







Prevalence and factors associated with the frailty in elderly patients attended to an outpatient care specialty clinics*

Prevalência e fatores associados à fragilidade em idosos atendidos em um ambulatório de especialidades

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ABSTRACT

Cross-sectional study developed with 374 elderly patients of a teaching hospital of the region of Campos Gerais that aimed to identify the prevalence of factors associated with the frailty in elderly people of an outpatient care specialty clinics. The data collect consisted of interview, Mini-Mental State Examination and Edmonton Frail Scale. A bivariate and multiple analysis was performed by means of Poisson regression with their respective 95% confidence intervals. The prevalence of frailty was 40.1%, with significant association to the variables feminine gender ($p=0.002$), low schooling ($p=0.020$), presence of self-reported disease (s) ($p=0.006$), medications ($p=0.001$), loss of urine ($p=0.001$), falls ($p=0.001$) and to the hospitalization ($p=0.001$). The prevalence of frailty identified was discretely less than the one found in study of a reference center and higher than the one of elderly persons of the community, with associated socio-demographic and clinical factors. Which requires an attentive look of the health professionals about this profile.

Descriptors: Health of the Elderly; Frail Elderly; Risk Factors; Health Surveys; Geriatric Nursing.

RESUMO

Estudo transversal desenvolvido com 374 idosos de um hospital de ensino da região dos Campos Gerais que buscou identificar a prevalência e fatores associados à fragilidade em idosos de um ambulatório de especialidades médicas. A coleta de dados compreendeu entrevista, Mini Exame do Estado Mental e Escala de Fragilidade de Edmonton. Realizou-se análise bivariada e múltipla por meio de regressão de Poisson com os respectivos intervalos de confiança de 95% e nível de significância de $p \leq 0,05$. A prevalência de fragilidade foi de 40,1%, com associação significativa às variáveis sexo feminino ($p=0,002$), baixa escolaridade ($p=0,020$), presença de doença(s) autorreferida(s) ($p=0,006$), medicamentos ($p=0,001$), perda de urina ($p=0,001$), quedas ($p=0,001$) e à hospitalização ($p=0,001$). A prevalência de fragilidade identificada foi discretamente inferior à constatada em estudo de um centro de referência e superior a idosos da comunidade, com fatores sociodemográficos e clínicos associados. Requerendo olhar atento dos profissionais da saúde acerca deste perfil.

Descritores: Saúde do Idoso; Idoso Fragilizado; Fatores de Risco; Inquéritos Epidemiológicos; Enfermagem Geriátrica.

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INTRODUCTION

The ageing process understood as dynamic and progressive contributes to reducing physical reserves and a higher prevalence of pathological processes, predisposing the elderly to frailty⁽¹⁾.

The frailty is defined as a multifactorial syndrome that involves biological, physical, cognitive, social and economic factors⁽²⁾, contributing significantly to the changing health *status* of elderly⁽³⁾, with particular attention being given to incapacity and hospitalization^(1,4). Considered as a modern geriatric syndrome, it is related to the physiological alterations, diseases, sarcopenia, polypharmacy, malnutrition, social isolation and unfavorable economic situation⁽⁴⁻⁶⁾.

The prevalence of this syndrome in the elderly presents great variability, considering the screening criteria and the studied population. In the United States it is estimated that 15% of non-institutionalized elderly are frail⁽⁷⁾ and, in Latin America Latina and the Caribbean region 19.6%⁽⁸⁾. In national studies, which used the Edmonton Frail Scale, it was found that 47.2% of the elderly attended to a reference center⁽⁹⁾ and 39.2% of domiciled female elderly⁽¹⁰⁾ presented some degree of frailty.

The condition of frailty is progressive and of risk, with significant negative repercussions to the elderly people's quality of life^(5,7), contributing to the increase in the longer-term care⁽¹¹⁾ and of medical costs⁽¹²⁾. That way, it should be noted that the early screening and the treatment by means of preventive or therapeutic interventions are measures that should be stimulated and adopted by the multi-professional team.

Authors highlight that the studies about the frailty in developing countries are incipient⁽⁸⁾. Although some factors associated with the frailty are known, the lack of national studies that investigate such condition in elderly under outpatient care should be emphasized. Based on the above considerations, the aim of this study was to identify the prevalence and the factors associated with the frailty in the elderly assisted in an outpatient care medical specialty clinics.

