Functional independence level and cognitive deficit in elderly individuals with Alzheimer's disease*

NÍVEL DE INDEPENDÊNCIA FUNCIONAL E DÉFICIT COGNITIVO EM IDOSOS COM DOENÇA DE ALZHEIMER

NIVEL DE INDEPENDENCIA FUNCIONAL Y DÉFICIT COGNITIVO EN ANCIANOS CON ENFERMEDAD DE ALZHEIMER

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ABSTRACT

This study investigated the influence of the functional independence level of elderly individuals with Alzheimer's disease, according to cognitive assessment scores. Participants were 67 elderly individuals who received care in the Behavioral Neurology Outpatient Clinic of Hospital das Clinicas in Ribeirão Preto. Participants were evaluated in 2008 through a questionnaire for socio-demographic data, Functional Independence Measure (FIM) and the mini-mental state examination (MMSE). The cognitive deficit influenced the performance in carrying out activities of daily living. The average FIM for elderly people without cognitive deficit was 107.7 and for individuals with deficit, 63.2 (p<0.001). Average FIM motor scores were 81.7 and 49.4 (p<0.001), and FIM cognitive scores were 25.7 and 13.8 (p<0.001), respectively. Knowing the reduction of independence and cognitive capacity is essential to maintain the provision of the basic needs of daily life. The study can support nurses' practice, improving elderly individuals and their families' living conditions.

KEY WORDS
Aged.
Alzheimer disease.
Activities of daily living.
Geriatric nursing.

RESUMO

Este estudo investigou a influência do nível de independência funcional dos idosos com doença de Alzheimer segundo escores da avaliação cognitiva. A população foi composta por 67 idosos atendidos no Ambulatório de Neurologia Comportamental do Hospital das Clínicas/Ribeirão Preto, avaliados em 2008, por meio de um questionário para dados sociodemográficos, Medida de Independência Funcional (MIF) e Mini-Exame do Estado Mental (MEEM). Observou-se que o déficit cognitivo influenciou o desempenho na realização das AVDs. A média da MIF para idosos sem déficit cognitivo foi 107,7 e para os com déficit, 63,2 (p<0,001). Na MIF motora, as médias foram 81,7 e 49,4 (p<0,001), e na MIF cognitiva 25,7 e 13,8 (p<0,001), respectivamente. Conhecer a redução da independência e da capacidade cognitiva é indispensável para manter o provimento das necessidades básicas da vida diária. O estudo pode subsidiar a prática do enfermeiro, melhorando a condição de vida do idoso e de sua família.

DESCRITORES
Idoso.
Doença de Alzheimer.
Atividades cotidianas.
Enfermagem geriátrica.

RESUMEN

Este estudio investigó la influencia del nivel de independencia funcional de los ancianos con Enfermedad de Alzheimer según puntajes de evaluación cognitiva. La población se compuso de 67 ancianos atendidos en el Ambulatorio de Neurología Comportamental del Hospital das Clínicas/Ribeirão Preto/SP/Brasil, evaluados en 2008 a través de un cuestionario para datos sociodemográficos, Medida de Independencia Funcional (MIF) y Mini Examen de Estado Mental (MEEM). Se observó que el déficit cognitivo influyó en el desempeño en la realización de las AVDs. La media de la MIF para ancianos sin déficit cognitivo fue de 107,7% y para aquellos con déficit, 63,2% (p<0,001). En la MIF motora, las medias fueron de 81,7 y 49,4 (p<0,001), y en la MIF cognitiva, 25,7 y 13,8 (p<0,001) respectivamente. Conocer la reducción de la independencia y de la capacidad cognitiva es indispensable para preservar la provisión de necesidades básicas de la vida diaria. El estudio puede auxiliar en la práctica del enfermero, mejorando las condiciones de vida del anciano y de su familia.

DESCRIPTORES
Anciano.
Enfermedad de Alzheimer.
Actividades cotidianas.
Enfermería geriátrica.

Portuguese / English:
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INTRODUCTION

Different forms of dementia are particularly important in disease processes affecting the elderly, not only due to its frequency, but also because this may be the most devastating of all pathological entities, as its harmful action involves not only the affected person, but also, indirectly, the caregiver and family, entailing repercussions for society[1] .

Defined as a clinical syndrome of global decline, dementia is characterized by a permanent and progressive or transitory cognitive decline, caused by multiple etiologies, sufficiently intense to interfere in the person's professional and social activities[1-3].

