having a postgraduate degree.

Table 2 demonstrates the characteristics of the members of each team. The separate analysis of the seven physicians who answered the ACIC showed a mean age of 31.5±5.9 years, ranging from 26 to 42, and only one was male. These physicians have worked at the same USF for 2.9 years, the same length of time they have worked in the public health system, in all cases.

TABLE 1 - Characteristics of the Family Health Clinics (USF) in Votuporanga

CLINIC	NUMBER OF TEAMS	CATCHMENT POPULATION	NUMBER OF PATIENTS WITH CANCER*	NUMBER OF PHYSICIANS	NUMBER OF REGISTERED NURSES
A	3	21,797	8	5	3
B	1	9,271	14	1	1
C	1	2,188	16	1	2
D	1	3,673	2	1	1
E	1	3,247	4	3	1
F	2	8,789	24	2	2
G	1	3,500	10	1	1
H	1	15,600	20	3	1
I	3	6,361	4	4	3
J	1	3,700	1	2	1
K	1	2,350	5	3	1
L	3	13,000	23	3	3

(*) Number of patients receiving cancer care at the USF in 2018.

TABLE 2 - Characteristics of the participating healthcare professionals of each team

TEAM*	MEAN AGE (YEAR)	MEAN TIME WORKING IN PRIMARY CARE (YEARS)	MEAN TIME WORKING AT THE SAME PRIMARY CARE CLINIC (YEARS)
A1	35.5	8.6	3.7
A2	37	6.5	6.5
A3	39.6	7.3	4.6
B	42.8	7.2	4.9
C	40.7	2.7	2.4
D	46.4	13.9	8.5
E	42.5	6.5	2.5
F1	43	6	6
F2	43.3	6.5	4.6
G	39.3	10.6	5.5
H	40	8.6	3
I1	33.6	4.3	3.3
I2	32.3	4.6	3.3
I3	37	5	3
J	33.8	7.6	4.7
K	36.7	7	6.8
L1	44.7	9	5.7
L2	36.3	5.3	4.6
L3	36.5	5.7	2.6

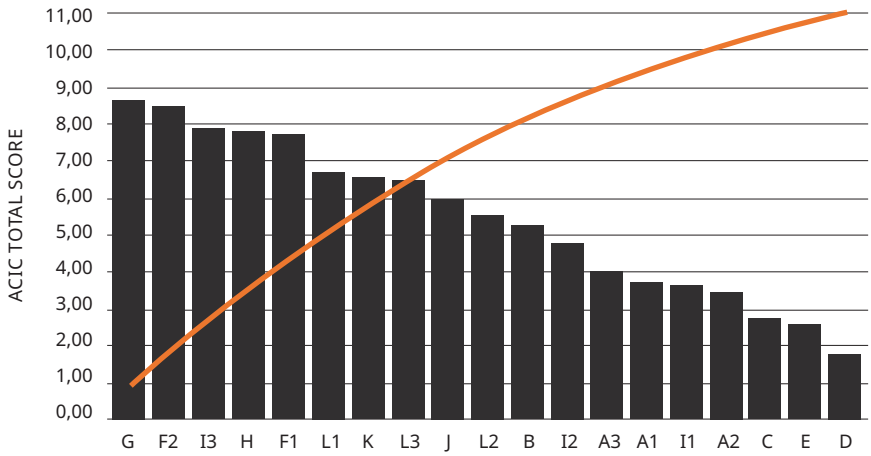
*Letter: Family Health Clinic (USF) and Number: Team;

The average final ACIC score obtained by the USFs in Votuporanga was 5.4±2.0 ("fair"), ranging from 1.8 to 8.6, on a scale of zero to 11. The ANOVA test that compared the mean total scores of each of the 12 USFs yielded a statistically significant difference across the clinics [F(11,69) = 4.25, p=0.03]. As for the evaluations of each team, according to the score classification criteria described in "methods", nine teams (47.3%) considered their USF had a fair institutional capacity for cancer care; seven teams (36.9%) considered the institutional capacity basic; and three teams (15.8%) considered it limited. Chart 1 orders the teams' final scores from highest to lowest.

Table 3 presents the results of the ANOVA test, which compared the different clinics regarding their mean score in each of the seven elements of the CCM. A significance level of 0.7% was considered, after Bonferroni correction for multiple comparisons. The average score obtained by the six USF that treated more than 10 cancer patients was 6.4±2.0, ranging from 2.71 to 8.65 (scale of zero to 11). For the other six clinics, the mean score was 4.32±1.8, ranging from 1.78 to 6.51. However, the number of users with cancer assisted in each clinic was not significantly associated with the ACIC score obtained by that clinic.

