VOLUME 25 NUMBER 3

Revista Brasileira de Geriatria e Gerontologia

Brazilian Journal of Geriatrics and Gerontology

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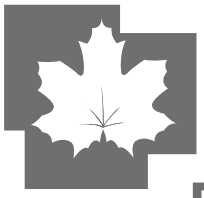
UNIVERSIDADE DO ESTADO DO RIO DE JANEIRO

ISSN 1981-2256



Revista Brasileira de Geriatria e Gerontologia

Brazilian Journal of Geriatrics and Gerontology

VOLUME 25, NUMBER 3, 2022

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Contents

Who has the right to see the dentist? Limitations accessing dental services by older people in Brazil in the era of the National Health Policy for Elders

Health is considered a human right, secured for Brazilians in the form of social and economic policies and through universal access to health care services providing health promotion, protection and rehabilitation, enshrined in the Constitution under article 196. Oral health is a key component of general health and therefore dental services are an integral part of the health services offered to the population.

In 2004, the National Oral Health Policy (PNSB) was implemented, establishing the need to expand access to dental services for the older population. The policy ensures care for this population via provision of a line of care based on the premise that oral health represents a key element for quality of life. As a framework for implementation, individual clinical treatment of older patients should be guaranteed, avoiding queues and bureaucratic procedures that may hamper access, including the setting aside of specific times and days for treatment of this patient group[1].

At a later date, in 2006, the National Health Policy for Elders (PNSPI) was implemented, an important instrument to help secure the integral universal right to health of the older population and prepare the National Health System (SUS) to cater for the growing demands placed on it due to population aging. Although the wording of this policy does not outline specific recommendations for dental care (or other specific care), this care is implicit in the integral care guidelines for the health of older individuals and provision of the resources required to assure quality health care for elders.

Although access to oral health in Brazil is guaranteed, delivering on this promise has been met with challenges, particularly with respect to the older population. According to 2019 data compiled by the Brazilian Institute of Geography and Statistics (IBGE), an estimated 693,000 older people had never seen a dentist at least once in their lifetime, representing 2% of the older population in Brazil. Another alarming statistic is that almost half of all older Brazilians (42.5%) had not visited the dentist in the last 3 years, representing 14 million people[2]. These levels were even higher in previous years. In 1998, an estimated 6.1% of older adults in Brazil had never been to the dentist in their lifetime, a rate decreasing to 6.0% in 2003, 3.9% in 2008 and 4.8% in 2013[3].

This reduction in the proportion never seeing a dentist reflects a steady improvement in access to dental services in the country between 1998 and 2019, a shift largely attributed to the implementation of the policies outlined earlier. However, challenges remain in attaining the goal of integral care for older people, particularly with regard to socioeconomic inequalities in the utilization of these services. Income-

http://dx.doi.org/10.1590/1981-22562022025.230080.en

related inequalities in dental service utilization in Brazil persist, with lower reduction in disparities seen among the older population compared to other age groups, such as children, adolescents and adults, over the period analyzed[3].

The specific profile of this population should be taken into account when analyzing access to dental services where, under the PNSPI, older users are classified according to level of functioning into individuals that are dependent, independent with some difficulties for instrumental activities of daily living, and frail. For frail individuals, besides making dental services available, strategies must be devised to ensure access to dental care.

A systematic review conducted on oral care provision in older people revealed that the main barriers to dental care faced by older frail adults was a lack of suitable facilities for treatment/transportation of patients. This barrier was perceived by patients, dentists and caregivers. The barriers most commonly-reported by dentists were the inconvenience of having to leave the dental office as the practice venue, lack of knowledge on specific care for this population, longer consultation time required, and little or no financial incentive. Patients refusing care was also perceived by dentists and caregivers, especially among people with dementia[4].

Overcoming these barriers is addressed in the guidelines of the PNSPI, which ensure provision of the resources necessary to guarantee quality care and ongoing education and training of health professionals under the SUS in the area of health for elders. Nevertheless, practical challenges remain in the form of lack of suitable public transport, limited access to health services, shortages of equipment and supplies needed to implement visiting home dental care under the SUS, in addition to the need for training dental professionals to deal with the specific health needs of this population. This analysis reveals the need for further roll out of the PNSPI and PNSB with a view to securing the rights of older people to dental appointments in the Brazilian population.

However, there is encouraging news on this front. The final draft of the bill on Oral Health under the SUS[5] (Brasil Sorridente/Smiling Brazil bill) has been approved. Once passed, the *Smiling Brazil* policy will no longer be a Federal Government program subject to constant cuts, but become enshrined in a robust national law. Consistent with the value advocated in 1986 at the 1st National Conference on Oral Health, that there cannot be health without oral health, we should continue to strive for improvements in oral health of older people. Article 3 of the bill states that "Oral health actions and services shall be an integral part of the other public health policies"[5]. Thus, oral health should be coordinated with the PNSPI framework. Wider access and use of oral health services by older people is at the same time a historical measure redressing the mutilating legacy of the state´s failure to provide the population with oral health care, as well as a constitutional measure ensuring that future generations of older people can age with a smile.

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Worsening frailty in community-dwelling older people with hypertension and associated factors

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Abstract

Objective: To estimate the prevalence and factors associated with the worsening of frailty in older people with arterial hypertension. Methods: Quantitative, longitudinal, prospective and analytical study. Carried out in community-dwelling hypertensive older people from Minas Gerais. Sampling was probabilistic, by clusters in two stages. Data collection took place at the older people's homes in two moments. Demographic, socioeconomic and clinical-assistance variables were analyzed. Frailty was measured by the Edmonton Frailty Scale. Poisson regression with robust variance was used to obtain crude and adjusted prevalence ratios. Results: 281 older people participated in the study, 23.1% showed a worsening of their state of frailty. The prevalence of frailty increased from 38.0% in the base year to 31.2% in the first wave. The worsening of frailty was associated with negative self-perception of health, polypharmacy and hospitalization in the last 12 months. *Conclusion*: There was a transition between states of frailty. An important contingent of the older people showed worsening frailty.

Keywords: Frailty. Aged. Hypertension. Primary Health Care. Health of the Elderly.

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There was no funding for the execution of this work.

The authors declare that there is no conflict in the conception of this work.

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Received: November 15, 2022
Approved: February 16, 2023

http://dx.doi.org/10.1590/1981-22562022025.220188en

INTRODUCTION

The Brazilian population is changing its age profile with a clear tendency towards aging[1]. Life expectancies identified with projections close to one hundred years for developing countries are seen in the middle of this century. However, the changes are not unidirectional. The history of humanity was surprised by the COVID-19 pandemic, which resulted in early deaths, impacting on life expectancy and the expansion of the population, especially in older people, giving strength to the uncertainties related to health, financial conditions and autonomy for the future older population[2]. Given this scenario, the great challenge is to promote quality in these additional years of life. Among other aspects, the scarcity of social and health resources for this growing demand stands out[3].

Aging can naturally cause physical decline and a consequent decrease in the ability to perform daily activities[4]. In addition, as it has been widely demonstrated in the literature that aging is a risk factor for the emergence of chronic noncommunicable diseases (NCDs) and also the frailty syndrome, higher rates of chronic conditions and frailty are expected among older people[3,5,6].

The main CNCD among older Brazilians is systemic arterial hypertension (SAH). It is in the aging process that vascular changes are produced that lead to peculiarities in the diagnosis and treatment of SAH in older people, in addition to partly explaining the significant increase in this condition in people over 60 years of age[7]. Data in Brazil regarding SAH in the population tend to vary according to the methods used. In adults, the prevalence is around 32.3%, predominantly in males, and there is an increase with age, reaching up to 71.7% for individuals over 70 years of age[8]. This justifies carrying out studies with the older population, considering this CNCD to be so prevalent, especially considering studies that analyze the behavior of frailty among older people with SAH.

In addition to a greater risk of developing SAH, the older population also has an important probability of developing frailty, defined as a complex and multifactorial syndrome and characterized by reduced adaptive capacity, causing a maladjustment to the stressors to which they are exposed. Therefore, it promotes cumulative declines in several physiological systems, increasing their vulnerability with an unfavorable clinical outcome[9,10]. The presence of frailty in older people is strongly associated with a poor prognosis in the medium term, usually co-occurring with chronic coronary syndromes and increased mortality[11].

As SAH is present in more than half of the older population, it has also been documented that the frailty syndrome, to some degree, is present in most older people[12]. It is possible that older people with SAH have a greater tendency to worsen frailty due to the cyclical accumulation of deleterious health effects determined by the two conditions. Therefore, it is important to investigate the transition to worse levels of frailty over time in older hypertensive individuals. Knowledge of the behavior of worsening levels of frailty among older people with SAH and its associated factors may contribute to the elucidation of appropriate conducts in the clinical management of these cases. It can also guide the development of care protocols for hypertensive older people with progressive frailty.

In addition, there are few studies that assess the worsening of frailty in older people, which address the factors associated with the worsening of frailty in older people in general, in view of the difficulty of carrying out longitudinal population-based studies[12,13]. The present study is relevant and proposes innovation by longitudinally assessing the worsening of frailty, as a dependent variable, in an older and hypertensive population, and its associated factors. Therefore, the objective of this study is to estimate the prevalence and factors associated with the worsening of frailty in older people with arterial hypertension.

METHODS

This is a study with a prospective and analytical longitudinal design, population-based and household-based, with a quantitative approach, part of a larger study on the health conditions of the older population in the municipality of Montes Claros (MG), Brazil, original project entitled " Frailty in older people: a longitudinal study".

In the construction of this study, EQUATOR guidelines were used, through the instrument *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE). Developed in a medium-sized municipality, with a population of approximately 417,478 thousand inhabitants, located in Minas Gerais, Brazil. The period of data collection occurred in two stages. The first was carried out from May to July 2013, being the baseline. After an average period of 42 months, the second stage, or first wave of the study, took place from November 2016 to February 2017, with the community-dwelling older people public in the urban area.

The population sample for the base year was calculated considering a population residing in the urban area estimated at 30,790 older people, according to data from the Brazilian Institute of Geography and Statistics (IBGE). For the sample calculation, a conservative prevalence of 50% was adopted for unknown outcomes, a 5% margin of error and a 95% confidence level.

Sampling was probabilistic, in clusters and occurred in two stages. In the first stage, the census sector was the sampling unit, in which the neighborhoods, streets and blocks were demarcated on a map of the urban census area of the city. Then, 42 census sectors were randomly selected among the 362 urban sectors of the municipality. The selection of the 42 sectors was based on the estimated population average of each sector. In the second stage, the number of households with individuals aged 60 years or older, according to population density, was identified. The sectors with the highest number of older individuals had more households allocated. Considering cluster sampling, the identified number was multiplied by a correction factor (*deff*) of 1.5 with an increase of 15% for possible losses, totaling 685 individuals in the study.

