Multidimensional Assessment of Institutionalized Elderly: the Reality of a Brazilian Institution

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Abstract

Background: The population aging in Brazil is characterized by the accumulation of progressive disabilities in their functional activities and daily life. To consider the elderlies in his/her multiple dimensions turns out to be a critical issue to improvetheir assistance to an institutionalized level, improving their health and quality of life. To perform a mini-overall evaluation of institutionalized elderly person to trace their profile in relation to the socio-demographic, functional capacity, nutritional status and cognition.

Methods: Descriptive study, with a cross-sectional design and quantitative approach performed in a long - stay institution for the elderly in Natal, RN. The research was approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte, under opinion number 164/2011.

Results: 63.3% of the elderly were female, with ages varying from 61 to 103 years. 60.0% were single; 56.7% were literate. 66.7% had

no children and 55% lived with their families before the institutio-nalization. As for the institutionalization time, 63.3% resided in the institution for four years. As what concerns the aspects of health, 73.3% of the elderly presented hearing difficulties, 90% make use of medicines predominantly to diabetes and hypertension. There is clear evidence that the institutionalization has been harmful to the elderly as with regards basic activities of daily living, nutritional status and cognitive aspects.

Conclusion: The progressive disability in functional activities of daily life interferes directly in the quality of life, increasing dependency and minimizing the autonomy of these individuals. It is necessary to effec-tive implementation of public policies directed to the institutionalized elderly from the perspective of effective actions for improved attention and assistance.

Introduction

The elderly population in the world undergoes ari-sing growth whose trends indicate growing num-bers in the coming decades because of the decline of fertility and mortality rates associated to increa-sing life expectation. In Brazil, in accordance with the Brazilian Institute for Statistics and Geography (BISG), the elderlies represented, in 2013, 7.4% of the population. It is estimated that at 2050 persons over the age of 65 years will be 22.7% of the whole population, and those over 80, 6.4%, in accordance with the projections [1]. In face of these stounding forecasts, the scientific society is turning its atten-tion to the elderly population in search of preventive measures to mitigate damages and diseases affec-ting these persons and increasing their health [2].

Populational ageing in Brazil is commonly accom-panied by the accumulation of progressive disabili-ties in the functional activities of daily life, besides growing difficult in their social-economic conditions. Mortality gives place to co-morbidity rates so that the maintenance of functional capability appears as

a new health paradigm, relevant to the elderly. The changes related to old age present risk factors and chronical-degenerative diseases, besides dependen-cy. It can have to do with the loss of autonomy and difficulty to the daily ordinary tasks, what na-turally interferes in the elderly's life, affecting his/her independency and autonomy. An alternative, in terms of non-familiar caretaking, in these cases, is the Elderly's Long Permanence Institution (ELPI) [3].

The ELPI gains relevance because when one con-nects old age with health care one can observe a growing demand for its services. In Brazil, the request for ELPI is ascending while the population gets older [3].

The best way to approach the elderly is consider him or her in all their complexity to improve their health and life quality. To meet these yearnings and get a whole approach of the old person, a profes-sional team established in the municipality of Natal, RN, interested in the human aging, developed a multidimensional approach of the institutionalized elderly. The objective of this new approach is to

offer interdisciplinary possibilities of improving the institutionalized elderlies' health care, accompanying and monitoring the activities related to their health. This program, that requires interdisciplinary tools, objectivates comprehensive health services and the recognition that ELPI can turn to be a place worth living.

Although there are laws and practical measures directed to the elderly, as the 1994 National Policy to the Elderly, the 1999 Health National Policy to the Elderly, and the 2003 Statute of the Elderly, the implementation of public policies concerning the institutionalized elderly is still distant. When one observes the directives of these policies, the elderly's health care continues in large measure on the charge of his/her family. Indeed, it is not sufficient that the State gives attention to families while the institutional elderly facilities remain on the sidelines; State needs to find a way of improving, protecting and recovering the institutionalized elderly [4].

