Original article

Addressing chronic noncommunicable diseases in primary health care in Goiás, Brazil: a descriptive study, 2012 and 2014*

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Abstract

Objective: To compare primary health care (PHC) actions taken to care for chronic non-communicable diseases (NCDs) in the state of Goiás, Brazil, between 2012 and 2014. **Methods:** This was a descriptive study using secondary data from the National Program for Improving Primary Care Access and Quality (PMAQ-AB). The proportions of teams performing actions to address NCDs were compared between PMAQ-AB cycles I and II using the McNemar test for paired samples. **Results:** Seventeen of the 20 variables studied showed a proportional increase between the two cycles: from 16.0% to 32.1% of teams that practiced all care management actions, from 21.5% to 35.2% of those that practiced all health promotion actions and from 22.2% to 39.8% of teams that practiced all activities at school. **Conclusion:** PHC actions to address NCDs in Goiás were strengthened between the two PMAQ-AB cycles.

Keywords: Primary Health Care; Chronic Disease; Health Evaluation; Epidemiology, Descriptive.

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Introduction

Primary Health Care (PHC), the preferential point of entry to the Brazilian National Health System (SUS), has drawn the attention of the debate on the work process aimed at addressing chronic noncommunicable diseases (NCDs). So far, PHC, which has the Family Health Strategy as its main model of action, is not able to provide comprehensive and continuing care capable of countering the heavy burden that NCDs represent for Brazil.[1]

NCDs affect all nations and social classes, with the majority of deaths attributed to them being concentrated in middle and low-class populations.[2] This group of diseases accounted for 73.4% of total deaths worldwide in 2017.[3]

> *The high burden of NCD deaths in Brazil is the result of the demographic transition the country has gone though, as well accelerated aging arising from reduced fertility/birth rates and reduced mortality in all age groups.*

In Brazil, NCDs accounted for 75.0% of total deaths in 2015 and their main groups of causes were: diseases of the circulatory system; cancer; chronic respiratory disease; and diabetes.[4] These four groups share the main risk factors for chronic diseases: inadequate diet; tobacco smoking; physical inactivity; and abusive alcohol consumption.[5]

The high burden of NCDs deaths in Brazil is the result of the demographic transition the country has gone though, as well accelerated aging arising from reduced fertility/birth rates and reduced mortality in all age groups. In 2010, there were 19.6 million Brazilians aged 60 or over. It is estimated that this age group will account for approximately 41.5 million in 2030.[6]

A noteworthy initiative to reduce the NCDs burden in Brazil is the 'Strategic action plan to address chronic noncommunicable diseases in Brazil, 2011-2022'. This plan prioritizes the development of public policies on health promotion, prevention and comprehensive care, aimed at controlling NCDs and their risk factors. The guidelines proposed involve PHC as an important strategy for producing comprehensive and continuing care.[7]

Within this context, the National Program for Improving Primary Care Access and Quality (PMAQ-AB), initiated in 2011, linked the funding of PHC teams to health management and health care quality standards.[8] PMAQ-AB has four stages: (i) adherence and agreement setting, (ii) development, (iii) external evaluation and (iv) agreement resetting. The program's external evaluation instruments contain questions covering several different parameters, related to Primary Health Care Center infrastructure and Family Health team work processes.[1,8] Several of these questions refer to NCDs-related actions.

Some studies[1,9-11] have used PMAQ-AB to evaluate actions to address NCDs, but none of them have characterized activities undertaken in the state of Goiás. In order to fill this gap, the objective of this study was to compare PHC actions taken to care for NCDs in the state of Goiás, Brazil, between 2012 and 2014.

Methods

This was a descriptive study comparing data from PMAQ-AB cycle I (2012) and cycle II (2013/2014) in Goiás, a state in the Midwest region of Brazil. Goiás covers an area of 340,111.376km^2 and in 2017 had an estimated population of 6,779,000 inhabitants, distributed over 246 municipalities and estimated population density of 19.9 inhab./km^2. Also in 2017, 39.0% of the population of Goiás was 40 years old or more, whereas in 2000 this proportion was 25.3%. In order to organize the health system in accordance with the principal of Health regionalization within the state, Goiás is divided into 18 Health Regions, has 1409 Family Health teams and 65.3% of its population is covered by PHC.[12]