It is important to highlight that the answers to the ACIC are a result of the collective decision of the participating professionals, who belong to different areas in healthcare. In eight teams, the ACIC was only applied to community health agents (agentes comunitários de saúde - ACS), with an average score of 5.79±2.61. In the eleven remaining teams, at least one participating professional had a university degree (physician or nurse), yielding an average score of 5.19±2.03. In seven teams (36.8%), the USF physician was present among the professionals who answered the assessment instrument, yielding an average score of 5.02±2.43. There was no association between the training background of the participant professionals and their correspondent ACIC scores. No statistically significant associations were found between age, sex, time working in public healthcare and time working at the same USF. Nor was any association found between the clinic's final ACIC score and the population catchment of each clinic or the number of professionals participating in the study.

CHART 1 - Final ACIC scores for each team according to the Pareto chart



site: letter - clinic; number - team

TABELA 3 - ACIC scores in elements of the Chronic Care Model of each Family Health Clinic and total final score

ELEMENT*	CLINIC												MEAN SCORE	P VALUE**
	A	B	C	D	E	F	G	H	I	J	K	L		
1	1.3	8	5.1	0	2.1	8.9	10.5	9.5	4.1	5.5	5.8	6.6	5.6	0.043
2	4.9	5.5	2.7	1.7	2	7.5	7.5	7.7	5.8	6.7	6	5.4	5.3	**0.003**
3	3.9	7.5	4.5	1.7	1.5	10.3	9	8.2	5	6.2	8.5	8.5	6.2	0.12
4	2	0	0.7	1	1.5	5.6	8.2	5.5	3.8	4.2	4.7	5.4	3.5	0.073
5	4.4	9	4.5	1.3	2.5	10.8	10.5	10.8	8.5	7.1	7.5	8	7.1	**<0.001**
6	6.9	4	1.3	4.6	5.3	7.2	5.8	6	7.9	7.5	8.1	6.5	5.9	0.129
7	2.2	3.1	0	2	2.5	6	9	6.5	2.7	4.8	4.8	3.1	3.9	0.043
TOTAL MEAN SCORE	3.7 ± 1.9	5.3 ± 3.2	2.7 ± 2	1.8 ± 1.4	2.5 ± 1.3	8 ± 2	8.6 ± 1.6	7.7 ± 1.9	5.4 ± 2.1	6 ± 1.2	6.5 ± 1.5	6.2 ± 1.7	5.4 ± 2	**0.03 *****

*Elements assessed: 1: Organization of systems of cancer care; 2: Coordination with community resources for cancer care; 3: Support for cancer-related self-management; 4: Support for cancer-related clinical decisions; 5: Design of the cancer-related service delivery system; 6: Clinical information system of cancer-related data; 7: Integration of the elements of the cancer care model. Letters indicate each USF studied. **P values of the ANOVA test used to compare the scores of each clinic in the seven elements of the CCM, F(11,69). There was a significant difference for elements 2 and 5 (p<0.007 after correction for multiple comparisons). *** P value of the ANOVA test used to compare the total final ACIC scores of each clinic, F(11,69) p <0.05.

DISCUSSION

This study, using an instrument that evaluates the quality of care for patients with NCDs, applied to cancer care, found a "fair" score for this type of healthcare provided in the 12 USF in the city of Votuporanga, São Paulo, Brazil. The result is consistent with other studies that sought to assess the quality of PHC in regions of Brazil with similar socio-demographic characteristics. For example, Castro *et al.*[16] used the Primary Care Assessment Tool (PCATool), version for health professionals, to assess the services in the city of Porto Alegre, Rio Grande do Sul, Brazil. Although it used different methods compared to this study, including a focus on care as a whole and not just chronic diseases, the primary care clinics in Porto Alegre received an average score of 6.58, that is, on the limit between which is considered a low and high score (6.6). Thus, despite the limitations of this comparison, it is possible to infer that the perception of these professionals regarding the service can also be considered intermediate, compatible with the "fair" result found in the current sample.

It is also possible to infer that a "fair" score reflects a mixed perception of the quality of care provided. Therefore, part of the evaluation can be positive, thanks to aspects of the service that have improved since the implementation of the current PHC model based on the Brazilian public health policy known as "Family Health Strategy" (Estratégia de Saúde da Família - ESF). Previous studies pointed out that the elements of PHC that have been strengthened include: the size of the geographical area covered by the PSF, the population's access to health care, the structure of the services, the availability of physicians and the coverage of health initiatives. Public policies aimed at improving access and quality in PHC have also been implemented in recent years[16]. In this study, in turn, the element that showed the most positive results, according to the perception of the participating professionals, was the design of the cancer-related service delivery system, with a mean score of 7.1±3.1. Preventive campaigns, home care programs and availability of services to cancer patients throughout the network may be some of the measures implemented in recent years that contributed to a better perception of this element of the CCM. The design of the service delivery system was also reported as the best evaluated element by another Brazilian study that used the ACIC tool to assess the quality of PHC, although, in this case, the instrument was not restricted to care for a specific disease. This study, carried out in the city of Campo Grande, state of Mato Grosso do Sul, also yielded a "fair" score of the clinics in that city[17].