That is why the effort that science does to investigate and intervene on the elderly population should include the institutionalized persons, considering that the request for ELPI in the coming decades is statistically high. In fact, it is necessary find out forms of improving the life conditions of those elderlies that dwell there, preventing common diseases of aging and keeping up the elderly more independent, and bodily and mentally health for longer [5].

In this way, it is highly recommendable programmed activities to improve the life quality of the institutionalized elderlies to offer them a healthy aging. In this sense, a systematic evaluation of their health conditions is an important measure.

The present study objectivated to make out an ample though short assessment of the institutionalized elderly population, describing their profiles in terms of socio-demographic aspects, functional capabilities, nutritional conditions and cognition.

Method

It is a descriptive study containing cross-sectional design and quantitative approach. It was held between August and September 2014 inside a long permanence institution described as an elderly shelter. This institution is in the South Sanitary District, in Natal/RN. It is characterized as a nonprofit philanthropic institution, registered in the Sanitary Vigilance and classified as type II by the Especial Technical Norm, that rules the operation of the long permanent institutions destined to the elderly in the municipality of Natal [6].

The data collection took place in the same institution where the elderlies reside, respecting its functioning routine. As the elderlies allowed to participate in the study, they received a Term of Free and Explained Consent (TFEC) so that, after ratification reading of what was explained, they signed it or filled the space reserved to the fingermark impression authorizing the total or partial publication of the nonidentified answers. The technique of individual interview with the elderly was used in the same institution by the application of some formularies.

The study was divided in two stages, combining strategies and resources. In the first stage, a documental study was held by consult and analysis of cadastral documents that had not been submitted to analytical treatment (residing elderly's handbook). This phase aimed at approximating the researcher to the elderly's reality, seen that the elderly's handbooks and the cadaster documents are relevant resources of social, economic and health information.

In the second stage, a proposal included the application of some instruments, with open and closed questions in interview form. The first part contained the following elements: sex, age, schooling and institutionalization time, among other, as well as the past historic data and the present health conditions, when the use of legal drugs and difficulties to see and hear, for example.

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In the next step the "Katz' Index" instrument was applied to evaluate the functional capability of the elderly to perform six basic activities of the daily life (BADL), transculturally validated [7], and largely used in Brazil [8-9]. It identifies the elderly's dependency degree to perform the basic activities of the daily life (BADL).

The nutritional status of the elderlies was assessed by a Mini Nutritional Assessment (MNA) test, that supplies a simple and rapid method of identification of elderly patients presenting risk of undernourishment or are already malnourished. MNA was developed by Nestlé® and by worldly renowned geriatrics doctors, and it is one the few control tools validated to elderly. The questionnaire included all elderlies with cognitive capability to answer it and was applied by nutrition students previously trained in the same ELPI. The diagnosis of undernourishment or risk of was based on the result of the MNA test.

The Mini Mental State Examination (MMSE) tool was applied to evaluate the cognitive conditions of the elderly, and it is useful in the investigation of possible cognitive deficits in individuals in risk, such as the elderlies, as well as in the identification of dementia symptoms. MMSE is validated in Brazil and includes 30 items to approach the axes of spatial and temporal orientation, register capability, attention and calculation, memory, language and cognitive capability. A 13-cut point was defined in the test, considering the formal instruction level of the participant elderly and the influence of age [10].

The study was developed by a multidiscipline team formed by health, psychology, nursery and nutrition graders and professionals, under the coordination of professors of the Collective Health Department of the Federal University of Rio Grande do Norte.

Altogether, 30 male and female elderlies over 80 that accepted to participate in all stages of the test, have been assessed. In this sample, ages varied from 63 to 101. Those who presented cognitive limitations hindering their answers had their data collected in the institutional handbook. The data relative to their functional capability were collected through the direct observation of the participants, with the aid of caretakers, as rules the institution direction.