Alzheimer's disease (AD) represents 50 to 60% of dementia cases, affecting approximately 1% of the general population and 10 to 20% of people older than 65 years[4].

Characterized by a deficit in memory and other cognitive functions, AD entails the worsening of patients' functional capacity, making them progressively unable to perform activities of daily living, starting to depend on caregivers[5]. Hence, functional capacity has been one of the main elderly health components and is considered fundamental in this population's health assessment, mainly for patients with disabling diseases like AD. Studies have shown that performance alterations in Activities of Daily Living (ADLs) can occur as early as in the initial stages of the disease[6].

Functional capacity assessment by nursing and the multidisciplinary team becomes as essential as diagnosis, as it refers to the disease or limiting condition's impact on the individuals and its reflexes on the patients and their relatives' quality of life, influencing the health system as a whole[7].

Family centered care is a part of nursing practice, as well as functional assessment of the elderly in nursing care, emphasizing persons and the support systems they can count on, so that their needs can be attended to. Nurses elaborate, deliver and assess care delivered to the elderly, providing support for the family to be able to perform it in an effective and desirable way[8].

Assessing the functional independence level helps nurses to plan care for elderly people with AD and to act together with the family in care delivery. Care for AD patients should always include the assessment and monitoring of cognitive skills, abilities to perform activities of daily living, behavior and progression of the disease.

OBJECTIVE

This study aimed to verify the influence of elderly patients with AD's cognitive performance on the accomplish-

> Assessing the functional independence level helps nurses to plan care for elderly people with Alzheimer's disease and to act together with the family in care delivery.

ment of activities of daily living according to the Functional Independence Measure (FIM).

METHOD

An observational and cross-sectional descriptive and quantitative research was carried out to verify the influence of elderly patients with AD's cognitive performance on the accomplishment of activities of daily living.

Data were collected between October 2008 and January 2009, involving elderly people with AD and their home caregivers, attended at the Behavioral Neurology Outpatient Clinic (ANCP) of the University of São Paulo at Ribeirão Preto Medical School Hospital das Clínicas (HCFMRP-USP). A group of 103 elderly was found, 36 of whom were excluded, 26 due to death, 7 could not be contacted, 2 refused to participate and one presented a questionable diagnosis of Alzheimer's disease. Thus, 67 male and female elderly aged 60 years or older were included, living in Ribeirão Preto/SP, clinically diagnosed with Alzheimer's disease and attended at the abovementioned outpatient clinic between January 2003 and December 2008. Elderly people with mild, moderate and severe dependence were considered in the study.

The following instruments were used for data collection: 1) Sociodemographic characterization instrument (age, gender, civil status, skin color, place of birth, number of children, religion) and social profile (education, elderly and family income); 2) Mini-Mental State Examination (MMSE) and Functional Independence Measure (FIM), instruments that are widely used for multidimensional assessment of the elderly.

The Mini-Mental State Examination (MMSE) is a cognitive assessment test aimed at supporting the investigation of possible cognitive deficits in people at risk of developing a dementia syndrome. This test comprises different questions, grouped in seven categories, each of which is designed to assess specific cognitive functions: orientation to time (5 points), registration (3 points), attention and calculation (5 points), recall (5 points), repetition (3 points), language (8 points) and visual constructive capacity (1 point). The MMSE score ranges from a minimum (0) to a total maximum (30). In Brazil, it was translated and adapted by Bertolucci et al.[9] in 1994. In that study, which has become a mandatory reference in nursing research, the importance of education for total test scores was demonstrated.

The FIM was developed by the American Academy of Physical Medicine and Rehabilitation and the American Congress of Rehabilitation Medicine. It was validated and adapted for Brazil by Riberto et al.[10] in 2001. The FIM is an ordinal scale with 18 items, each of which has a seven-level score that assesses the need for help to perform ADLs.

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The 18 FIM items are classified in 6 dimensions and 2 subdivisions: motor and cognitive. The motor FIM comprises self-care (eating, grooming, bathing, upper dressing, lower dressing and toileting); sphincters control (bladder and bowel management); mobility (transfer to bed/wheelchair, transfer to toilet and transfer to shower) and locomotion (walking/ wheelchair and stairs). The cognitive FIM includes communication (comprehension and expression.) and social cognition (social interaction, problem solving and memory). For each of the 18 FIM items, a descriptive scale is used to classify the level of help on ADLs, in which: 1 corresponds to total dependence; 2 maximum dependence; 3 moderate dependence; 4 minimum dependence; 5 supervision; 6 modified independence (technical help) and 7 complete independence. Scores range from 18 to 126. The higher the score, the higher the Independence level and the better the elderly people's functional performance. The instrument also presents good reliability for the total score (ICC=0.98 inter-observers and 0.97 test/retest) and for the dimensions.