This research is part of a larger study of the health conditions of the older population in the city[10]. The following inclusion criteria were adopted for the larger study: being older, that is, aged 60 years or older; living in the selected household; being able to respond, with no change in level of consciousness; or otherwise, having a caregiver/relative to answer for them. For the present study, in addition to the aforementioned criteria, only older patients with SAH with a diagnosis confirmed by a physician were included. This professional, who performs the clinical-laboratory investigation, confirms high blood pressure (BP), identifies causes of hypertension, target organ damage, associated diseases and also stratifies cardiovascular risk[7].

Individuals who changed address, who died or who were not found in at least three visits on different days and times, notified in advance, were considered losses.

For data collection, the interviewers were trained and calibrated (Kappa 0.8). Their route was predefined from a starting point in the census tracts that should be covered. The households were visited alternately in search of older people to carry out the interviews. In households with an older person, an invitation to participate was made, if not, the next household was selected, according to the criterion of alternate households. If more than one older person resided in the household, the oldest one was invited. So that no more than one older person was interviewed in each household.

The same previously used data collection instruments were used, all validated[10]. As a dependent variable: the transition to a worse state of the Edmonton Frail Scale (EFS) component. This scale has nine domains, distributed in eleven items with scores from zero to seventeen. The score varies between zero and four, indicating that there is no presence of frailty; five and six, for apparently vulnerable older person; seven and eight, indicating mild frailty; nine and ten, moderate frailty; and eleven or more, severe frailty[14].

The classification of each older person was compared in two moments of the study (first wave and baseline). The results of the dependent variable were dichotomized into two levels: worsening and non-worsening of the EFS score.

To generate the dependent variable, the frailty scores were analyzed considering the general score by the EFS. That is, the difference between the scores of the second moment in relation to the first moment of the evaluation was analyzed. From the analysis of this difference, variations in the stages

of frailty were observed between the two moments. When evaluating the score of each older person, it was found that there was a worsening, maintenance and even improvement of the score. Then, the reclassification of the older people was performed for the present analysis. According to the EFS validation study, there is no guidance on variations that could be considered within normality between the two periods, so there was no such weighting. Thus, it was considered as frailty worsening those older people who showed an increase in the general frailty score and that, when applying the proposed classification for the EFS, placed the older person in a worse frailty stage than their previous one.

The independent variables selected for the study were categorized: gender (male or female); age group (up to 79 years old or ≥80 years old); marital status (with a partner, including married and stable union, or without a partner, including single, widowed and divorced); family arrangement (lives alone or lives with other people); schooling (up to four years of study or more than four years of study); literacy (can read or cannot read); religious practice (yes or no); own income (yes or no); monthly family income (up to one minimum wage or more than one minimum wage); presence or absence of chronic diseases referred to - diabetes mellitus, heart disease, neoplasia, arthritis, rheumatism, arthrosis, osteoporosis, embolism, pulmonary effusion, cerebrovascular accident (CVA), pulmonary emphysema, chronic obstructive pulmonary disease (COPD), asthma, allergic bronchitis; polypharmacy, defined as the use of five or more medications (yes or no); self-perception of health (positive or negative); self-reported weight loss (yes or no); presence of caregiver (yes or no); fall in the last 12 months (yes or no); medical consultation in the last 12 months (yes or no); and hospitalization in the last 12 months (yes or no).

For the variable self-perception of health, it was evaluated through the question: "*How would you classify your health status?*", whose possible answers were "very good", "good", "regular", "poor" " or "very poor". For analysis purposes, the responses "very good" and "good" were defined as positive perceptions of health, while the responses "regular", "poor" and "very poor" were classified as negative perceptions of health, following similar studies on the topic[15,16].

Descriptive analyzes were performed. Then, bivariate to identify factors associated with the response variable. The magnitude of the associations was estimated from the prevalence ratios (PR). Bivariate analyzes were performed using *Pearson's* chi-square test. Those that were associated up to a level of 20% ($p \leq 0.20$) were selected for multiple association analyzes between the exposure variables and the outcome variable using multiple Poisson regression, with robust variance. Poisson regression, with robust variance, was used to calculate the adjusted PRs, jointly considering the independent variables that were most strongly associated with the worsening of the EFS component in the bivariate analysis, were considered up to the significance level of 20% ($p<0.20$). For the final model, a significance level of 0.05 ($p<0.05$) was considered.

To choose the most adjusted final model, the *Deviance goodness-of-fit* and *Pearson goodness-of-fit* tests were used, values and changes in the *Log Likelihood* were also analyzed. The analysis of the residues was performed using the adjusted R2. Multicollinearity was evaluated and, through it, variables correlated with each other were identified, which were removed for a better fit of the final model.

The study was conducted in accordance with national and international ethics guidelines and approved by the Research Ethics Committee of the State University of Montes Claros – UNIMONTES (Opinion: 1,626,395). Free and Informed Consent was obtained from all individuals involved in the study in writing.

RESULTS

In this study, 685 individuals were selected for the first assessment (baseline). Of the total of 685 older people evaluated in the base year, (92) refused to participate in the second phase of the study, (78) changed address, (67) could not be found at home after three attempts and (54) died. Therefore, 394 older people participated in this stage of the study and of these 281 were hypertensive, forming the sample of this study.

Table 1 shows the comparison of the characteristics of the base year between the older

population followed up and the older population considered as a loss during the follow-up of this study. It verified that the loss was non-differential since no significant differences were found for the main characteristics of the groups.

A prevalence of frailty was identified at 38.0% in the base year (first assessment), while in the first wave of the survey (second assessment) there was a reduction in the percentage to 31.2%. As for the transition between the stages of frailty assessed by the EFS, it was identified that among the hypertensive older people (281) a percentage of 23.1% individuals presented a worsening of frailty, however, 36.7% of the older people improved and 40.2% had no change in their state of frailty (Table 2).

Table 3 shows the bivariate analysis between the transition to worse stages of the EFS components and demographic, social and economic variables. None of these variables was significantly associated with worsening frailty in hypertensive older people.

Table 1. Comparison of the main characteristics between followed-up and lost older people in the first follow-up wave of the study. Montes Claros, MG, 2013-2017.

Variables	Followed-up	Follow-up losses	*p*-value
	n (%)	n (%)	
Sex			0.163
Male	130(33.0)	111(38.1)	
Female	264(67.0)	180(61.9)	
Age group (years)			0.089
< 80	341(86.5)	238(81.8)	
≥ 80	53(13.5)	53(18.2)	
Schooling			0.964
≤ 4 years	300(76.1)	222(76.3)	
> 4 years	94(23.9)	69(23.7)	
Monthly family income			0.158
≤ 1 minimum wage	121(30.7)	75(25.8)	
> 1 minimum wage	273(69.3)	216(74.2)	
Arterial hypertension			0.937
Yes	280(71.1)	206(70.8)	
No	114(28.9)	85(29.2)	
Diabetes *Mellitus*			0.137
Yes	80(20.3)	73(25.1)	
No	314(79.7)	218(74.9)	
Depressive symptoms			0.870
Yes	116(29.4)	84(28.9)	
No	278(70.6)	207(71.1)	
Polypharmacy			0.229
Yes	86(21.8)	75(25.8)	
No	308(78.2)	216(74.2)	
Frailty			0.209
Frail	132(33.5)	111(38.1)	
Non frail	262(66.5)	180(61.9)	

Table 2. Transition between levels of frailty, according to the *Edmonton Frail Scale* (EFS), from baseline to the first wave of the study. Montes Claros, MG, 2013-2017.

Baseline		First wave				
Frailty levels (EFS)		Without Frailty	Apparently Vulnerable	Mild Frailty	Moderate Frailty	Severe Frailty
	n (%)	n(%)*	n(%)*	n(%)*	n(%)*	n(%)*
Without Frailty	109(38.8)	71(65.1)	27(24.8)	9(8.30	2(1.8)	0(0.0)
Apparently Vulnerable	65(23.1)	30(46.2)	20(30.8)	11(16.8)	4(6.2)	0(0.0)
Mild Frailty	56(20.0)	16(28.6)	16(28.6)	16(28.6)	8(14.2)	0(0.0)
Moderate Frailty	31(11.0)	1(3.2)	7(22.6)	14(45.2)	5(16.1)	4(12.9)
Severe Frailty	20(7.1)	1(5.0)	4(20.0)	7(35.0)	7(35.0)	1(5.0)
Total	281(100)	119(42.3)	74(26.3)	57(20.3)	26(9.3)	5(1.6)

* The percentages refer to the proportion of each frailty level in relation to the baseline; in green, the older people who improved frailty; in blue those who maintained the situation of frailty and in yellow those who worsened frailty, that is, 36.7% of the older people improved their condition and 40.2% worsened.

Table 3. Sociodemographic characterization and association between transition to worse levels of frailty in hypertensive older people, followed-up in the first wave (bivariate analysis). Montes Claros, MG, 2017.

Independent Variables	Sample	Transition to worse frailty levels				
		Yes	No			
	n (%)	n (%)	n (%)	PR	95%CI	*p*-value
Sex				1.041	0.969 - 1.118	0.182
Male	85(30.2)	24(28.2)	61(71.8)			
Female	196(69.8)	41(20.9)	155(79.1)			
Age group				1.050	0.970- 1.136	0.367
<79 years	213(75.8)	52(24.4)	161(75.6)			
≥ 80 years	68(24.2)	13(19.1)	55(80.9)			
Marital status				1.020	0.956 - 1.087	0.726
With partner	133(47.3)	32(24.1)	101(75.9)			
Without partner	148(52.7)	33(22.3)	115(77.7)			
Family arrangement				1.021	0.936 - 1.115	0.479
Lives alone	40(14.2)	11(27.5)	29(72.5)			
Doesn't live alone	241(85.8)	54(22.4)	187(77.6)			
Schooling				1.042	0.969 - 1.121	0.762
≤ 4 years	221(78.6)	52(23.5)	169(76.5)			
> 4 years	60(21.4)	13(21.7)	47(78.3)			
Knows how to read				1.045	0.969 - 1.127	0.911
Yes	206(73.3)	48(23.3)	158(76.7)			
No	75(26.7)	17(22.7)	58(77.3)			
Religious practice				1.061	0.875 - 1.286	0.198
Yes	271(73.3)	61(22.5)	210(77.5)			
No	10(26.7)	4(40.0)	6(60.0)			

to be continued

Continuation of Table 3

Independent Variables	Sample	Transition to worse frailty levels				
		Yes	No			
	n (%)	n (%)	n (%)	PR	95%CI	*p*-value
Own income				1.032	0.939 - 1.135	0.939
Yes	250(89.0)	58	192(76.8)			
No	31(11.0)	7	24(77.4)			
Monthly family income				1.004	0.934 - 1.079	0.315
≤ 1 minimum wage	73(26.0)	20	53(72.6)			
> 1 minimum wage	208(74.0)	45	163(78.4)			

PR: Prevalence Ratio; CI: Confidence Interval.

Table 4 presents the bivariate analysis regarding the worsening of frailty and morbidity variables and use of health services. It was found that polypharmacy, self-rated health, weight loss and hospitalization in the last 12 months were associated with the transition to worse levels of frailty (p<0.20).