The tabulation and first analyses of data were realized with the aid of *Microsoft Excel XP*, and statistical analyses were processed by the software *Statistical Package for Social Sciences* (SPSS), version 22.

The institution administration was asked to explain what was happening in the establishment. The leading team and the elderlies were presented the subject and the procedure of the research, whose secrecy policy protects their privacy, as well as the commitment to use the information for purposes of research, complying with ethical principles. The study used Terms of Free and Elucidated Agreement (TFEA). With the agreement of the gestor and the elderlies, the activities were open.

The research project was approved by the Research Board of Ethics (RBE) of the Federal University of Rio Grande do Norte (UFRN), under technical advice no. 164/2011. During all the study stages were observed the precepts established in Resolution no. 466/12 of the National Health Council (NHC), responsible by approving the directives and norms ruling researches involving human beings [11]. The research is part of an integrated action named "Health of the Institutionalized Elderly Project: Actuation of professionals in the attention to the health of the elderlies residing in Long Permanence Institutions", of academic-scientific, ethic and political character and comprising three dimensions: teaching, research and extension.

Results

Elderly Characterization

In the present study, it was verified that 19 elderlies were females (63.3%), with ages varying from 61 to 103 years. In this group, 18 (60.0%) told that were single; 9 (30.0%) were literate. It is worth mentioning that is considered literate that elderly

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that attended the fundamental school (partially or integrally) and that could read and write.

Most elderlies professed the protestant religion (36.7%). Besides that, 66.7% reported to have no children, and 50% lived with relatives before the institutionalization.

The main reasons for the institutionalization alleged by the elderlies were: to have no family (23.3%) or have no caretaker (6.7%). As what concerns the institutionalization time, 19 elderlies (63.3%) resided in the ELPI in the period varying from 0 to 3 years, **Table 1**.

Table 1. Socio-demographic variables of the elderlies participant of the research. Natal/RN, 2016.

Variables	n	%
Sex		
Female	19	63.3
Male	11	36.7
Age		
61 – 70	6	20.0
71 – 80	15	50.0
81 – 90	6	20.0
91 – 100	2	6.7
101 – 110	1	3.3
Civil Status		
Single	18	60.0
Married	5	16.7
Widower	3	10.0
Divorcied	3	10.0
NA*	1	3.3
Schooling		
None	17	56.7
0 – 3 years	7	23.3
4 – 8 years	2	6.7
NA	4	13.3
Religion		
Catholic	8	26.7
Protestant	11	36.7
Children		
No	20	66.7
Yes	7	23.3
NA	3	10.0

Variables	n	%
Retired		
Yes	27	90.0
No	2	6.7
NA	1	3.3
Institutionalization time		
Up to 4 years	19	63.3
More than 4 years	10	30.0
NA	1	3.3
With whom resided before the institutionalization		
Family	16	53.3
Alone	7	23.3
Relatives	3	10.0
Another ELPI	1	3.3
NA	3	10.0
Institutionalization type		
Spontaneous	7	23.3
Compulsory	22	73.3
NA	1	3.3
Difficult in sleeping		
No	16	53.3
Yes	13	43.4
NA	1	3.3
Hearing problems		
No	22	73.3
Yes	7	23.3
NA	1	3.3
Actualized vaccination		
No	4	13.3
Yes	23	76.7
NA	3	10.0
Medicine taking		
No	3	10.0
Yes	26	90.0
Smoker in the past		
No	19	63.3
Yes	7	23.3
NA	4	13.3
Etilist in the past		
No	19	63.3
Yes	6	20.0
		*NA: Not answer.

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About the elderlies health/disease record, it was verified the existence of preexisting diseases besides those they were treating during the data collection, predominantly diabetes and hypertension. Most of the elderlies (27) consumed medicines for the treatment of some disease, like Captopril, Losartan, Enalapril and insulin. The use of psychotropic medicines, such as fluoxetine, rivotril, bromazepam, diazepam, but there was no record of psychiatric or psychological illnesses preceding the elderly's entry in the institution.