METHODS

Cross sectional study, conducted with elderly in outpatient care specialties clinics in a teaching hospital in Ponta Grossa, Paraná, region of Campos Gerais, in the period from October 2015 to March 2016. The maintaining institution is characterized as public and its outpatient care clinic attends, on average, 3,900 consultation/month distributed in 30 medical specialties aimed at users referred from Primary Health Care and Specialty Centers of the city and region.

The sample size calculation was determined using Epi.Info[®] 7.1.4 software, considering the average number of monthly consultations multiplied by six months of collect, with an

accuracy of 5%, confidence interval of 95% and design effect 1, for a prevalence of 47.2% of elderly with any degree of frailty, following the prevalence of a study carried out with elderly attended in a reference center⁽⁹⁾. The calculated total resulted in a sample of 374 individuals.

The criteria used to select the sample were:

- aged 60 years or older;
- score higher than the cutoff point in the Mini-Mental State Examination (MEEM)⁽¹³⁾;
- be awaiting medical care by the day of the application of the data collect tool.

For participants who did not have cognitive conditions to answer the research questions (n=20), we invited the family caregiver, according to the inclusion criteria: aged 18 years or older; being a family caregiver; and reside with the elderly person for, at least, three months.

The data were collected individually at the moment when the elderly persons are awaiting care in the waiting room of the outpatient care specialty clinics, by previously calibrated researchers.

At the initial stage of the data collect, we applied the MEEM⁽¹⁴⁾, a tool that comprises seven categories, represented by groups of specific cognitive functions: temporal orientation, spatial orientation, immediate memory, attention and calculation, evocation memory, language and visual constructive ability. The total score ranges from zero to 30, using the following cutoff points in order to calculate the scoring reached: for illiterate elderly persons, 13 points; for those with low and medium schooling, 18 points and, 26 points for high schooling⁽¹³⁾.

Next, a structured questionnaire specially developed for the research was applied, containing socio-demographic and clinical information: gender, age, marital status, schooling, living arrangements, self-report on the presence of disease(s), here understood, any type of health hazard and independent of the amount of disease, use of medicines, loss of urine, falls and hospitalizations (in the last 12 months).

The dependent variable frailty in the elderly person was measured through the Edmonton Frail Scale (*Edmonton Frail Scale* — EFS)⁽²⁾, culturally adapted to the Portuguese language in Brazil⁽¹⁴⁾, considered reliable, valid and of easy application, even non-specialized professionals in geriatrics or gerontology. It is a tool that assesses seven domains: cognition, health condition, functional independence, social support, use of medicines, nutrition, humor, urinary continence and functional performance, distributed on 11 items with scores of zero to 17⁽¹⁵⁾.

For analyzing the data, the results of the dependent variable were dichotomized on two levels: without frailty (final score ≤ 6) and with frailty (score ≥ 6), according to reference study⁽⁹⁾.

The sample was characterized from the investigation of the socio-demographic and clinical variables.

The data were analyzed by the *Stata*[®] version 12.0 software (StataCorp LP, College Station, TX, USA) being initially submitted the exploratory and descriptive analysis. Subsequently, prevalence ratios (PR) were calculated to investigate the associations between independent variables and frailty. The adjusted prevalence ratios were obtained by the Poisson's regression multiple analysis. It began with a saturated model and the variables that did not show as statistically relevant were removed, provided that their exclusion did not modify the results of the independent variables that remained in the model. The statistical significance adopted was $p < 0.05$.

The Project was approved by the Ethics Committee of the State University of Ponta Grossa with opinion No 792.978/2014 and by CAAE No 34905214.0.0000.0105. The ethical precepts of voluntary and consented participation of each subject were respected, according to the resolution in force at the time of the research realization.

RESULTS

Of the 374 elderly researched there was predominance of the female gender (67.4%), with an average age of 67.9 years (age ranged from 60 to 86), married (54.4%), with low schooling (one to four years of incomplete study) (55.1%) and that lived with family members (46.3%) (Table 1).