Medical files were consulted to confirm the AD diagnosis and its degree (mild, moderate or severe). Then, the elderly people and their caregivers were contacted by phone to find out whether they were interested in participating in the study. During a home visit, a specialized and trained nurse to apply the FIM observed and interviewed the elderly and their caregivers. The visit took about one hour.

Statistical Package for the Social Sciences (SPSS) version 15.0 was used for descriptive, univariate (frequency tables) and bivariate (contingency tables for qualitative variables) data analysis and comparison of central tendency measures for quantitative variables (Mann-Whitney). Besides, Spearman's correlation was calculated between ordinal and quantitative variables.

Compliance with Resolution 196/96 by the Ministry of Health's National Research Ethics Committee was guaranteed through approval by the Research Ethics Committee at the University of São Paulo at Ribeirão Preto Medical School Hospital das Clínicas, process No 8465/2008

RESULTS

Elderly people in this study were between 60 and 100 years of age, with a mean age of 79 years, 52(77.6%) women, 33 (49.3%) widowed, 61.5% of women and 34.3% of men, mostly retired (56.7%), 32 (47.8%) received a pension and a minority (4.5%) mentioned their own work as a source of income.

As for education, a majority (56.7%) had between 1 and 4 years of education, followed by 16 elderly (23.9%) who had studied more than 9 years.

Among the interviewed elderly, 31 (46.3%) presented severe dementia, followed by 21 (31.3%) with mild and 15 (22.4%) with moderate dementia. Regarding the diagnosis time, on the average, the disease had been diagnosed 5.01 + 2.5 years, ranging between one and 14 years.

With respect to the elderly participants' cognitive performance according to the MMSE, the score cut-off levels Bertolucci et al.[9] suggested in 1994 were chosen to apply this instrument, in which those authors found the strong influence of education in comparison with the original version[11]. Table 1 displays the elderly patients' performance on the MMSE, considering gender and education in full years.

Table 1 - Distribution of elderly people diagnosed with AD, living in Ribeirão Preto and attended in the ANCP-HCFMRP/USP, according to MMSE performance, gender and education level - Ribeirão Preto - 2009

Educatin (years)	MMSE PERFORMANCE						Average (SD)
	Female		Male		Total		
	Low	High	Low	High	Low	High	
	N(%)	N(%)	N(%)	(%)	N(%)	N(%)	
iLLITERATE	3(7.1)	1(10)	-	-	3(5.4)	1(8.3)	4.8(5.7)
1 to 4 years	24(57.1)	7(70)	6(46.1)	1(50.0)	30(54.5)	8(66.6)	7.9(7.9)
5 to 8 years	5(11.9)	2(20)	2(15.4)	-	7(12.7)	2(16.6)	11.8(10)
9 or +	10(23.8)	-	5(38.5)	1(50.0)	15(27.3)	1(8.3)	12.3(10.1)
Total	**42(80.7)**	**10(19.3)**	**13(86.6)**	**2(13.4)**	**55(82.0)**	**12(18.0)**	**9.3(8.8)**

As observed, 82% of the elderly presented low cognitive performance, with 86.6% men and 80.7% women. Cognitive deficit predominated in both gender, however, among participants with 1 to 4 years of education.

The total average MMSE score was 9.3 (+8.8). The maximum score found for illiterate elderly was 13 points; for participants with up to 4 years of education 21 points, for elderly with 5 to 8 years of education 25 points, and for those with more than 9 years of education 26 points. It can be affirmed that education influenced MMSE performance, even for elderly with AD, independently of the severity level, showing that decreased formal education time influenced the elderly people's MMSE performance (r= 0.337 p< 0.001).

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Table 2 shows the correlation between the FIM and sociodemographic variables: age, education, family and elderly income. According to this parameter, no significant relations were found in this study between functionality and age, family and elderly income. On the other hand, a statistically significant relation was found between functionality according to the FIM of elderly with AD and education, i.e. in this population, elderly with a higher education level showed less functional impairment.