Assessment of the Basic Activities of the Daily Life by the Katz's Index

When the Katz's Index was applied, it was possible to observe that 16.6% of the elderlies were independent, 13.4% presented moderate dependency, and the other 70% were very dependent, as is shown in **Table 2**.

Evaluating the parameters separately, table 03 presents the absolute distribution and the percentage of dependency ratio for daily life basic activities. It was observed that in the activity "bath", 6 (20.0%) of the elderlies were independent, while 24 (80.0%) were dependent.

In the activity "to dress", it was noted that 6 (20.0%) of the elderlies were independent, while 24 (80.0%) presented dependency. As what concerned the activity "toilet", 7 (23.3%) were independent, while 23 (76.7%) presented dependency. In the transfer activity: to go to bed and to wake up, 13 (43.3%) were dependent, and 17 (56.7%) needed someone's help. Therefore, it was possible to observe that there is a predominance of dependent elderlies who needed help to perform their daily activities.

In regard to the parameter "continence", 10 (33.3%) were independent, that is, had sphincter control, while 20 (66.7%) were dependent because they needed diapers constantly or to sleep.

In the activity "alimentation" predominated a high percentage of independent elderlies. It was

Table 2. Dependency degree of the elderlies based on the Katz's Index, Natal, 2016.

Punctuation of the Katz's Index		n	%	% Accumulated
0 a 2	Much dependent	21	70.0	70.0
3 a 4	Moderate dependency	4	13.4	83.3
5 a 6	Independent	5	16.6	100.0
Total		30	100.0	-

Table 3. Distribution of the dependency ratio to daily life basic activities. Natal, RN, 2016.

Basic activities of the daily life	Dependency ratio for basic activities	n	%	% Accumulated
To bathe	Dependent	24	80	80
	Independent	6	20	100
To dress	Dependent	24	80	80
	Independent	6	20	100
To use the toilet	Dependent	23	76.7	76.7
	Independent	7	23.3	100
To go to bed and to wake up	Dependent	17	56.7	56.7
	Independent	13	43.3	100
Continence	Dependent	20	66.7	66.7
	Independent	10	33.3	100
To feed one's self	Dependent	12	40	40
	Independent	18	60	100
Total		30	100	-

observed that 18 (60.0%) of the elderlies were independent comparatively with 12 (40.0%) who were dependent to do this activity, that is, needed aid to feed themselves, as to cut the meat or to put the food into their mouths. **(Table 3)**

When elderlies' sex and index are related, it lets clear more dependency (43.3%) among women **(Table 4)**, while among men, this percentage reaches 26.7. It worth mentioning that the minor part of the sample is masculine.

The analysis of the dependency ratio and of the age range **(Table 5)** shows that, as age advances, higher becomes the dependency degree, if one considers that inside the age range from 91 to 110, all the elderlies were classified as dependent.

Table 4. Relation of the dependency ratio concerning the elderly's genre. Natal/RN, 2016.

Sex	Índice de Katz						Total
	Very dependent		Moderate dependency		Independent		
	n	%	n	%	n	%	N
Male	8	26.7	2	6.7	1	3.3	11
Female	13	43.3	2	6.7	4	13.3	19
Total	21	70	4	13.4	5	16.6	30

Table 5. Relation of the dependency ratio with the age range. Natal/RN, 2016.

Age Rage (In years)	Katz´s Index						Total
	Very dependent		Moderate		Dependency		
	n	%	n	%	n	%	N
61 to 70	4	13.4	1	3.3	1	3.3	6
71 to 80	11	36.6	2	6.7	2	6.7	15
81 to 90	3	10	1	3.3	2	6.7	6
91 to 100	2	6.7	0	0	0	0	2
101 to110	1	3.3	0	0	0	0	1
Total	21	70	4	13.3	5	16.7	30