After the multiple analysis, the variables in which significant associations were observed in relation to the worsening of frailty (p≤0.05) according to the EFS were identified: polypharmacy, negative self-perception of health and also hospitalization in the last 12 months (Table 5).

Table 4. Characterization of morbidities and use of health services among community-dwelling older people; and association between transition to worse levels of frailty in hypertensive older people, followed-up in the first wave (bivariate analysis). Montes Claros, MG, 2017.

Independent Variables		Transition to worse frailty levels				
		Yes	No			
	n (%)	n (%)	n (%)	PR	95%CI	*p*-value
Diabetes Mellitus				1.015	0.944 - 1.092	0.488
Yes	77(27.4)	20(26.0)	57(74.0)			
No	204(72.6)	45(22.1)	159(77.9)			
Heart disease				1.018	0.950 - 1.090	0.604
Yes	92(32.7)	23(25.0)	69(75.0)			
No	189(67.3)	42(22.2)	147(77.8)			
Malignant Tumor/Cancer				1.060	0.943 - 1.192	0.096
Yes	28(10.0)	10(35.7)	18(64.3)			
No	253(90.0)	55(21.7)	198(78.3)			
Arthritis/Rheumatism/Arthrosis				0.974	0.914 - 1.038	0.459
Yes	141(50.2)	30(21.3)	111(78.7)			
No	140(49.8)	35(25.0)	105(75.0)			
Osteoporosis				1.015	0.950 - 1.084	0.725
Yes	109(38.8)	24(22.0)	85(78.0)			
No	172(61.2)	41(23.8)	131(76.2)			

to be continued

Continuation of Table 4

Independent Variables		Transition to worse frailty levels				
		Yes	No			
	n (%)	n (%)	n (%)	PR	95%CI	*p*-value
Pulmonary Embolism/Effusion				1.135	0.937 - 1.374	0 .875
Yes	12(4.3)	3(25.0)	9(75.0)			
No	269(95.7)	62(23.0)	207(77.0)			
CVA/ Stroke				1.126	0986 - 1.286	0.110
Yes	25(8.9)	9(36.0)	16(64.0)			
No	256(91.1)	56(21.9)	200(78.1)			
Emphysema/COPD				0.966	0.862 - 1.081	0.371
Yes	20(7.1)	3(15.0)	17(85.0)			
No	261(92.9)	62(23.8)	199(76.2)			
Asthma/Allergic Bronchitis				1.070	0.937 - 1.223	0.963
Yes	22(7.8)	5(22.7)	17(77.3)			
No	259(92.2)	60(23.2)	199(76.8)			
Polypharmacy				1.095	1.020 - 1.177	**0.003**
Yes	96(34.2)	32(33.3)	64(66.7)			
No	185(65.8)	33(17.8)	152(82.2)			
Self-perception of health				1.068	1.004 - 1.137	**0.012**
Positive	120(42.7)	19(15.8)	101(84.2)			
Negative	161(57.3)	46(28.6)	115(71.4)			
Weight loss				1.153	1.040 - 1.279	**0.002**
Yes	44(15.7)	18(40.9)	26(59.1)			
No	237(84.3)	47(19.8)	190(80.2)			
Has a caregiver				1.032	0.931 - 1.145	0.708
Yes	34(12.1)	7(20.6)	27(79.4)			
No	247(87.9)	58(23.5)	189(76.5)			
Fall in the last 12 months				1.041	0.972 - 1.115	**0.051**
Yes	97(34.5)	29(29.9)	68(70.1)			
No	184(65.5)	36(19.6)	148(80.4)			
Medical consultation in the last 12 months				1.004	0.888 - 1.135	0.148
Yes	261(92.9)	63(24.1)	198(75.9)			
No	20(7.1)	2(10.0)	18(90.0)			
Hospitalization in the last 12 months				1.185	1.057 - 1.329	<0.001
Yes	37(13.2)	9(51.4)	8(48.6)			
No	244(86.8)	6(18.9)	98(81.1)			

PR: Prevalence Ratio; CI: Confidence Interval.

Table 5. Factors associated with worsening frailty in older hypertensive patients (multiple analysis). Montes Claros, MG, 2013-2017.

Independent variables	PR	95%CI	*p*-value
Polypharmacy			
No	1		
Yes	1.099	1.011 - 1.194	0.026
Self-perception of health			
Positive	1		
Negative	1.093	1.014 - 1.179	0.021
Hospitalization in the last 12 months			
No	1		
Yes	1.254	1.119 - 1.407	<0.001

PR: Prevalence Ratio; CI: Confidence Interval.

DISCUSSION

This work showed the transition between different levels of frailty in the older and hypertensive community-dwelling population over an average period of 42 months between baseline and the first wave of the study. This allowed us to identify that there are factors significantly associated with the transition to worse levels of frailty status among older people with SAH.

There was an important reduction in frailty between the two assessment moments. Almost half of the older people monitored did not show changes in the level of frailty. About one fifth showed worsening and the others showed improvement in these levels. In a study carried out in Ribeirão Preto-SP, with older people in general, the mean frailty and frail category increased during follow-up[13]. In Minas Gerais, there was a worsening of the frailty status of the older people, from 33.8 to 36.8% in 42 months of follow-up12. In Australian older people, it was observed that the prevalence of frailty increased from 65.3% to 67.6% in 10 years of follow-up[17]. A study in San Antônio, Texas, pointed out that pre-frail individuals were more likely to regress their stage in relation to frail ones, but showed that the higher the frailty stage, the higher the mortality[18]. In another longitudinal study, in Triângulo Mineiro, it also showed worsening in the health conditions of the older people, with women being more frail than men[19].

These results suggest that there is an important variation between frailty levels over time, which reinforces the dynamic nature of the frailty process[12,20]. It is noteworthy that all studies used in the comparison of results were performed among older people in general and not specifically with hypertensive older people as in the present investigation. Comparison with studies among hypertensive older people was not possible because no other study with this scope was found. This finding is important and endorses the innovation of this investigation.

Regarding the positive variation of frailty observed in the present investigation, in which 36.7% of the older people showed improvement in frailty levels, some considerations are in order. As 54 older people died and it is possible that they had the worst levels of frailty, perhaps this explains this supposed improvement. A spontaneous improvement in frailty is possible, a reversal of bad levels and even rehabilitation of the older person considered frail, in this case care interventions are necessary[21]. Another positive action that can help improve levels of frailty is health education. Such actions are able to promote the empowerment of the older person and encourage adherence to a healthier lifestyle that would be enough to promote health in general. However, these interventions were not investigated in this study and, therefore, may serve as hypotheses for future investigations.

In this study, it was identified that 23.1% of the older people showed worsening frailty. An important fact is that the individuals in the present study are hypertensive, that is, they have a condition that facilitates the worsening of their stage; since frailty can be intensified by the presence of chronic diseases that provide loss of resistance to stressors[22].

The results of this study showed that older people who had high medication consumption, polypharmacy, negative self-perception of health and who had been hospitalized in the last 12 months showed a worsening of frailty. Polypharmacy refers to the daily consumption of five or more medications and is common in the older population. It may be associated with the presence of multiple chronic diseases[23]. In this study, polypharmacy was associated with worsening frailty. Consistent with other studies that identified the same result, but with an older population not specifically hypertensive[3,10,12,24-27]. Polypharmacy can be a predictor of worsening frailty[18]. Older people who have many morbidities and, consequently, who use many medications may be more likely to become frail[22], as consuming many different medications daily can harm their health and thus impact their autonomy.

Frailty and polypharmacy are associated, complex and modifiable conditions. Situations that deserve attention due to the risk of abusive and inappropriate use of medication[3]. It can expose the older person to vulnerability to stressful events, making it difficult for the body to return to homeostasis, which predisposes to a worsening of frailty[12]. Few studies address the use of medication and its risks in the older population of primary care[28]. Therefore, the present study makes an important contribution by demonstrating that hypertensive older people who use many medications have a tendency to worsen frailty over time. Such information can be used in the planning of actions aimed at the rational use of medicines associated with a holistic view of the older person, during home visits carried out by professionals from the Family Health Strategy, identifying situations in the environment in which they live in order to avoid indiscriminate prescription based on clinical symptoms.

Another factor associated with worsening frailty in hypertensive older people was negative self-perception of health. Self-perceived health is considered an important indicator to measure health conditions[3,10,12]. It serves as a basis for improving care conditions and access to health services[29]. Its assessment also showed a significant association with frailty in the non-hypertensive older population in others[3,10,12,24,26,30]. By considering physical, cognitive and emotional factors associated with well-being and satisfaction with life itself, this measure has the ability to robustly and consistently predict the worsening of frailty in older people[31].

One way to act on this indicator in order to mitigate its negative impact would be the creation of therapeutic workshops, educational groups, carrying out qualified listening with the multidisciplinary team. In addition to encouraging religious coping, which is the use of faith/religiosity in difficult times[32]. There is a beneficial impact on older people undergoing treatment for diseases, especially in situations of vulnerability[33]. It is also positive in the perception of quality of life in complex situations of frail individuals under palliative care[32]. Such interventions positively influence self-perception of health and related indicators, such as access to and quality of health services. Practices that should be encouraged by the multidisciplinary team in care[34].

Hospitalization in the last 12 months was also associated with the transition to worse levels of frailty among hypertensive older people. This relationship has already been demonstrated in the literature with older people who are not specifically hypertensive[3,12,22,25,26,34]. It is known that more frail older people may need to be hospitalized more, due to conditions inherent to the state of frailty. In the case of hypertensive older people, the possibility of hospitalization may be greater due to the possibility of cardiovascular complications. In addition, the act of hospitalization can bring harm related to the reduction of movements, loss of autonomy to perform usual activities and greater difficulty in locomotion[35]. All these factors can contribute to the worsening of frailty in hypertensive older people. In a longitudinal study[34] carried out with older people assessing functional capacity before and after hospitalization, it was found that approximately 28% of the older people had worse function 30 days after discharge compared to 15 days before hospitalization. Among

frail older people, the worsening of functionality after hospitalization was even greater.

It is worth mentioning that the studies used in the discussion of this work were carried out with older people in general, showing the scarcity or lack of work on the subject of this study in a specific population "Worsening frailty in hypertensive older people", which shows its importance.

As limitations of this study, the absence of longitudinal studies that estimate the worsening of frailty in an older and hypertensive population stands out, which made it difficult to compare data and discuss ideas. Another limitation was the failure to assess transitions between levels of frailty that eventually occurred at intervals shorter than the follow-up time of this investigation. In addition, some studied variables were self-reported. However, even in the face of these limitations, this work has a random sample, with a significant number of community-dwelling older people. A validated instrument was used among Brazilian older people, standardized and with measurable and comparable methods. In addition, this is a study that shows what actually influences the worsening of frailty among hypertensive older people over time. Its potential for directing efforts that can improve the management of frailty in hypertensive older people is also highlighted.

CONCLUSION

The results of this work showed the dynamic nature of the frailty syndrome, which can vary over time. The prevalence of frailty decreased in the first wave of the study compared to the base year. Even so, an important contingent of hypertensive older people showed a worsening of their frailty status. The factors associated with this worsening were: polypharmacy, negative self-perception of health and hospitalization in the last 12 months.