Contrasting with the strengths of PHC, several studies have pointed out elements of the system that still leave much to be desired, which often arises from problems that affect the completeness and comprehensiveness of care18. Difficulties in the referral and counter-referral system within the network have been identified as one of these problems. A study that evaluated the quality of PHC for patients with cervical cancer pointed out problems such as the limited number of spots for referred patients; deficient communication between the referring provider and the specialist about the case; and, many times, even the lack of the counter-referral[19]. In another study, which also used the ACIC tool in Votuporanga, but to evaluate the care for type 2 diabetes mellitus, the integration of the elements of care and clinical decision support obtained low scores[20]. The findings of this study go in the same direction, since the two elements that presented the lowest scores were the integration of the elements of care and clinical decision support. The first of these two elements considers that a quality health system is organized in a clear, synchronized and effective way. Clinical decision support, on the other hand, guarantees that medical decision-making is up to date and based on scientific grounds, which can be guaranteed by clinical protocols and well-defined care algorithms.

Another noteworthy finding is the difference observed in scores across clinics, which may indicate heterogeneity in the network. Castro *et al.*[16] also found differences between PHC clinics in the city of Porto Alegre, Brazil, which were associated with their structure and coordination with the rest of the system. In that study, the clinics that had physicians specialized in primary care and other health professionals, such as psychologists, social workers, dietitians, among others, scored better. Easier referral procedures to more complex levels of care were also one of the characteristics observed in clinics with higher scores. In this study, differences were also observed among the PHC clinics regarding the score of the element "integration of the components of the CCM", which may suggest heterogeneity regarding the ease of referring patients to specialized services. However, this finding did not survive Bonferroni correction for multiple comparisons.

Two other elements of the CCM (design of the service delivery system and coordination with community resources) showed significant differences among the USF, even after Bonferroni correction. This finding indicates that there are other sources of heterogeneity across the network, which need further studies to identify possible causes. Some factors may have contributed to the differences across the clinics, such as the variability in the number of individuals served, ranging from 2,120 to 15,600 people. According to the city administration, this number was determined by socio-economic criteria, which further increases the heterogeneity of the population served by the network. In addition, the number of participants in each clinic varied, which may have led to possible selection biases and low statistical power in some clinics, making it difficult for additional differences to be observed.

Another limitation of this study is the low number of physicians participating in the research, which may have possibly led to selection bias. Physicians may have different quality standards for health care than other members of the multidisciplinary team, due to the inherent characteristics of each one's role. In fact, the average score obtained in teams in which only ACS participated was higher (5.79) than in the seven teams with at least one participating physician (5.02). Although no statistically significant association was found between the training background of the participant and the final ACIC score, such differences in types of participating professionals among the USF may have led to selection bias in the final scores. It is also possible that differences resulting from the professional's training background were not detected due to the low statistical power of the sample. Thus, this factor may have been responsible for the difference in scores obtained by each clinic. Furthermore,

many participating physicians revealed in this study that they did not have much experience working in PHC, as this was their first job in the field. Although this variable was not associated with the final ACIC score of the clinic, it may have influenced the answers and, therefore, the final result. This is important, as in the aforementioned study by Castro *et al.*[16], the clinics with unexperienced physicians, in conjunction with other factors, had worse ACIC scores compared to those with experienced practitioners and specialists in primary care medicine. Finally, despite differences in training background among participants in each clinic, other variables such as sex, age and number of cancer patients treated at the clinic seem not to have influenced the final result.

This study reports findings that can collaborate with a diagnosis of the quality of care for cancer patients in the PHC setting. We identified aspects that could be improved by working with the teams and the rest of the healthcare system to improve the quality of care for cancer patients. In particular, the worst scores were observed in elements that comprise the integration of the elements of the care model and support for clinical decisions, which indicates that the focus of improvement should be placed on actions in these areas. The findings are compatible with other studies that evaluated the quality of PHC in Brazil and pointed out deficiencies in these same two elements.

CONFLICTS OF INTERESTS

The authors have no conflicts of interest to disclose.

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