Assessment of Nutritional Status

Among the resident elderlies in the institution, only 21 were included in the study because they could answer the MNA. Through the MNA screening process, it was verified that among the assessed elderlies, 38.1% (n=8), 47.6% (n=10) and 14.3% (n=3) were undernourished, in risk of undernourishment or in normal status of nourishment, respectively. Only the elderlies classified as in nutritional risk or undernourished in the screening process continued the MNA. In this case, in the MNA result, 52.4 (n=11) were classified as undernourished, 38.1% (n=8) are in risk of undernourishment and 9.5% (n=2) in normal status of nourishment. **(Table 6)**

Assessment of the elderlies cognitive aspects

In regard to the Mini Examination of Mental Health, it was identified among the 30 elderlies under study that a small number of them participated effectively

Table 6. Variables concerning the nutritional aspects of the elderlies. Natal/RN, 2016.

Variables	n	%
MNA Screening		
Undernourished	8	38.1
Risk of undernourishment	10	47.6
Normal nutritional status	3	14.3
MNA result		
Undernourished	11	52.4
Risk of undernourished	8	38.1
Normal nutritional status	2	9.5

of the assessed questions, due to the precarious health status they presented. So, only a few number of them answered correctly all the questions. **(Table 7)**

In view of that, it was observed that 73.3% hit the score 0-10, while only eight hit a score equal or bigger than 13 defined in the study, as one can see below **(Table 8)**.

Table 7. Distribution of results per MMSE items, Natal/RN, 2016.

Assessment aspects	Number of questions	Respondent elderlies	Elderlies who answered correctly all the questions (n/%)
Spatial-temporal orientation	10	06	02/6.7
Register	03	14	11/36.7
Attention and calculation	05	03	1/3.3
Reminders (evocation memory)	03	03	1/3.3
Language	08	05	1/3.3
Constructive capability	01	07	1/3.3

Table 8. Mini Mental Score. Natal/RN, 2016.

Score	n	%
0-12	22	73.3
0-13	08	26.7
Total	30	100.0

Discussion

The socio-demographic aspects related to health observed in this survey corroborate other approaches of this subject in Brazil, where the presence of illiterate, single and childless women is prevalent [12].

It is known that women form most of the population in Brazil, for they live longer than men due to a minor exposition to risk factors as work, tobacco use and alcoholism and because they are more careful about their own health. As what concerns schooling, studies show that, the oldest the person is, the less work chances he/she has, considering that in the first decades of the past century high schooling was not indispensable to obtain a job, what has changed dramatically in our epoch [9, 13].

Other studies have revealed that most elderlies came from a home of their own, and that they lived alone, what convinced their relatives to institutionalize them due to the difficulty of caretaking them and other socio-economic reasons [12, 14]. In a study realized in Brazil, 40% of the elderlies lived in the ELPI for a period varying from 1 to 5 years, and that before institutionalization period, they lived with their relatives, what is also observed in our study [15].

In the present study, however, it was noted that more than half of the elderlies (53.3%) do not present difficult to sleep, corroborating a survey realized in the countryside of São Paulo, Brazil, with 38 elderlies residing in four ELPI, in which most of the elderlies have a good night's sleep [16]. These factors seem to do with the lot of psychotropic medicines they use, what helps them to enjoy a good night's sleep, although may give rise to other health problems, seen that these results conflict with other studies [17]. Indeed, common sense supposes that aging brings about changes in the amount and quality of night sleep, affecting more than of theelderlies over 65 years old, what represents a negative impact on the life quality of the elderlies.

The high prevalence of chronical non-transmittable diseases inside the elderly population makes it to consume a lot of medicines [18]. This study detected that 90% of the elderlies make use of medicines, corroborating the study realized with 47 elderlies of a Belo Horizonte ELPI, which revealed that a discreetly majority of them make use of medicines (91.5%), strengthening still more the relation between old age and medicine use. These findings become more impressive when one observes that the health of the institutionalized elderly is more fragile than the community's ones [19]. This is also detected in Brazilian study, in which 80% of the elderlies make use of medicines [15].