PMAQ-AB external evaluation uses standardized instruments built with the purpose of covering all dimensions of PHC. This study analyzed data from Module II of the PMAQ-AB data collection instrument. This data was gathered by means of interviews given by university-qualified Family Health professionals about the team work process. In order to enable comparison between the two moments, we only selected Family Health teams that took part in both PMAQ-AB cycles. The database is available on the Ministry of Health

Dimension	Variable	Content of the variable
Care management	Attending to spontaneous demand	Proportion of teams attending to spontaneous demand.
	Assessment of risk and vulnerability at initial care	Proportion of teams carrying out assessment of risk and vulnerability at initial care for service users.
	Training for assessment and classification of risk and vulnerability	Proportion of teams carrying patient embracement and trained to assess and classify their risk and vulnerability.
	Repeat prescription without having to have an appointment	Proportion of teams issuing repeat prescriptions for patients under continuous care/programs such as hypertension and diabetes, without having to have an appointment.
	Time slots allotted for receiving and showing test results	Proportion of teams that allot time slots in the appointment book or at a convenient time for health professionals so that patients can receive and be shown their test results.
	Time slots allotted for post-consultation queries	Proportion of teams that allot time slots in the appointment book or at a convenient time for health professionals so that patients can make post-consultation queries or show how their situation has progressed.
	All care management actions	Proportion of teams carrying out all care management actions.
Health promotion	Support with self-care of chronic diseases	Proportion of teams carrying out health education and health promotion actions in group activities with the aim of supporting self-care of chronic diseases.
	Actions aimed at women	Proportion of teams carrying out health education and health promotion actions aimed at women (cervical and breast cancer).
	Actions aimed at men	Proportion of teams carrying out health education and health promotion actions aimed at men.
	Actions aimed at the elderly	Proportion of teams carrying out health education and health promotion actions aimed at the elderly.
	Actions aimed at healthy eating	Proportion of teams carrying out health education and health promotion actions aimed at healthy eating.
	Encouragement of bodily practices and physical activity	Proportion of teams that encourage and arrange bodily practices or physical activity at the primary health care center and/or in its catchment area.
	All health promotion actions	Proportion of teams carrying out all health promotion actions.
Activity at schools	Carries out activity at schools	Proportion of teams carrying out activities at schools.
	Early detection of arterial hypertension	Proportion of teams carrying out early detection of arterial hypertension.
	Nutritional assessment	Proportion of teams carrying out nutritional assessment.
	Food security and healthy eating promotion actions	Proportion of teams carrying out food security and healthy eating promotion actions.
	Promotion of bodily practices and physical activity at schools	Proportion of teams promoting bodily practices and physical activity at schools.
	All activity actions at schools	Proportion of teams carrying out all activity actions at schools.

Figure 1 – Variables selected from National Program for Improving Primary Care Access and Quality instruments related to addressing chronic noncommunicable diseases, Goiás, 2012 and 2014

Primary Health Care Secretariat website (https://aps.saude.gov.br/ape/esus).

We selected variables related to addressing chronic diseases and health promotion. In order to enable comparison between the two cycles, only variables used in both cycles were included. They were divided into three dimensions: health promotion; care management; and activities at schools. Figure 1 shows the dimensions defined for this study, their variables and the contents of each of them.

Bodily practice and physical activity actions were treated separately on the collection instrument, but were assessed together in this study and defined as 'bodily practices and/or physical activity'.

In addition to the variables selected from data instrument questions, three further variables were created estimating the proportion of the teams that carried out all the actions provided for each dimension: all care management actions; all health promotion actions; and all activity actions at schools.

For the purpose of data analysis, the proportions of each variable of each cycle were estimated. McNemar's test for paired samples was used when comparing proportions between the PMAQ-AB cycles. Critical values were considered to be those with a p-value less than 0.05 (5% significant level). The IBM SPSS Statistics computer program, version 22.0, was used to tabulate the data and to perform statistical analysis.

The PMAQ-AB study project was analyzed and approved by the Federal University of Goiás Research Ethics Committee, as per Protocol No. 487.055/2013, issued on December 2nd 2013, in accordance with National Health Council Resolution No. 466, dated October 12th 2012.

Results

A total of 677 teams answered the PMAQ-AB cycle I questionnaire, 29 of which did not take part in cycle II. In cycle II, a total of 1180 teams answered the Module II questionnaire, 532 of which had not taken part in cycle I. As such, we compared the questionnaires answered by 648 teams in both cycles (Figure 2).