This study may contribute to the planning and implementation of care actions for the older population, aimed at identifying, preventing, and even reversing frailty. Actions aimed at improving the indicator of self-perception of health, in addition to care with excessive use of medication and specific care for older people who need hospitalization, may ease the transition to worse levels of frailty.

The multidisciplinary team needs to have knowledge about frailty so that they can adequately manage hypertensive older people with frailty syndrome. It is these professionals who identify vulnerable groups and prioritize health care, being able to intervene positively in certain conditions. This favors the implementation of actions for better outcomes related to frailty, an important topic that should be part of the clinical evaluation protocols used by nursing professionals in primary health care, in the context of geriatrics and gerontology. This work provides information to assist in the implementation of such protocols. Qualified and individualized actions aimed at the identification and early intervention in the frailty syndrome can prevent the transition to worse levels and positively influence the prognosis of the older people facing the frailty syndrome and chronic diseases.

Edited by: Marquiony Marques dos Santos

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Contemporary care model for older people: an urgent need

Renato Peixoto Veras[1]

Abstract

In this article, a proposed solution is developed for a resolutive care model with an excellent cost-benefit ratio, congruent with the latest solutions in integrated care for the older population. The theory and concepts underlying the proposed model are outlined in detail, together with the epidemiological assessment instruments used. The article provides the context behind the global growth of the older population and, more specifically for Brazil, showing the social and financial impacts of this shift on society. Drawing on this analysis, we advocate that care provision for the older population be rethought, with greater priority given to disease prevention and health promotion actions. We also propose judicious use of technology for consultations, monitoring and preventive strategies, and for coordinating new care approaches. We believe the emphasis on care for the older population should take a low-complexity approach to reduce wastefulness, ensure rational use of health system resources, and make optimal use of the professionals involved.

Keywords: Older people. Care Model. Prevention. Health Promotion.

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No funding was received in relation to the present study.

The author declare that there is no conflict in the conception of this work.

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Received: March 16, 2023
Approved: April 13, 2023

http://dx.doi.org/10.1590/1981-22562022025.230065.en

INTRODUCTION

The increase in life expectancy of the Brazilian population represents a major stride. Live longer – grow old – this has become a reality in the last few decades and is set to increase further in the years to come. However, making the most of these extra years with functional capacity, health and quality of life, should also be an integral part of this advance. Researchers have been in search of a new model for health service delivery. Such reforms are both necessary and feasible.

The health care of the older population can be restructured in the sector toward providing better care outcomes at a lower cost. For this shift to come about, all actors in the sector must take a lead in achieving the necessary changes and be open to innovation by returning to simpler care practices and recovering values lost amid the current national health system.

Based on this premise, the present article has been structured along complementary lines. The statistics describing the older population are first presented, an age group which, proportionally, is now the fastest growing worldwide. This demographic transition process is examined, with an emphasis on collective health. The care model for older people is the outlined, together with all its specificities, taking into account gains in life expectancy.

Nowadays, it is not uncommon for people to live into their 80s, 90s or beyond. However, there are major concerns about the current care model in place, since these additional years of life should not be marked by suffering, pain and high costs.

Integrating the knowledge, theory, application of instruments and routines, is paramount for this care approach to gain traction in Brazil and for both public and private health sectors to improve the service provided to this growing age group. Unless changes are made to the care model for the older population, the prospects in the years ahead look bleak.

The objective of the present study is to put forward a quality innovative care model. The prevailing, outdated system, will only serve to exacerbate the already poor service and health crisis, particularly for older users, the group associated with the greatest demand and cost on the system. Efforts should be made amid an urgent need for change, as furthered by the present proposal, paving the way for more adequate health care for the older population.

Demographic transition

All of the demographic projections made in the 1980s regarding growth in the older population have proven accurate. Misses, if any, have occurred in the form of underestimates[1-3].

Population ageing is one of humanity's greatest triumphs. Surviving into old age was once a rare privilege, but is now the norm in Brazil and many developing countries. There has been a substantial improvement in the health parameters of the population, yet this triumph presents its own challenge: caring for this age group and conferring quality to the extra years of life.

In 2002, the World Health Organization (WHO) released a publication with a policy framework for active aging, defined as the process of optimizing opportunities for health, participation and security to enhance quality of life as people age.[4] This new paradigm requires action involving 3 basic pillars: health, participation and security[5-6].

In essence, the health pillar goes beyond the strictly physical realm to also encompass mental and social well being, all recommended targets of intervention at the level of public policies and programs. The word "active", however, refers to continuing participation in social, economic, cultural, as well as in community and civic affairs, not just the ability to participate in the labour force. Lastly, security defines the existence of some system of social protection that ensures an adequate level of socioeconomic security, without which it would not be possible to guarantee health nor the participation of older people.

In addition to the importance of public policies, there is also a very clear message of individual responsibility of the older population themselves,

who should seek to stay active and make efforts to safeguard their health, participation and security [5]. As this concept has gained traction in the political sphere, official publications addressing this have becoming increasingly centred on the economic imperative: that of keeping older individuals engaged in productive activities[6].

In Brazil, the shift in age structure with the growth in the third-age segment is a relatively recent phenomenon. The growth rate of the Brazilian population has been high over the last 70 years. Equally, the increase in the older population has also been significant by global standards.

Currently, there is large contingent of children, adults and older people. From 2030, however, there will be a reduction in the number of younger individuals and in the overall population, a trend evident in the preliminary data from the most recent Brazilian demographic census. Exceptionally, the census was conducted in 2022, owing to the COVID-19 pandemic. Initial results show a decline in the Brazilian population, a pattern replicated in other countries. China, for example, is set to see a shrink in its population, which declined for the first time in over 60 years and whose total will soon be exceeded by the population of India. In December, according to the National Office of Statistics, China had 1.41 billion inhabitants. During 2022, there were 9.56 million births, 850,000 fewer than the 10.41 million deaths recorded. This demographic pullback was expected to take place only in 2031, according to United Nations predictions.

This earlier decline, by almost a decade, in the population did not happen by chance. Akin to other countries, women have opted to put their careers ahead of maternity and encounter less social resistance in a society already used to smaller families.

The demographic statistics show that the economy will be able to rely increasingly less on young cheaper labour, a key factor in China´s economic ascension, as the country exported larger volumes of consumer goods and manufactured products.

The Chinese example serves as a warning to Brazil where, as mentioned above, the 2022 consensus suggests lower-than-predicted population growth, signalling that the demographic bonus period — with younger individuals outnumbering older people in the population — has come to an end earlier than expected. Mirroring China, Brazil will become aged before becoming rich — and will only be able to sustain solid growth rates if the productivity of the economy can be raised.

Taken together, these data indicate that the future of the 21st century will be a grey one, i.e., the percentage of older people will reach levels never before seen in history. The Brazilian case is no different, but the process of population aging is even stronger, with the proportion of older people exceeding the global average. From a demographic standpoint, this is a crucial issue, since the high-income countries underwent more gradual growth over the course of the 20th century and, with their economic power, had more time to offer this contingent of the population better structure and resources.

Brazil needs to embrace the goal of ensuring quality of life for its older population which, like the vast majority of the general population, have low educational level and scant social protection. In terms of health, the older population suffers from multiple chronic non-communicable diseases (NCDs)[7], which need constant monitoring and permanent care[8], with growing demand representing an economic burden for society[9]. Hospital admissions of older patients are more frequent, and length of stay longer, compared to other age groups. This scenario has huge economic, pension and social implications.

Human aging should not be regarded as a burden. Social policies must be devised for this group. In the health field, care should be managed in a more contemporary and adequate way to safeguard this wealth of knowledge and experience without this becoming overly costly for the sector.

In a recent projection, the IBGE (Brazilian Institute of Geography and Statistics) estimated the Brazilian population at 207.8 million, lower than the result expected for the Census (215 million). If the Census confirms this figure, the demographic bonus in the form of a higher proportion of population

of economically active age (15-65 years) will have petered out between 2018 and 2021. With a larger proportion of older people, the Brazilian population is set to stabilize by around 2047 or earlier. Government figures and public managers should no longer, therefore, cultivate the image of Brazil as a "young nation" with a plentiful supply of labour. Aging is accompanied by countless challenges. The availability of young workers in the labour force can no longer be taken for granted. More will need to be produced by fewer workers. In economic terms this translates to one word: productivity.

A decrease in the number of young people in the population can be seen in primary education enrolment figures, which are falling at the rate of 400,000 a year. Brazil has made mixed progress in implementing consistent improvement in the primary education system. Efforts to raise the standard of education and training have not translated to innovation, productivity or wealth generation, elements required for the country to develop. In parallel, older workers need to be requalified, promoting "digital literacy" so they may also continue working.

As in Europe, fewer schools should be built, given the government will have to provide support for networks of caregivers of older people, with increasingly heavy burden on the Pensions and Social Security system. These are not far-fetched daydreams of some distant future. This issue should already have been addressed by previous governments.

The incumbent government, more in tune with the globalized world, must keep in step with this important shift in demographics and its social consequences.

The magnitude of population aging in Brazil is depicted by Figure 1.

It is important to highlight the huge demographic impact these data illustrate.

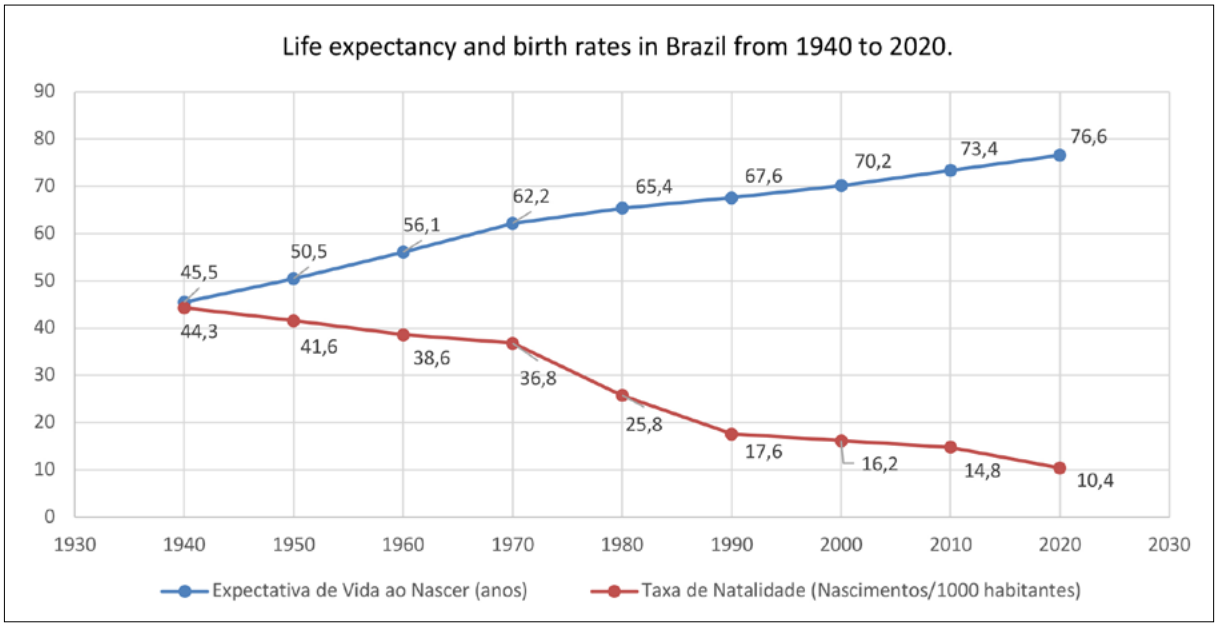

Figure 1. Life expectancy and birth rates of Brazilian population from 1940 to 2020.