In this sense, half of the elderlies did not present any vision problem. The decline of the vision brings about the diminishment of visual communication, of independency and autonomy, opening room to traumas in general [8]. Visual deficiency affects the elderly self-assurance in places and in the execution of complex tasks, what increases the chances of fall [20]. Finally, the institutionalization has a multicausal relation between old age and the request for ELPI, being it determined by the social and health profile of the elderlies [14].

The functional capability is an important index to assess the life quality and the health status of the elderlies. It plays an important role in the elderly's life due to maintain an intimate relation with mobility, daily life activities and the degree of involvement with these tasks. The performance of these activities permits to define the elderlies as active, productive and socially involved [21].

This study, based on the Katz's Index, identified the dependencydegree of the elderlies, verifying that most of them were classified as 'very dependent'. This result differs from other studies' conclusions realized in Brazil in which the institutionalized elderly is described as independent [8-9]. Spite it, another study realized in Minas Gerais reveals that around 60% of the elderlies present

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some dependency degree for one of the above-mentioned activities, especially to bathe, to dress and use the toilet, corroborating the results of our study [9].

With regard to the cognitive assessment, as it is said in this paper, the institutionalization of elderlies has been a harmful factor, because the cognitive development of the elderly is affected when submitted to a long-enduring institutionalization, what is commonly accompanied by mental inactivity [22]. Institutionalization is, therefore, a risk factor for cognitive deficit and dementia what explains why so few elderlies succeeded in the cut-off MMSE test of our study [23].

Cognitive losses were observed, too, in other recent surveys [24]. These authors detected in their MMSE test, that in a sample of 96 institutionalized elderlies, 63 of them underwent cognitive losses, be it light, moderate or serious. Other researches arrive at the same conclusion: institutionalized elderlies present cognitive impairment and low cognitive performance, with risk of developing dementia [25-26].

As what concerns the nutritional assessment of the elderlies in this study, the MMSE test resulted that 52.4% (n=11) of the assessed elderlies were classified as undernourished, 38.1% (n=8) ran undernourishment risk, and 9.5% (n=2) presented a normal nutritional status. The data are preoccupying, considering that undernourishment is related to the increase of morbidity/mortality and the decline of life quality. In addition, institutionalization is pointed as one of the main factors linked with the risk of undernourishment in elderlies [27].

It is worth mentioning that along aging several changes can alter the individual's alimentation pattern, such as: reduction of the taste buds, smell, vision and taste loss, less saliva and gastric secretion, failing mastication due to the lack of teeth or use of inadequate dentures; reduction of the intestinal motility and decrease of sensibility to thirst. In addition,

the use of several medicines affects the appetite and the consume of foods, increasing the risk of undernourishment among the elderlies, especially those institutionalized [28].

Other studies present data analogous to those of ours. A survey showed that amid the assessed elderlies, only 19% were well-nourished, 53% were in risk of undernourishment and 30.1%, undernourished [29]. Another assessment proceeded by MNA, revealed that most elderlies presented risk of undernourishment or malnutrition (86.1%) [30].

Conclusion

The study signalized a multi-dimensional assessment of the institutionalized elderly, revealing his/her profile about aspects like functional capability, nutritional status and cognition. Although it is recognized the necessity of giving a shelter to the abandoned elderlies, considering the increasing request for ELPI, institutionalization may bring about negative consequences to the whole health of these persons. It was verified in this age range that the progressive incapacitation to functional activities and of the daily life interferes directly in the life quality, increasing the dependency and diminishing the autonomy degree of these individuals.

In this sense, it is necessary an effective implementation of public policies concerning the institutionalized elderly supported by efficient actions and able to improve the quality attention and assistance due to the elderlies. We suggest new studies with different tools to identify other aspects that may complement the multidimensional assessment of the institutionalized elderly taking into consideration other nuances related to walking, falls, depression and dementia to realize a global diagnosis of these persons.

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