Table 2 - Correlation coefficients between FIM and sociodemographic variables age, education level, family income and income of elderly with AD, living in Ribeirão Preto and attended in the ANCP-HCFMRP/USP - Ribeirão Preto - 2009

Spearman	Subject's age[a]	Education level[a]	Family income[b]	Elderly income[b]
Global FIM	0.112	0.390*	0.009	- 0.003
Motor FIM	0.144	0.392*	0.014	0.014
Cognitive FIM	0.011	0.345*	0.056	0.047

a - Pearson's Correlation; b -Spearman's Correlation.*p<0.01

These study results showed that elderly with a cognitive impairment showed worse performance in all FIM categories, but these losses were less intense in locomotion functions, as observed in Table 3, which shows the FIM dependence level according to cognitive deficit. In general, the dependence level is associated with the presence of cognitive deficit. The frequency of total dependence (TD) was 25.5 - 69.1 for elderly with cognitive deficit and 0 - 25 for those without cognitive deficit. For the 55 elderly with cognitive deficit, motor activities with the highest difficulty level were bladder control, grooming, dressing and toileting, and the most difficult cognitive activities were problem solving and memory. It was also observed that the elderly participants who did not show any cognitive deficit yet according to the MMSE already showed commitment in problem solving and memory-related activities, with none of the participants showing complete independence for this category.

Table 3 - Distribution of elderly people's functional dependence in the dimensions and Categories of total FIM, according to cognitive deficit of elderly with AD, living in Ribeirão Preto and attended in the ANCP-HCFMRP/USP - Ribeirão Preto - 2009

FIM	Cognitive deficit (n=55) %			No cognitive deficit (n=55) %			Total		
	TD	MD	ID	TD	MD	ID	TD	MD	ID
Eating	32.7	38.2	29.0	0.0	16.7	83.3	26.9	34.3	38.8
Grooming	52.7	23.6	27.3	0.0	16.7	83.3	43.3	22.4	34.3
Bathing/showering	52.7	20.0	27.3	0.0	16.7	83.3	43.3	19.4	37.3
Upper dressing	50.9	21.8	27.3	0.0	8.3	91.7	41.8	19.4	38.8
Lower dressing	50.9	20.0	29.0	0.0	16.7	83.3	41.3	19.4	38.8
Toileting	50.9	16.4	32.7	0.0	8.3	91.7	41.3	14.9	43.3
Bladder management	56.4	14.5	29.0	0.0	8.3	83.3	47.8	13.4	38.8
Bowel management	45.5	16.4	38.2	0.0	8.3	91.7	37.3	14.9	47.8
Bed/chair transfer	27.3	18.2	54.6	0.0	16.7	83.3	22.4	17.9	59.7
Toilet transfer	29.0	18.2	52.7	0.0	8.3	91.7	23.9	16.4	59.7
Tub/shower transfer	32.7	18.2	52.8	0.0	8.3	91.7	23.9	16.4	59.7
Walk or wheelchair	25.5	27.3	27.3	0.0	16.7	83.3	20.9	25.4	53.7
Stairs	45.5	18.2	36.4	0.0	50.0	50.0	37.3	23.9	38.8
Comprehension	34.6	50.9	14.6	0.0	33.3	66.7	28.4	47.8	23.9
Expression	41.8	36.4	21.8	0.0	33.3	66.7	34.3	35.8	29.8
Social interaction	47.3	34.6	18.2	0.0	8.3	91.7	38.8	29.8	31.3
Problem solving	65.5	32.7	1.8	8.3	83.3	8.3	55.2	41.8	3.0
Memory	69.1	30.9	0.0	25.0	75.0	0.0	61.2	38.8	0.0

TD (total dependence) = needs maximum or total care,
MD (moderate dependence) = needs supervision, minimal or moderate care; ID (independence) = complete or modified independence.

As observed in Table 4, the total average FIM for elderly with cognitive impairment was 63.2, against 107.7 for elderly without cognitive impairment. For the motor FIM, averages were 49.4 and 81.7, respectively, against 13.8 and 25.7 for the cognitive FIM. Most FIM items showed statistically significant differences between the performance of elderly with and without cognitive impairment, except for the mobility and locomotion dimensions. For the 18 FIM

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items, most scores ranged between 3-4 (moderate to minimum dependence) for elderly with a cognitive deficit (except for memory) and 5-6 (supervision to modified independence) for those without cognitive impairment (except for problem solving and memory).