Source: IBGE, Rio de Janeiro (RJ) city, RJ state, Brazil, 2023. https://www.ibge.gov.br/

Chronic disease and care model

In Brazil, the leading cause of mortality and morbidity are chronic non-communicable diseases (NCDs), which typically develop slowly over long periods and have difficult-to-predict long-term effects. Neuropsychiatric disorders account for a large proportion of these NCDs[10].

In a 2015 report, the WHO noted that, of the 38 million lives lost in 2012 due to NCDs, 16 million (42%) were premature and avoidable[11]. As the costs of managing these disease mounts worldwide, they account for an increasing chunk of public and private expenditures[12].

Chronic conditions traditionally include cardiovascular diseases, diabetes, asthma, chronic obstructive pulmonary diseases (COPD) and chronic degenerative diseases. With improved survival rates, this group of diseases now also includes many types of cancer, HIV/AIDS, neuropsychological disorders (such as depression, schizophrenia and dementia), arthroses and visual/auditory deficits. Most of these conditions have no cure but many can be prevented or controlled through early detection, by adopting healthy habits and diet, engaging in regular exercise, and accessing adequate timely treatment.

In addition, many of these chronic diseases constitute a set of conditions, where some authors and institutions define individuals with multiple co-occurring conditions as complex patients, characterized by a profile of chronic presentation. The most prevalent features differentiating this group include the presence of several concomitant chronic diseases, high use of urgent hospital services with several episodes during the same given year, temporary or permanent reduction in personal autonomy, and polypharmacy. There may also be other associated factors, such as advanced age, living alone or with low family support and fall episodes, among others[13].

Various chronic conditions are linked to an aging society, but also to life-style choices, such as smoking, alcohol use, sexual behaviour, poor diet and low physical activity (sedentarism), besides genetic predisposition. The common feature these conditions share is the need for a complex long-term response coordinated by health professionals from a range of disciplines, with access to the required medications and equipment, as well as strategies to encourage patient adherence to treatment and also social welfare. However, most health care and services are still geared up for dealing with acute episodes. Against this backdrop, the management of chronic diseases is increasingly regarded as an important issue by managers and researchers worldwide who seek interventions and strategies to tackle these conditions. It is important to emphasize that improvements in the quality of life of the population are derived from a series of factors, including the technological advance seen in many fields of knowledge and in modern science.

Imperative for change

The demographic transition and improvement in social and economic indicators in Brazil relative to past decades, has led to a growth in the contingent of older individuals and increase in the financial pressure on public and private health systems. Growth in this population group is accompanied by an increase in burden of chronic diseases and greater health expenditure[14]. This growing demand for health services can lead to a shortage and/or constraint of resources.

Nevertheless, most public health problems impacting the population are preventable, whether communicable or non-communicable diseases. This statement is borne out by the significant decline in mortality from cardiovascular and cerebrovascular diseases, the fall in incidence and deaths related to cervical cancer, and also the decrease in the prevalence of tobacco use and rates of lung cancer in men[15].

A shortcoming of most care models is their overwhelming focus on the disease itself. Regrettably, preventive action is still viewed as an overload of procedures and additional costs. However, prevention should be seen as a strategy which, over the medium-to-long term, can lower admissions and avoid much higher cost procedures[16].

All evidence suggests that health systems based on biomedicine will run into sustainability problems. This conclusion suggests that programs directed toward the older population should be based on integrated care, led by the health professional and their team, and centred on managing the individual as opposed to the disease, making judicious use of the available technology, supported by quality information and regular follow-up and monitoring. Specialists, hospitals, drugs, and clinical and imaging exams are all important elements of an ideal health model, but the focus should centre on low intensity levels of care with the client treated directly by their doctor[17].

A contemporary health model for the older population should incorporate a flow of actions related to education, prevention of avoidable diseases, delaying the onset of illnesses, early care intervention and rehabilitation of existing conditions[18]. In other words, a line of care for older people which strives for effectiveness and efficacy must be underpinned by a coordinated network that incorporates an information system designed with this logic in mind.

Why the discourse-practice gap?

Before describing the proposed care model, a key question must first be addressed. There is a consensus: when probed, all involved, without exception, state they are in favour of this new line of care. This makes it hard to explain why most health managers practice the exact opposite to what they advocate.

The care model for older adults, when properly implemented, is an exception. In the seminal study by the National Health Agency (ANS), headed by Dr. Martha Oliveira in 2018[19], this gap between discourse and practice is exposed.

The time for novelty and oft repeated cliches acknowledged by all (even those who do not heed them) is over. It is laudable to cite the theoretical frameworks or policies aimed at promoting healthy aging, i.e., maintain functional capacity and autonomy, together with quality of life, in line with the principles and guidelines of the Unified Health System (SUS), whose focus is disease prevention. Important national and international health agencies have advocated this concept for many years[11,13]. But the next step forward needs to be taken[20].

Thus, we pose the following question: if everyone is discussing this topic and the solutions have already been drawn up, then why has the situation remained unchanged? Why has the theory not been translated into routine practice? Why do leaders and manager not promote change?

In order for the health sector – particularly the geriatric segment – to undergo this restructuring, a point to be considered is distrust. Today´s society distrusts new offerings. Amid this sentiment, any proposal for change is met with scepticism and reluctance. Any established system that is multifactorial and built over many years is hard to change. Bringing about changes in culture is by no means straightforward.

Another bottleneck is care quality, which is still undervalued. This is of huge importance and calls for greatest awareness of health professional and civic society. Some claim that applying instruments to gauge service quality and introducing accreditations and certifications would prove too costly, but qualified services are more cost-effective, less wasteful and have better care outcomes for patients.

Another point is there is now a general understanding that care for older people extends beyond health. Besides diagnosis and prescription, there are other elements important for maintaining functioning, such as social participation, physical activities and mental activities. But a major obstacle remains, particularly within private health, in embracing social actions as an integral part of care. There is a tendency to separate "social" from "curative" actions.

And concerning the model of remuneration of health professionals? This group is generally underpaid, so why not adopt performance-related pay? Associating the discussion of care outcomes with the form of remuneration is a powerful tool incentivizing doing the right thing. Thus, pay for performance (P4P) or performance-related pay (PRP) have become synonymous for the struggle to align

access with care quality. Change in the remuneration model based on this new care framework, focusing on results and not volume, needs to be a win-win type model, in which all involved benefit, particularly the patients.

In order to put into practice all of the actions needed for healthy aging with quality of life, care for the older population needs to be rethought and redesigned, with an emphasis on the older person and their particularities. This will result in benefits, quality and sustainability, not only for the older population, but for the Brazilian health system as a whole[7,21].

Thus, concerted efforts are required to transform theory into a care model offering quality for all, including older people. It is an undesirable situation for the SUS to fragment or for there to be an increase in bankruptcies of private healthcare companies.

However, for every year that goes by, the cost of health increases and the quality of care declines. Such a system is unsustainable. It is high time, therefore, to put into practice what all advocate but fail to implement.

Aging and health

Health can be defined as a measure of individual capacity to realize aspiration and satisfy needs, irrespective of age or the presence of diseases[7]. Thus, the need for an efficient cost-effective comprehensive geriatric assessment has become increasingly pressing. The goals of this evaluation are to enable early diagnosis of health problems and to plan support services wherever and whenever needed to keep individuals in their homes and out of institutions. Traditional history taking, physical check-up and differential diagnosis are insufficient to provide a comprehensive evaluation of the range of functions needed for daily living of older individuals[22].

In the book entitled ""*Repensando a saúde*: *estratégias para melhorar a qualidade e reduzir os custos" (Rethinking health: strategy for enhancing quality and reducing costs)*"[23], the authors hold that health comes before care. In their opinion, the need to measure and minimize risk of disease, offer comprehensive management of diseases, and ensure prevention services for all clients, including those who are healthy, is unclear[1]. In this context, the authors state that health should involve preparation for the service that increases the effectiveness of the value chain (set of activities carried out by an organization, such as supplier relations, production/sales cycles and final distribution). This concept was first introduced by Michael Porter in 1985: intervention; recovery; monitoring and management of the clinical condition; guaranteed access; results measurement; and information dissemination.

Health systems comprise several points of care that do not work in an integrated fashion. In general, entry into this uncoordinated network typically occurs when the client is at an advanced stage, where the "front door" tends to be the emergency department of the hospital. This model, besides being inadequate and anachronous, has a dire cost-benefit ratio, since it makes intensive use of highly expensive technology. Its failings, however, should not be blamed on the clients, but on the care model itself, which overloads the higher complexity levels due to a lack of care at primary levels. Home-based care may represent an alternative for some cases. Home care should not be seen as a fad, but as a more modern modality of care[18]. However, the advent of the modern hospital is a relatively recent phenomenon in that, not long ago, care was traditionally administered within the home[24].

A prospective study of disease management[25] offered to beneficiaries of Medicare – a health insurance system for older individuals managed by the North-American government – showed that actions failed to reduce expenses[26] and that physicians were unhappy with the insurance providers paying the costs of disease management, possibly reducing their income and interfering in the doctor-patient relationship. Disease management programs for older individuals are even more complex and have a very low cost-benefit ratio, given that treating a disease properly only reduces the rates of morbidity associated with the condition. The best option is to structure models that work in an integrated manner and cater for the whole range of needs[27]. If this is not the case, then the problem is hard to resolve, because other diseases and their frailties remain. Moreover, resources will not be used rationally[28].

Epidemiological information translates to the ability to predict events, allowing early diagnosis (especially for chronic diseases), delaying the onset of these conditions and improving both quality of life and the therapeutic approach. Determining health status of the older population should consider the overall state of health, i.e., take into account a satisfactory level of functional independence, as opposed to merely the absence of disease. Thus, the notion of functioning can be construed as a paradigm for the health of older people, representing one of the most important attributes of human aging, since it encompasses the interaction between physical and psycho-cognitive capacity to perform activities of daily living[18,29].

Well being and functioning go hand in hand. They represent the presence of autonomy, individual decision-making ability and control over one´s actions, establishing and acting on one´s own convictions – and independence – the ability to carry out something by one´s own means –, enabling the individual to take care of themselves and their life. Independence and autonomy, although closely related, are separate concepts[29].