All six actions relating to the care management dimension increased significantly in the state of Goiás (Table 1). Standing out in particular were the 'attending to spontaneous demand' and 'assessment of risk and vulnerability at initial care' variables, with an increase above 30 per cent between cycle I and cycle II.

With regard to the health promotion dimension (Table 2), there was a significant increase in the following variables: 'support with self-care of chronic diseases' (from 55.1 to 68.5%), 'actions aimed at men' (from 36.7 to 61.7%), 'bodily practices and/or physical activity' (from 67.6 to 78.4%) and 'all health promotion actions' (from 21.5 to 35.2%) (Table 2).

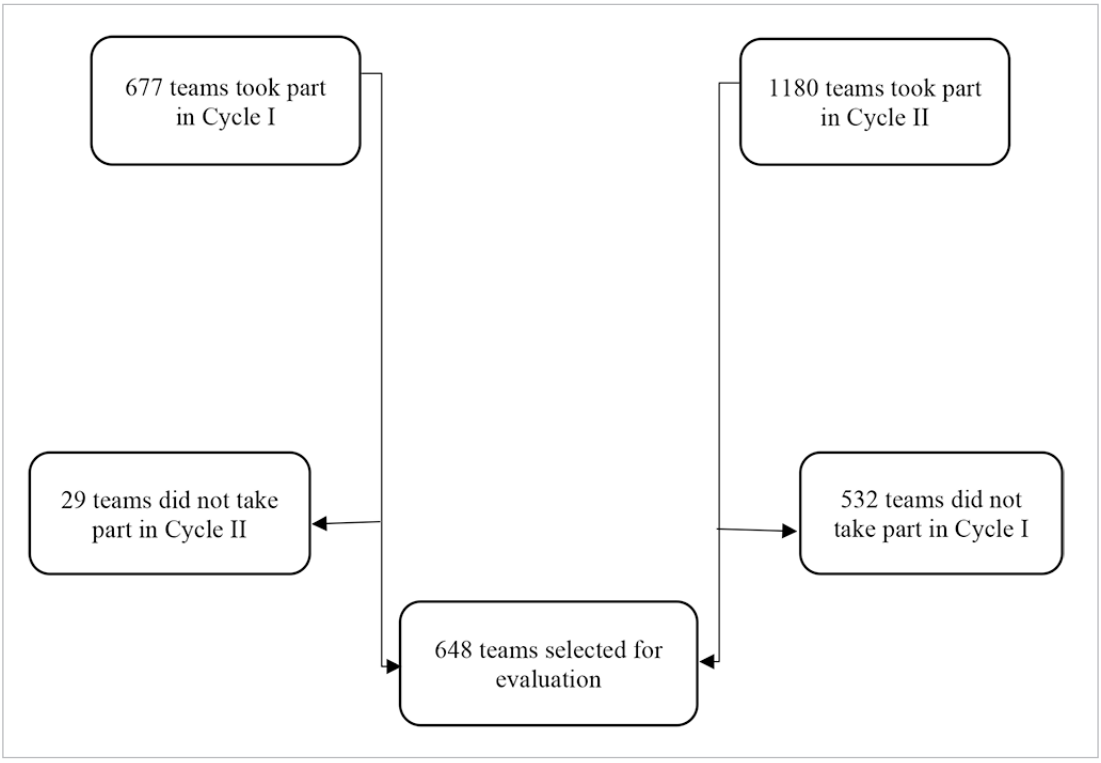

Figure 2 – Selection of Family Health teams that took part in cycles I and II of the National Program for Improving Primary Care Access and Quality, Goiás, 2012 and 2014

The actions relating to the activities at school dimension had a significant increase for all the variables analyzed (Table 3). In particular, the 'early detection of arterial hypertension', 'nutritional assessment' and 'food security and healthy eating promotion actions' variables had increases greater than 20 per cent.

No variable/action had a statistically significant reduction in the period that elapsed between PMAQ-AB cycle I and cycle II (Tables 1, 2 and 3).