Table 4 - Averages and medians of FIM dimensions according to cognitive deficit of elderly with AD, living in Ribeirão Preto and attended in the ANCP-HCFMRP/USP, Ribeirão Preto - 2009

FIM	Cognitive deficit (N= 55)		No cognitive deficit (N=12)		p*
	Average(SD)	Median	Average(SD)	Median	
Self-care					
Eating	4.0 ± 2.3	4.0	6.5 ± 0.8	7.0	<0.001
Grooming	3.3 ± 2.4	2.0	6.3 ± 0.8	6.5	<0.001
Bathing/showering	3.1 ± 2.4	2.0	6.2 ± 1.0	6.5	<0.001
Upper dressing	3.3 ± 2.4	2.0	6.2 ± 0.9	6.0	<0.001
Lower dressing	3.4 ± 2.5	2.0	6.2 ± 0.9	6.0	<0.001
Toileting	3.4 ± 2.6	2.0	6.4 ± 0.7	6.5	<0.001
Sphincters control					
Bladder management	3.2 ± 2.5	2.0	6.2 ± 1.5	7.0	<0.001
Bowel management	3.8 ± 2.7	4.0	6.5 ± 1.2	7.0	<0.001
Mobility					
Bed/chair transfer	4.6 ± 2.5	6.0	6.3 ± 1.0	7.0	0.034
Toilet transfer	4.5 ± 2.5	6.0	6.5 ± 0.7	7.0	0.016
Tub/shower transfer	4.5 ± 2.5	6.0	6.5 ± 0.7	7.0	0.020
Locomotion					
Walk/wheelchair	4.6 ± 2.3	5.0	6.3 ± 0.8	6.5	0.024
Stairs	3.5 ± 2.5	4.0	5.5 ± 1.2	5.5	0.023
Communication					
Comprehension	3.3 ± 1.9	3.0	5.8 ± 0.7	6.0	<0.001
Expression	3.4 ± 2.1	4.0	6.1 ± 0.9	6.0	<0.001
Social cognition					
Social interaction	3.2 ± 2.1	4.0	6.4 ± 0.7	6.5	<0.001
Problem solving	2.0 ± 1.4	1.0	4.2 ± 1.0	4.0	<0.001
Memory	1.8 ± 1.2	1.0	3.2 ± 1.0	3.0	<0.001
Global FIM	63.2(36.0)	49.0	107.7(11.3)	111.5	<0.001
Motor FIM	49.4(29.1)	42.0	81.7(9.1)	85.0	<0.001
Cognitive FIM	13.8(7.8)	14.0	25.7(2.6)	25.5	<0.001

*Mann Whitney

A strong correlation was found (r= 0.869, p< 0.01) between cognitive performance according to the MMSE and functionality according to the FIM.

In view of the above, a strong correlation between the study instruments could be observed to assess functionality and cognitive commitment.

DISCUSSION

The high prevalence of elderly women in this study is in accordance with findings from other Brazilian and international studies[12-15]. The average age of the elderly was also similar to other studies[13-14,16]. As for education, most participants had between one and four years of education. It is remarkable in this population that a small part of the elderly was illiterate, i.e. did not attend school and could neither read nor write, and that a large part studied more than 9 years. These data diverge from other studies, where illiteracy was much more significant[13-16]. Education has been appointed as a risk factor for dementia[16].

The number of elderly with severe dementia was higher than elderly with mild and moderate dementia, diverging from other Brazilian studies that found a higher number of elderly with mild dementia[15-16]. This fact may have been due to the sample origins. In studies with higher frequencies of mild and moderate dementia, the sample comprised elderly assessed in the community. In the present study, on the other hand, elderly were assessed who were attended at a tertiary service and were already under treatment. Many elderly diagnosed with mild and moderate dementia in the city may be receiving health care in basic health units or live in the community without a diagnosis of dementia, so that they are not attended at the abovementioned referral outpatient clinic.

As for the diagnosis time of the disease, the average was similar to findings in another study[13]. AD is a disease

with a treacherous and progressive start, as described above, which is why the start of the disease is only estimated based on the appearance of symptoms. As this is uncertain and subjective, the diagnosis time reported by the caregiver and/or found in the elderly patients' files was considered, as all interviewees had been diagnosed with AD and were being monitored.

Most of the elderly presented low cognitive performance with a predominance of cognitive deficit among patients who had between 1 and 4 years of education. Education level has been appointed as a risk factor for dementia, with an association between dementia and low education level, frequently deriving from a low socioeconomic level[16]. Most of the elderly have 4 years of education at most, which can favor low performance on the MMSE, allied with the medical diagnosis of AD. The participants' average score on the MMSE was low, as well as their cut-off points for education in comparison with other similar studies[13,17]. This fact may also be due to sociocultural and educational differences between countries and because this study includes more elderly with severe dementia, which significantly compromises their performance.