Some people are physically dependent but are perfectly capable of deciding on what activities they want to engage in. Others, on the other hand, are physically able to perform certain everyday tasks, but not to choose how, when or where to carry out these activities[18].

Functional evaluation defines the correct stratification and allocation of the older patient into the line of care required, and also allows their care behaviour to be predicted. Functional autonomy is an important predictor of health of older people, but systematically assessing the whole elderly population using long comprehensive scales is far from ideal. A variety of assessment tools is available for screening risk and organizing entry to the health system, validated and translated into Portuguese.

A two-stage approach, dedicating full evaluation only to individuals at high risk, as detected by a process of screening, is more effective and less painstaking. For the first stage of rapid screening, a tool meeting the following criteria should be employed[2]: simple and safe; short application time and low cost; accurate for detecting the risk investigated; validated for use in the population and for the condition being checked; acceptable sensitivity and specificity; and have a well-defined cut-off point.

During the first contact, the PRISMA-7 should be used, developed in Canada for screening [24] risk of functional loss in older adults[12]. Comprising 7 items, a validated, transculturally-adapted version of the scale for use in Brazil showed the ideal cut-off for the population to be 4 points (4 or more positive responses). The scale requires no special materials, qualification or extensive training and can even be self-administered. Application time is 3 minutes and sociocultural and educational level do not influence comprehension of the questions.

The PRISMA-7 has been used systematically at the "front door" to the health system in Canada and by the British Geriatrics Society and Royal College of General Practitioners in the United Kingdom as a screening tool for functional loss and frailty[30].

Path to sustainability

Socioeconomic transformations and their consequent shifts in lifestyle in contemporary societies – with changes in eating habits, increased sedentarism, and stress, coupled with the rising life expectation of the population – contribute to a higher incidence of chronic illnesses which today represent a serious public health problem[31].

The way forwards is to take the right steps, with focus centred on the most important element in the whole process: the patient[32]. Care should be organized in an integrated fashion and treatment coordinated throughout the care pathway in a network logic [8,30]. The model should be based on early identification of risks of frailty of the user. Once risk has been identified, the priority is to intervene before the onset of illness, thereby reducing the impact of chronic conditions on functioning. The idea is to monitor health, not disease, within a logic of continued follow-up, varying only in terms of level, intensity and intervention scenario[33].

It is important to attain better more financially economical care outcomes. This requires everyone involved to understand the need for change and allow themselves to innovate in terms of care delivery, means of remuneration and assessment of the quality of the sector.

These steps will result in benefits, quality and sustainability not only for this population group, but also for Brazilian health as a whole.[17] The effects of this change of model will be felt immediately by users. This transformation of the health system toward sustainability will become evident in the medium-term.

Care model

In international frameworks, the generalist physician or family doctor fully handles 85-95% of their patients, without the need for intervention by specialists. In addition, this doctor can recruit health professionals with specific backgrounds (Nutrition, Physiotherapy, Speech Therapist etc.), but it is the generalist who recommends them and performs referral[34].

The British model, the National Health Service (NHS), is centred on the generalist doctor who has a high resolutive capacity, called the general practitioner (GP) in the United Kingdom. This is a special doctor who earns a bigger salary than specialists and is highly valued by British society. General practitioners are considered the "true doctors", because they "know everything". Specialists are generally perceived as being more limited since they only have expertise in a single specialty. For British citizens, good doctors are GPs[1], who have a close bond with the patient[25]. Universal access to these professionals is guaranteed, regardless of income or social level, akin to the Brazilian SUS[35]. When registering with a GP, British citizens receive free state medical care at health clinics manned by a team consisting of generalist physicians and nurses. Any treatment needed, if not extremely urgent or due to an accident, will be administered at the local clinic[36]. By contrast, under the North-American model, patients are referred to numerous specialists. These are two wealthy countries with a long tradition in medicine. They operate, however, different systems which provide very different results[37].

A recent study involving developed countries conducted by the Organization for Economic Co-operation and Development (OECD), showed the difference in health costs in the US compared with other wealthy countries with good quality care[38] – where, naturally, spending on health care is larger than in developing countries[26,29]. Nevertheless, spending by North-Americans is far greater. In 2017, spending per capita reached US$ 10,224, or 28% higher than in Switzerland and over double that of the UK. These figures highlight that investing heavily in the treatment of diseases does not suffice.

In some countries, accreditation and assessment of quality indicators are obligatory requisites. In Brazil, priority is placed on volume. There is no policy for incentivizing quality. Patients do not always recognize this as a need, and both public and private health providers regard this as an extra cost. Although these needs are acknowledged by most health managers, little is done to improve the situation. Thus, for a well-structured care model [22], some elements cannot be left out[4].

It is evident that the Brazilian system has an excess of consultations by specialists, because the current care model follows the North-American logic, promoting fragmentation of care[26]. Quality care requires greater awareness from health managers and society.

The model proposed here is structured around low intensity levels of care, i.e., lower costs and consisting basically of care delivered by well-trained health professionals and involving epidemiological screening instruments, besides the use of monitoring technologies[29]. It is paramount, especially in today´s world, that information pertaining to clients and their electronic medical records are available on the cloud, accessible from computers or cell phones anytime and anywhere, so that physicians and other health professionals may monitor the client when necessary[39].

A concerted effort should be made to ensure that patients remain within the sphere of low intensity levels of care, in a bid to maintain their quality of life and social participation. The target goal is to keep over 90% of older adults within this level of care[39].

Ideal age cut-off

In this section, the portfolio of clients should contain individuals aged 50 or older. Too young? Not exactly. However, the Statute of Older People, enacted by Law no. 10.741, in October 2003, is a set of laws to defend and protect individuals defined as older citizens.

Although not officially considered older adults, the epidemiology shows that it is from this age that chronic diseases begin to manifest. And the earlier the structure of a model of education in health and prevention is established, the greater the chances of success.

However, defining a cut-off from 55 or 60 years and older is also possible. In Brazil, being aged is defined as occurring from 60 years onwards.

The team

Teams are based on a duo of professionals: a geriatric doctor and a gerontological nurse. This pair is responsible for the health of a portfolio of around 800 clients. Working weeks are defined at 20 hours for doctors and 25 for nurses. The geriatrician performs clinical management; the nurse, specialized in Gerontology, acts as care manager, monitoring the health status of users and consolidating the role of contact person for support and of strengthening ties with the patient´s family.

A brief functional evaluation is carried out on the first contact. This serves as a reference baseline for monitoring and as a parameter for following the therapy plan between different points in the system. The care manager is tasked with overseeing the transition of care between services and revaluates the patient´s functional capacity annually, or as and when necessary, encouraging their participation in the process. The care manager´s function is key to the model proposed and their involvement mirrors that of navigator in the North-American system, a role created to help guide more frail patients.

The function of navigator can be found in some providers/operators in the United States and their role is central in the present proposed framework. According to the American Medical Association, this professional is responsible for managing the care of users throughout the different levels of complexity of the health system, checking whether prescriptions and orientations are being observed[32].

Besides the geriatrician and nurse, the multidisciplinary team consists of a physiotherapist, psychologist, social worker, speech-language therapist, nutritionist, physical educator and workshop leaders (professionals engaged in integrative dynamic activities linked to the program). In the event that user care needs are identified at other levels of care, referrals are made to specialists but always via the generalist doctor.

It is important to point out that the model does not retain specialists, with some exceptions, such as when there is a large contingent of frail individuals at a clinic. In this case, six specialized areas related to the model are recommended, because these are part of the annual evaluations, or aiding the generalist doctor, given their specificity, demand and high prevalence. These specialties are in areas in which annual preventive and control exams are conducted, namely: Cardiology, Gynaecology, Uro-proctology, Dermatology, Speech-Language therapy, Ophthalmology and Otorhinolaryngology/ENT (this professional need not be a doctor but rather a speech-language therapist).

Consultation with the specialists listed is only possible upon request by the patient´s GP. Thus, if the client requires care of a given specialist, the other specialties will not be involved. The same reasoning applies to hospital admission. Doctors and nurses are in charge of contacting the physician of the hospital, to be briefed on the case, preferably seeking to ensure best care with shortest hospital stay.

Client entry

Patient entry in this care model occurs via an action referred to as reception, which takes place in two stages: the first stage is administrative and institutional in nature, when an in-depth presentation of the actions proposed is made, with an emphasis

on health promotion and disease prevention. Users thus have a better grasp of the model and the overall dynamic of differential care which will be offered to improve their health and quality of life. Participation of older users in this dynamic should be encourages, because this is pivotal to attaining good outcomes[21].

In the second stage of reception, the care commences proper. In order to organize access to the levels of the model, a risk identification screening questionnaire is applied: the PRISMA-7 [33]. After application of this rapid screener, the result will be stored on the information system. The patient then completes the other instruments comprising the functional evaluation. The functional evaluation entails a 2-step process, employing validated reliable instruments adopted by the leading geriatric research groups.

One of these is the Clinical-Functional Vulnerability Index-20 (IVCF-20), which measures 8 dimensions: age, self-rated health, daily living activities (3 instrumental and 1 basic ADL), cognitive status, mood/behaviour, mobility (reach, grasp and pinch grip; aerobic/muscle capacity; gait and urinary/faecal continence), communication (vision and hearing) and presence of multiple comorbidities, indicated by polypathology, polypharmacy and/or recent hospital admission. Each question is scored specifically according to the performance of the subject[41] for a total of 40 points. In addition to the questions, several measurements, such as calf circumference, gait speed and weight/body mass index, are included to increase the predictive value of the instrument[42].

Scoring is categorized into 3 classifications: 0-6 points, the respondent likely has low clinical-functional vulnerability and does not require further assessment or specialist follow-up; 7-14 points, indicates increased risk of vulnerability and the need for more in-depth assessment and attention to identify the appropriate treatment for chronic conditions; ≥15 points[24], deemed high risk of vulnerability or existing frailty requiring more comprehensive assessment, ideally by a team specialized in geriatric-gerontological care with psychosocial supportl[6,10]. The group headed by Professor Edgar Moraes[7,43], of the Federal University of Minas Gerais (UFMG), has made the instrument available on-line (https://sistema.medlogic.com.br/ngIVCF20/ge/ standalone/671/646>).

The other instrument is the Lachs Scale[44], applied after the IVCF-20. This probes other areas thereby conferring further robustness to the assessment results. This is an 11-item scale (questions, anthropometric measurements and performance tests) assessing areas commonly impaired in older adults: visual acuity, hearing, upper and lower limbs, urinary continence, nutrition, cognition and affect, ADLs, home environment and social support. The application of this instrument provides a rapid systematized means of identifying functional domains that should be subsequently assessed in more detail to establish a diagnosis and plan interventions.

In addition to risk identification and screening protocols, other epidemiological instruments are applied annually: the Katz scale – assesses basic activities of daily living [45]; Lawton´s scale – assesses instrumental activities[46]; Mini evaluation of nutrition[43]; Tinetti scale – test of balance and gait[47]; the Jaeger Card – assesses visual acuity[48,49]; Mini-Mental State Exam (MMSE) by Folstein[50]; and the Geriatric Depression Scale (GDS) by Yesavage[51].