Discussion

The results of the study demonstrate that PHC actions addressing NCDs in Goiás were strengthened in the period of time that elapsed between the two moments of the study. There was an increase in practicing 17 of the 20 actions studied and there was no decrease in any of them. All the actions of the 'activities at school' and 'care management' dimensions increased in the period studied. There was also an increase in

Table 1 – Proportion of Family Health teams carrying out care management actions, Goiás, 2012 and 2014

Care management: Actions	n=648% (95%CI[a])		p-valor[b]
	Cycle		
	I	II	
Attending to spontaneous demand	65,6 (61,9;69,1)	96,9 (95,3;98,0)	<0,001
Assessment of risk and vulnerability at initial care	55,7 (51,9;59,5)	90,4 (87,9;92,5)	<0,001
Training for assessment and classification of risk and vulnerability	33,0 (29,5;36,7)	62,2 (58,4;65,8)	<0,001
Repeat prescription without having to have an appointment	73,1 (69,6;76,4)	84,9 (81,9;87,4)	<0,001
Reserving time slots to receive and show test results	50,3 (46,5;54,2)	66,8 (63,1;70,3)	<0,001
Reserving time slots for post-consultation queries	47,8 (44,0;51,7)	60,8 (57,0;64,5)	<0,001
All care management actions	16,0 (13,4;19,1)	32,1 (28,6;35,8)	<0,001

a) 95%CI: 95% confidence interval.

b) McNemar's test.

Table 2 – Proportion of Family Health teams carrying out health promotion actions, Goiás, 2012 and 2014

Health promotion: Actions	n=648% (95%CI[a])		p-valor[b]
	Cycle		
	I	II	
Support with self-care of chronic diseases	55,1 (51,2;58,9)	68,5 (64,9;72,0)	<0,001
Actions aimed at women	78,7(75,4;83,7)	80,9 (77,7;83,7)	0,35
Actions aimed at men	36,7 (33,1;40,5)	61,7 (57,9;65,4)	<0,001
Actions aimed at the elderly	77,9 (75,6;80,1)	81,2 (78,0;84,0)	0,17
Actions aimed at healthy eating	73,9 (70,4;77,2)	77,6 (74,3;80,7)	0,12
Bodily practices and/or physical activity	67,6 (63,9;71,1)	78,4 (75,1;81,4)	<0,001
All health promotion actions	21,5 (18,5;24,8)	35,2 (31,6;38,9)	<0,001

a) 95%CI: 95% confidence interval.

b) McNemar's test.

Table 3 – Proportion of Family Health teams carrying out all actions of the activity at schools, Goiás, 2012 and 2014

Activity at schools: Actions	n=648 % (95%CI[a])		p-valor[b]
	Cycle		
	I	II	
Carries out activity at schools	77,2 (73,8;80,2)	88,9 (86,2;91,1)	<0,001
Early detection of arterial hypertension	37,7 (34,0;41,5)	59,6 (55,7;63,3)	<0,001
Nutritional assessment	47,5 (43,7;51,4)	74,7 (71,2;77,9)	<0,001
Food security and healthy eating promotion actions	55,1 (51,2;58,9)	75,8 (72,3;78,9)	<0,001
Promotion of bodily practices and physical activity at schools	35,3 (31,8;39,1)	54,0 (50,2;57,8)	<0,001
All activity actions at schools	22,2 (19,2;25,6)	39,8 (36,1;43,6)	<0,001
Todas as ações de promoção da saúde	21,5 (18,5;24,8)	35,2 (31,6;38,9)	<0,001

a) 95%CI: 95% confidence interval.

b) McNemar's test.

promoting chronic disease self-care, actions aimed at men and promotion of bodily practices and/or physical activity among health service users.

The increase in the practicing of patient embracement and assessment of risk and vulnerability actions is compatible with that found for the Northern region of Brazil.[9] Patient embracement should be carried out by a multi-professional team, with the purpose of listening to the service user and identifying their needs so that care is as individualized as possible.[13,14] Based on adequate health professional training, patient embracement with risk classification can be carried out in parallel to programmed actions, increasing linkage and improving access to services.[9,14]

The prevalence rates of actions aimed at women and at promoting healthy eating found by this study are compatible with those identified for the Midwest region. The divergences found for the other promotion actions may be related to differences between the states the comprise the region, as well as to the methodology used to select the teams assessed.[1] Values lower than those found for Goiás in relation to healthy eating, physical activity and actions aimed at women were found by a primary health care study in Spain.[15] However, the authors of the Spanish study only assessed community activities, whereas PMAQ-AB does not specify whether the actions assessed are community or individual.