No statistically significant correlation was found between the elderly's MMSE performance and age, diverging from other studies[9,18]. Those authors assessed non-demented elderly, however, and no studies were found that compared the MMSE performance of elderly with AD and age. The correlation between education in full years and MMSE performance of the elderly was similar to other studies[13,17]. Elderly people with a lower education level showed a five times higher chance of dependence for ADLs[19].

In the analysis between functional capacity and some sociodemographic variables, such as age, education and income, it was found that education influenced the elderly patients' functional performance. On the other hand, no significant correlations were found between functional capacity and age[20] and income, as described by other authors[19,21]. This fact may be due to the fact that the elderly were AD patients. It is known that the progression of this disease compromises cognitive capacity, leading to a functionality loss independent of these variables. Education, on the other hand, knowingly is a protective factor for cognitive losses and, hence, the commitment of functional capacity is lower.

In view of these data, it can be affirmed that the presence of cognitive impairment compromised these elderly patients' functional capacity. This finding is in line with different Brazilian and international studies[13,17,21]. It is observed, however, that some elderly without a cognitive impairment already present some degree of dependence for ADLs. According to some authors[6,13], in case of mild cognitive damage, losses are first detected in Instrumental Activities of Daily Living (IADL), which were not assessed in this research. The accomplishment of Basic Activities of Daily Living (BADL), assessed according to the FIM, will only be impaired in more advanced dementia stages.

The average FIM scores found for the motor functions were similar to other studies that investigated elderly patients with mild, moderate and severe AD, that is, with greater or lesser cognitive loss[15]. For the motor functions in the FIM, no elderly without cognitive impairment is totally dependent, although supervision is needed to accomplish some activities. For the cognitive FIM, on the other hand, although there is no deficit according to the MMSE, the elderly present commitment of activities related to memory and problem solving. Elderly with AD may present cognitive impairment before they present any functional capacity deficit, mainly for BADLs[13]. Elderly people with cognitive impairment need some type of care, mainly for activities related to bladder control, bathing/showering, grooming, dressing and toileting. These activities were also described in another study on the ADL performance of elderly with AD[15].

In the initial phase of dementia, the care process mainly involves care focused on supervision with a view to accident prevention, as the elderly do not manage to distinguish situations involving risk or danger, and also due to errors in the accomplishment of ADLs[22].

Interest in the functional capacity of elderly people with AD has been increasing to the extent that this knowledge is necessary, with a view to gaining better knowledge on the evolution of the disease and the definition of an early diagnosis, as well as to identify the dependence level in order to determine what care will be necessary. It should be highlighted, then, that this care is generally delivered at home and mostly involves family members, without knowledge on the disease and its consequences. Thus, it is fundamental for nurses to work with caregivers and families in the orientation, supervision and execution of care activities needed in these elderly people's daily life.

Functional assessment of the elderly is part of nursing care, directed at people and at the support system families need. Through the systemization of nursing care, nurses identify the problems, elaborate, set priorities together with the family, execute and assess the individual care plan.

CONCLUSION

The findings discussed her reveal that Alzheimer's disease affects the functional capacity, independence level and autonomy of the elderly. This theme is increasingly addressed in society, as it affects not only the sick elderly, but also their family, society and policy makers.

Some limitations need to be reflected on though, such as the sample, with a difference between the number of elderly with mild, moderate and severe dementia, and the much lower percentage of elderly without than with a cognitive impairment, which made data analysis more complicated, as elderly people with mild dementia have greater changes of not presenting any cognitive impairment.

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The relevance of studying the functional capacity of elderly people, mainly those with dementia, is a recent issue among nursing professionals. It used to be more restricted to other professionals, but knowledge on these elderly people's needs to accomplish ADLs helps nurses to systemize individual care, mainly at home, with a view to working together with the family in Primary Health Care.

Knowing the dependence level of elderly patients with AD, nurses can prepare the elderly and their family for the progression of the disease, developing appropriate care strategies. As further research is needed on Alzheimer's disease and the necessary care for the affected population, which is considered weakened, public investments are needed, as well as research development on the theme.

In conclusion, these research results can support nursing practice to the extent that the close relation between these professionals, families and demented elderly patients can represent an opportunity to improve the living conditions of these elderly people and the families that take charge of their care.

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