The doctor is the manager of follow-up and also of the interprofessional geriatric team, performing more in-depth assessment toward devising an intervention plan. This information will be collected and stored until the end of the care pathway. After this assessment, an individual therapeutic plan is defined that includes regular appointements[21], referral to the multidisciplinary team, community centres, and if applicable, assessment by specialists.

A unique longitudinal and multi-professional electronic medical record is then set up and used to store information at all levels of care under the care model, from first contact to end-of-life palliative care. This record should contain information on the patient´s clinical history and physical exams, but also includes information on daily routine, family and social support etc. Information from other health professionals such as physiotherapists, nutritionists and psychologists etc. should also be held. Participation of the family, explanation of activities, and epidemiological screenings are other important features of this model (Figure 2).

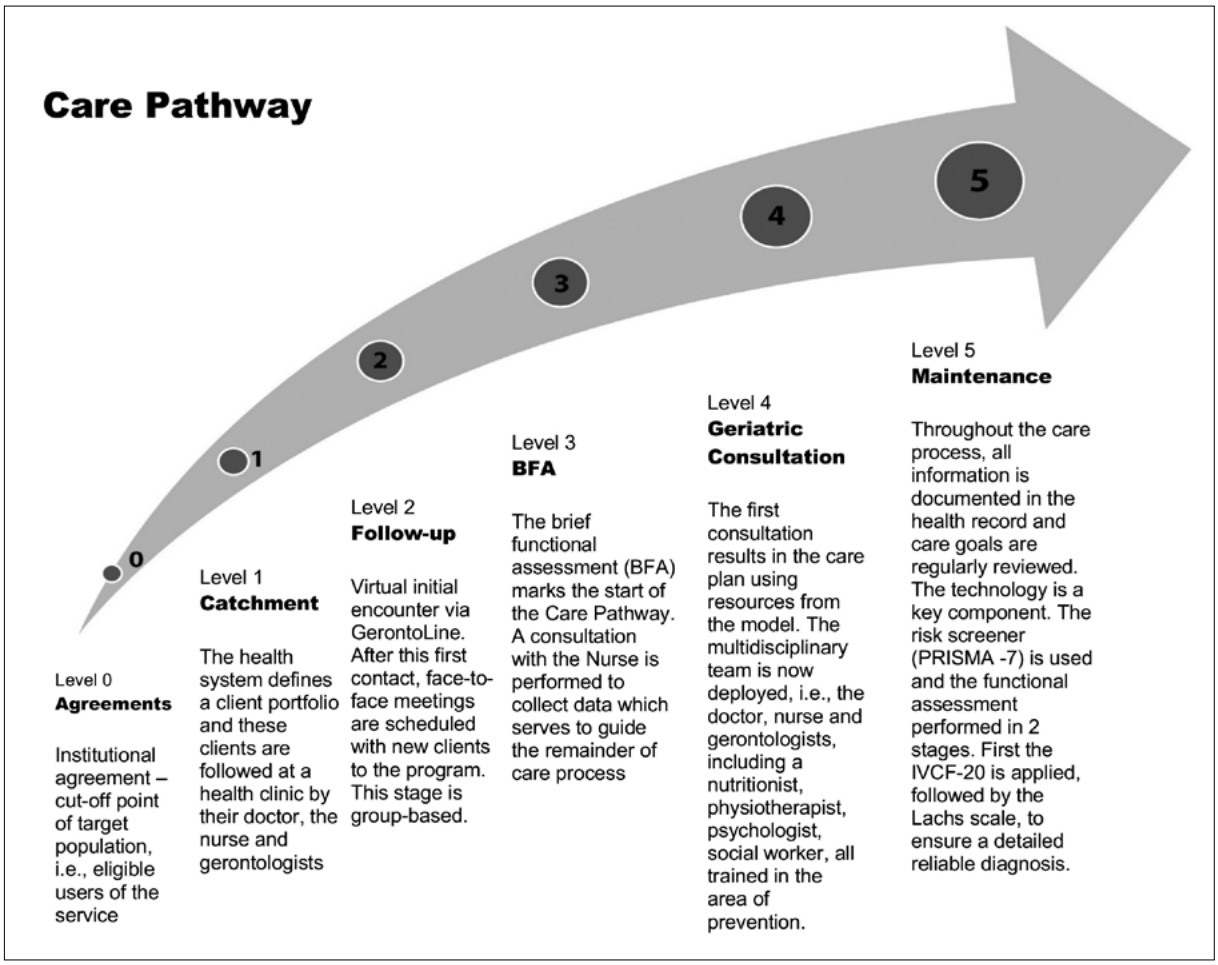

Figure 2. Care Pathway, Rio de Janeiro, Rio Janeiro state, Brazil, 2023.

Source: Produced by author

Information on all procedures is fundamental to allow monitoring of the client [5].

One of main factors for controlling costs of the program is follow up at each level of care. This ensures there are no gaps in patient care when the case is referred to the care network, tertiary care is required or hospital-level treatment[51]. The transition across care levels is overseen by the management team, which strives to maintain a smooth flow of information, liaising with assisting professionals and seeking to adhere to the principle of management predominantly by the geriatrician-nurse pair.

The control of hospitalization takes place via a flow to aid the client, ensuring that the health professionals assigned to the case are aware of the patient´s clinical and therapeutic history, as well as the understanding that the individual has frequent follow-up and is set to return to their health team when the clinical condition has been controlled[52].

In the event of hospitalization, patient monitoring is performed daily on 2 fronts. For the first, the nurse keeps in touch with the family to provide support, clarification or to identify needs (pertaining to patient or family). The other front involves the prevention manager who provides liaison between the outpatient clinic and hospital, performing daily follow-up with the attending hospital physician. In hospitals which have internists, this contact is facilitated and direct. In other hospitals, support is provided by medical auditors or by the care team.

Thus, when the older adult needs to be admitted to hospital, this takes place more quickly, avoiding unnecessary procedures or admission to intensive care, ensuring post-discharge transfer[30] to low intensity level care settings, without the need to consult several specialists[53]. This all culminates in higher quality care, with a significant cost saving and positive impact on the medical loss ratio[54].

Technology features

A high-quality information system and lightweight technology is essential in helping to win the confidence of clients. Without using technology, the project cannot go forwards and competence is needed to use it to the full.

For example: the client, upon reaching the front-door of the health centre, may undergo facial recognition which automatically brings up their medical record at the reception desk. When receiving the client, the receptionist addresses them by name, enquires after the family and checks the list of medicines they are using.

Another important feature is the availability of a cell phone app containing individualized information and reminders for appointments and prescribed actions. The app can, among other functions, request the client to take a photo of their breakfast and forward this to the nutritionist[38], who can then check whether the meal is balanced, contains adequate dietary fibre etc.

Although extremely simple, these actions confer great trust, making the client feel protected and valued from day one.

The information system, which commences with registration of the beneficiary, is one of the pillars of the program. The entire care journey will be monitored at each level, checking the effectiveness of actions and contributing to decision-making and follow-up. This entails a unique electronic record that is longitudinal and multi-professional, and accompanies the client from initial reception, providing an integral assessment of the individual.

The context of the pandemic and lockdown posed numerous challenges for medical practice. In the proposed system, contact with the client can be increased, since, besides face-to-face meetings, consultations via telemedicine are also incorporated[55]. The aim is not to replace encounters in person, but to introduce flexibility and convenience for scheduling times and days for consultations, given that neither the doctor (or nurse) nor the patient need travel to attend the session.

The use of the latest technology provides closer contact of the health team with the client and family members. With a platform specifically designed for this care, the contact of gerontologists will be increased, enabling numerous individual or group-based actions involving a nutritionist, psychologist or physiotherapist, with counselling and broader contact with clients.

Besides the interdisciplinary team which delivers care directly, the model boasts a team of doctors and nurses working virtually. This constitutes a GerontoLine relationship channel, guaranteeing the users coverage 24/7. In passive mode, this receives calls from clients for guidance; in active mode, the team contacts patients on a regular basis keeping them on the care radar. Favouring this interaction, the professionals coordinating care (online) have access to the key information help in each patient´s medical history.

GerontoLine differs from call centres, commonplace in traditional health services and which typically operate with poorly-trained staff who have a reputation for overuse of clumsy gerund phrases"[6] and offer no support if the client´s question or query falls outside the script. With GerontoLine, which is available 24 hours a day, 7 days a week, the call is answered by trained health professionals who have access to the patient´s records and, thus, have everything at their disposal to resolve problems.[56] Should an ambulance need calling in the middle of the night, this professional handles the whole referral process. In the event of a call during the early hours, this attendant will send a message out to the doctor, explaining the reason for contacting them. Hence, first thing in the morning, the doctor can take the

first measures necessary. In other words, the patient and their family members feel protected, since they know that if needed, there is a qualified telephone service available to them.

In order for the GerontoLine to work smoothly, a comprehensive patient record is required[57] which documents not only clinical issues, but also behavioural, social and family aspects, where a global view of client needs are necessary for this model. Another benefit is the epidemiological assessment instruments which are applied at the first consultation, and repeated annually thereafter, or sooner if a special need arises.

Comprehensive Geriatric Assessment (CGA)

This is systematic assessment method. The CGA is based on the principle of an interdisciplinary planned approach aimed at treatment and long-term follow-up. CGA is a set of techniques and procedures, whose comprehensive assessment is structured around the classic non-standardized methods of health evaluation of a number of specialties. The most used dimensions in the CGA include functional status, mental health and social functioning.

Functional status is the base dimension for geriatric assessment. This essentially covers assessment of physical, psychological and social factors which impact the health of older more frail patients.

Mental health has two major subdimensions – cognition and mood – which also Interact with the assessment of functional state.

CGA is considered the gold standard for management of frailty in older adults.

Assessment of activities of daily living (bathing, toileting, transferring, continence and feeding), instrumental ADLs (using the telephone, shopping, preparing meals, handling medications and finances) and mobility (balance, gait speed and limb strength) can contribute to generate important information for decision-taking, mapping individual protection and risk factors.[58]

The medical-health activities of health education can broaden its focus of attention to encompass positive dimensions of health beyond controlling specific diseases[59].

Screening of hearing/vision, and help in management of the use of multiple medications (polypharmacy) precede the detection of problems, contributing to care. Health habits (protective factors) include balanced diet, regular physical exercise, stimulating social interaction, occupational activity and well being actions in the field of nutrition (cuisine for diabetes and osteoporosis, for example) [48].

Community centres

With the steady growth in the older population, some education programs focused on leisure have been developed. The first Brazilian experience of education for middle-aged and older adults was implemented by the Social Service of Commerce (SESC) in the form of community groups. These groups emerged in the 1960s running programs centred around leisure activities. These were welfarist in nature in as far as they did not offer the tools needed for people to regain the desired autonomy. From the 1980s, universities began to provide educational programs for the older population and for professionals wishing to study aging-related issues, predominantly offering education, health and leisure[60,61].