Most of the prevention and health promotion interventions aimed at addressing NCDs seek to promote the reduction of risk factors.[16] Studies reveal the existence of diverse obstacles to PHC health promotion actions, such as low health professional qualification and low service user adherence.[17,18] Generally speaking, actions relating to NCDs continue to be centered on the biomedical model characterized by a medical consultation culminating in a prescription.[16] Specific group activities for NCDs are rare and, when they do exist, they are generally based on the transmission of knowledge of traditional methods without follow-up centered on the service user.[18]

The prevalence of self-care promotion we found is compatible with that found for the Midwest region[10] and for the state of Amazonas.[11] Supported self-care is one of the main elements of models aimed at NCDs care.[19] Health services should investigate as much as possible the specific needs of each individual, encouraging and empowering them for self-care and promoting their own health.[20,21] One way to facilitate this form of care is by using social media. The growing popular use of online tools to seek information means that social media are an excellent means of communication between patients and Health professionals.[21]

The increase in actions aimed at men revealed by the study is similar to results found in the literature[10,22] and may be related to the National Policy on Men's Comprehensive Health Care. The objective of this policy, which came into force in 2009, is to address risk factors and improve access to men's health services[23] and as

such there is a need to invest in health professional training and to provide actions that respect male biological and cultural particularities. Specific strategies, such as household visits at alternative times of the day and extended health center opening hours, can contribute to closer male linkage with PHC.[22,23]

The promotion of bodily practices and physical activity found in Goiás was greater than that found for Brazil as a whole and for the country's Midwest region.[10,24] This difference may be related to the fact of this study having grouped together the data on bodily practices and physical activity, whereas other studies have presented these data separately. The increase in promotion of physical activity between the two PMAQ-AB cycles may be a reflection of the strategic action plan to address NCDs, in particular its encouragement of facilities providing sports activities supervised by professionals qualified by the Health Fitness Center Program.[25]

The increase in Family Health teams in Goiás that carry out activities at schools is similar to that found for the Midwest region as a whole,[26] and is probably associated with the implementation of the Health At School Program. This program was created in 2007 and implemented health assessment and promotion actions in schools in accordance with its main strategy of ensuring articulation between each school and each Family Health team in the same catchment area.[26] Articulation between schools and Family Health teams can be confirmed by the results of the National School Student Survey,[27] and which were corroborated by this study which found that the majority of students attend schools that carry out actions jointly with Family Health teams. The National School Student Survey showed that students have inadequate diets and practice insufficient physical activity,[27] highlighting the need to prioritize actions to promote healthy eating and bodily practices at schools as one of the responsibilities of PHC. Implementation of this type of action needs to be articulated between Health services and Education services, which is not always easy or straightforward. Lack of planning between the services responsible leads to health care concentrated on acute conditions.[28]

Using the PMAQ-AB database as a study source has limitations. The questions related to health promotion did not specify what 'promotion' is considered to be and, in addition, it was not possible to confirm that all the actions assessed had in fact been carried out.

The criteria for selecting the teams also results in limitations for generalization of the results. The teams assessed were not selected using probabilistic sampling, thus hindering extrapolation of the results and comparison with other studies. As the main objective of the study was to assess improvement in provision of actions between the two cycles, we only selected teams that took part in both cycles and this reduced the number of teams assessed to just over 50% of the state's Family Health teams.

Another limitation with regard to being able to perform an adequate temporal comparison was the difference between the evaluation instruments used in cycle I and cycle II. Several questions were modified between cycle I and cycle II so that their sense became altered; other questions used in cycle I were excluded from cycle II, such as the specific questions about care for people with systemic arterial hypertension and diabetes, so that these questions were not selected for assessment. To the extent that the number of comparable variables was reduced, our assessment became less comprehensive.

The results of this study provide evidence of important progress in PHC addressing NCDs in Goiás between the two PMAQ-AB cycles. Notwithstanding, efforts are required in order for all activities relating to NCDs are carried out by all multi-professional teams, both in the Family Health Strategy and in primary health care in general.

We recommend that the data collection instrument be adapted for future PMAQ-AB evaluations, with the aim of including variables capable of characterizing more completely the essential elements of a care model for chronic noncommunicable diseases that is coherent with the national and international literature.

Authors' contributions

Oliveira JH, Souza MR and Morais Neto OL took part in the study concept and design, data analysis and interpretation, drafting and critically reviewing the intellectual content of the manuscript. All the authors have approved the final version of the manuscript and are responsible for all aspects thereof, including the guarantee of its accuracy and integrity.

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