Similar centres had also been set up by health maintenance organizations following the release by the National Agency of Supplemental Health (ANS) of the Care Plan for Older Adults in Supplementary Health. The document sets out incentives to foster a change in the care logic, providing opportunities for health promotion for older people. A resolution was also published which encourages health plan beneficiaries to take part in active aging programs, in exchange for discounts on their monthly fee[61].

Under the present model, setting up community centres is in line with the National Health Policy for Older Adults[62]. The primary goal is to recuperate, maintain or promote autonomy and independence

of older individuals, as well as foster active healthy aging, with encouragement to participate and boost social interaction.

The centre offers a range of activities which contribute to healthy aging, development of autonomy and social interaction, strengthening of family ties, community involvement and prevention of situations of social risk for individuals aged ≥ 60 years[63]. The programs, besides offering physical exercise, feature cognitive training, nutritional programs[64], telephone services, computing, home security, fall prevention, urinary/faecal continence, immunizations and financial management. Care with mobility of older people, fall prevention and balance in workshops for psychomotricity, strength training, advice on choice of footwear and podology service, are all important because they help maintain independence[65].

Aging requires adaptation. New learnings serve as a resource for maintaining functioning and flexibility of older people[66]. Art, cultural and recreational activities are traditionally associated with community centres for older people and represent important sources of pleasure: general knowledge, languages, information technology, composing texts and reading, patchwork art, ballroom dancing, music, card games, dominoes, chess, meditation and sightseeing trips.

Community centres can provide legal aid services, a caregiver agency and help for the housebound (support for ADLs, remote assistance and meal deliveries etc.). To this end, investment in courses for training caregivers and in communication in the care network are essential. Also, regularly frequenting workshops allows the older person to experience a routine, which also benefits the caregiver who is freed up to engage in other activities. An annual or six-month "contract" for older adults to attend workshops, as they see fit and subject to the availability of coordinators, facilitates management.

As a tool for planning aging, there is the Time Trade-Off questionnaire, which allows a negotiation between the health professional and older individual, considering risk and pleasure. Many retirees rejoin the job market on a regular or sporadic basis, whether for pleasure or due to necessity, topping up income and stimulating social contact. In the USA, many dedicate time to voluntary projects.

The centres can also provide a forum for discussion of issues affecting the older individual. Aging and end-of-life warrant focus. A practical, fun guide can be devised addressing frequently asked questions or FAQs in relation to aging (e.g., "what is happening to me?).

Philosophy and religion can contribute to reflection on aging and death. According to Plato, in Ancient Greece, to philosophize was learning how to die. An idealist, he believed in life after death, regarded this as a passage, a liberation of the soul. For materialists, however, such as Epicurus, life was finite, making it even more valuable. One cannot live the same when believing in such different conceptions of death[67].

The experience of ageing is both heterogeneous and multidimensional, thus calling for singularity also in care plans[68]. Quality or functioning of social support is more important for adaptation of older individuals than the number of people in the network or the frequency of contact[69]. Indeed, the association between social support and self-care supports this notion[54].

Hence, Community Centres have found their place based on the premise that whoever works with the perspective of respecting the needs of older people respects their own future.

Parallels

In the line of care during the human life cycle, childhood and old age share similarities. Young children, people with chronic diseases and older individuals – in fact, all those with limited autonomy and independence – require special care. Public entities, such as crèches and community centres, can add to the options of support and monitoring, intergenerational care approaches and broaden patterns of social integration. Expansion of support networks and of resources to deal with limitations enriches the life experience.

Many families are tasked with looking after children and old people. With the advent of pensions in the 20th century, these families began sharing this responsibility with companies and the state. The building of care networks represents a considerable relief for families, increasing their chances of meeting the challenge of their responsibilities. However, power exists in all human relationships. How can others be empowered while avoiding a relationship of guardianship? How can a situation be avoided whereby caring becomes an act of domination? It is paramount to manage the realm of power present in all relationships carefully and to reject strategies of domination. Relationships based on dialogue, a person-centred approach, negotiation, and co-responsibility make all the difference. It is important to discuss the question of the quality of the caregiver/care recipient relationship, as well as the possibilities of transforming the relationships of power.

At community centres, studies recommend the use of measures of quality of life based on self-rating by the users: "how would you rate today?". This approach boosts self-esteem, instils a sense of governability and contributes to the devising of a personalized care plan every day[61].

Such centres can provide the incentive for older people to go out regularly and offer the opportunity of social contact. Community centres can also stimulate the formation of a communication network centred around care, forging a relationship of trust between the older adult, their family members and professionals from the institution. The existence of shared spaces to exchange information and experiences, as well as everyday informal interactions, help bring interlocutors together. In the care network, the role of different actors should be discussed and negotiated on an ongoing basis, given their needs and possibilities also undergo change. To this end, forums of communication, such as groups for reflection and conversation circles, reaffirm the importance of collective construction (older adults, caregivers and professionals) of the daily routine. Workshop leaders should be trained and integrated based on the premises of accompanying human aging.

In the Berlin Aging Study[70], an extensive interdisciplinary study involving 516 randomly selected older adults aged 70-100 years conducted in the city of Berlin, Germany between 1990 and 1993, different variables were analysed, including medical (functional capacity, risk profile, reference biological values), sociology and social policy (life history and generational dynamic, family structure and dynamic, economic situation and social security, social resources and social participation), and also psychology parameters.

In community centres, cohort studies can contribute to the knowledge and organization of care of the group of older users. In the USA, there are cohorts of older adults who frequent community centres during the course of aging. The epidemiologic information obtained enables health to be monitored and problems detected early or avoided, with the goal of extending the healthy life of older people[19,33]. At these centres, multiple dimensions of care can be observed through leisure-time and instrumental activities.

Care venues

The older age group is increasing and growing older, baby-boomers are reaching the "third age". Life expectancy continues to rise. This is accompanied by a growth in the care technology pertaining to this stage of life, which can now span 40 years. Community centres need to both increase in number and recognition. Solutions are mixed: individual and singular, but also collective.

For a long period, the crèche institution evoked a certain distrust, being associated with an orphanage, a place where children were abandoned[61]. Institutions which care for older people for some hours of the day, such as community centres may also conjure connotations of old people´s homes, nowadays referred to as long-term care facilities, and sometimes identified as places where elderly are left and abandoned.

Today, there is prevailing consensus on the importance of socialization of young children. Similarly, the important role of community centres in preventing social isolation of older people is clear. There is a tendency for older individuals to have fewer

social contacts and relationships with advancing age. Frequenting the institution also provides routine and rhythm, conferring structure to their everyday lives. Sociability networks of older people can occur in different settings, such as squares, beaches, clubs and religious activities, or in collective entities such as community centers[61].

Institutions that host older residents, albeit short or long-term, may be part of an external network, forming venues of interaction. Receiving external family members and older adults for activities together with the older residents, provides the interaction and workings of a support network[71]. This can be exemplified by a German experience which promoted, within the same building, a community centre running daily activities for older people, health services (outpatient clinics and day-care hospital), care for housebound individuals and long-term care facility. Preventing disability and recouping autonomy through rehabilitation programs – all or a combination of these forms of care under the same roof – are actions which widen the range of possibilities. The pre-old, young-old and oldest-old all experience similar situations which often precede different stages of limitations in functioning. Resources and solutions also multiply, in as much as autonomy and independence also change during this phase[72].

Care centres may provide a range of care for children, individuals with temporary or permanent disability and older individuals, with or without autonomy and independence. Crèches, when opening their doors to older visitors for activities together with the children, provide interaction and allow affective ties to form between generations. The conveying of values, life stories told in photos, recipes or songs and sharing meals together, for example, value the older generation, conferring a place of importance and acting as a motivator. Fostering ties and the ability to pay attention to one another, is a natural consequence of these shared activities.

Birthplace of the model

An example of the model presented was developed within the Open University for the Third Age of the University of the State of Rio de Janeiro (UnATI/UERJ), an institution set up 29 years ago that has gained national recognition as one of the most important health programs for middle-aged and older adults[73]. This initiative has also garnered international awards and been endorsed by the World Health Organization. The UnATI/UERJ is a centre for studies, education, debates, research and assistance addressing issues inherent to aging, which has contributed to a change in mindset of Brazilian society regarding its attitudes to older generations.

An innovative quality care system must be built, because the prevailing outdated care model, unless replaced, will only exacerbate the current poor service and healthcare crisis, particularly for older adults, the age group placing the greatest demand and cost on the system.

CONCLUSION

In recent years, I have been dedicated to researching the integral care of older people and refinement of care models. In the capacity of Director of the UnATI/UERJ and my role as Editor of the Revista Brasileira de Geriatria e Gerontologia (RBGG-Brazilian Journal of Geriatrics and Gerontology), I have witnessed the desire (and need) to consolidate the structuring of the care model for older adults.

I often receive comments of praise, yet, these are invariably tempered by the remark: "what you write is so obvious that maybe this is why it´s so hard to put these ideas into practice". I tend to agree.

And it is precisely because I realize these reforms are increasingly imperative with each year that goes by, that I continue striving to bring this matter to the attention of academics and opinion leaders in the health sector, because a further dose of medicine is sorely required which, it is hoped, will be able to remedy the present ailing care model.

Population aging is accompanied by new demands, and challenges the traditional care model. Advancements in technology, science and medicine offer those who embrace the modern tools for maintaining health the chance to enjoy life for longer. The social and economic transformations of the last

few decades, their consequent shifts in behaviour of contemporary society – changes in eating habits, increased levels of sedentarism and stress – and growing life expectancy of the population, have contributed to higher rates of chronic diseases, posing a major public health problem. The health needs of the older population cannot be satisfactorily met until it is recognized that this stratum of society requires specific care. This makes overhauling the current health model imperative.

Scrutiny of the national health budget reveals that the vast bulk of funds is dedicated to hospitals and equipment for performing complementary exams. Society and health professionals alike, as a general rule, adhere to a logic grounded in hospital institutions, with a mindset of only treating diseases as opposed to preventing them.

The ideal care model for the older population should be centred on identifying potential risks. Monitoring health instead of disease will direct investment toward early prevention, resulting in a better chance of rehabilitation and reduced impact on functioning.

As a response to the older population, more actions focused on health promotion and education, the prevention and delaying of disease and frailty, besides maintenance of independence and autonomy, should be implemented. Lastly, increasing longevity alone does not suffice. As outlined above, it is vital that these additional years can be lived with quality, dignity and wellbeing.

In sum, with concerted efforts, excellence in care for the older population can be achieved and made sustainable, transforming care not just for this segment, but for the health system as a whole.

A novel approach to health care that promotes quality of life for users – albeit under the SUS or via the private sector – will entail the use of qualified well-prepared professionals, integrated care, and judicious deployment of information technology. This is the shape that contemporary resolutive models advocated by leading national and international health organs should take. And this is what we wish to see in the not-so-distant future.

Edited by: Luiz Antonio Costa Tarcitano

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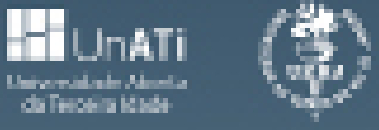
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