With regard to the clinical variables, 363 elderly (97%) said that they had some type of disease (regardless of the acute or chronic condition or number of grievances in health), 345 (92.3%) made use medicine(s) every day, 213 (56.9%) had no loss of urine, 246 (65.8%) denied fall last year and 261 (69.8%) have not been hospitalized last year.

With regard to the frailty syndrome, the average score was 5.9 points with minimum score of zero and maximum of 13 points. We identified that 150 (40.1%) elderly persons were frail and 224 (59.9%) non-frail.

It was noted that the frailty prevalence was greater for the women (45.6%), individuals in age groups greater (39.6% between 60 and 70 years and 57,9% with 80 years or more), single/divorced/widows (41.1%), with low schooling (44.0%), that lived alone (53.7%), with morbidity referred (41.3%), with use of medicines (42.7%), that referred loss of urine (57.8%), falls (53,1%) and hospitalization in the last year (54.9%).

It also became evident that in the bivariate analysis a significant association between frailty and female gender ($p=0.002$), low schooling ($p=0.020$), live alone ($p=0.012$), presence of disease (s) ($p=0.006$), use of medicines ($p=0.001$), loss of urine ($p=0.001$), falls in the last 12 months ($p=0.001$) and hospitalization in the last 12 months ($p=0.001$).

In multiple analysis (Table 2), it was found that be elderly of female gender, with low schooling, with diseases, recent history of fall, with urinary incontinence, make use of medicines and, have been hospitalized in the last year, were explanatory conditions on the frailty among the elderly studied.

DISCUSSION

The prevalence of frailty, in the current study, presented discrete variation concerning the results of the cross-sectional investigation conducted with 360 elderly persons in a reference center in the north of Minas Gerais, which noted the syndrome in 47.2% of elderly participants⁽⁹⁾. No other studies were found on the prevalence of the frailty in elderly in outpatient care, which makes more careful comparisons difficult. However, the result was considerably higher in comparison with the study that validated the in Brazil and identified that 31.4% of domiciled elderly were frail⁽¹⁵⁾.

The differences in the prevalence values may be attributed to the socio-economic and cultural of the sample. Similarly, the different methodological approaches and inclusion criteria of the participants, particularly the study with domiciled individuals⁽¹⁵⁾, may compromise the comparison of the studies.

It is hoped that a greater condition of the frailty in scenarios such as outpatient care specialties, in detriment of homes, since the search with greater frequency for these services and even the implementation of protocols that foster this periodic search, are configured in greater amount in the group of frail patients⁽⁹⁾. Once the frailty results in greater vulnerability to the alterations of the health state, requiring a more specialized attention^(3,9).

In addition, the tool used to measure the frailty can also generate differences in the prevalence. The literature stands out the existence of several tools for the screening of this syndrome^(3,5), however the choice should contemplate its reliability, validity, application and cost, considering the specific clinical scenario and the population addressed.

With regard to the socio-demographic factors related to frailty, there was an association with the female gender, condition that corroborates other studies^(8,11,12). Significant losses of physiological reserves, unfavorable socio-economic and of health conditions that frequently permeate the female universe^(8,16,17), are configured in stressors factors that interfere with the health state and favor the increase of deficits accumulated throughout life, predisposing the women to syndrome.

It was also seen association between the syndrome and the low schooling, a fact equally highlighted in national^(1,18) and international researches^(5,16). The educational level is understood as a protective factor for the syndrome, since

Table 1. Prevalence and factors associated with frailty in elderly attended in an outpatient care specialty clinics. Ponta Grossa. PR. Brazil. 2016.

Variables	Non-Frail (%)	Frágil (%)	Total (%)	RP	p
Gender					
Male	87(71.3)	35(28.7)	122(100)	1.00	
Female	137(54.4)	115(45.6)	252(100)	1.59	0.002
Age					
60–70	157(60.4)	103(39.6)	260(100)	1.00	
≥71–79	59(62.1)	36(37.9)	92(100)	0.96	0.106
≥80 or above	08(42.1)	11(57.9)	19(100)	1.58	0.118
Marital Status					
Married	128(60.7)	83(39.3)	211(100)	1.00	
Single/Widow/Divorced	96(58.9)	67(41.1)	163(100)	1.04	0.730
Schooling					
High/Medium	79(68.7)	36(31.3)	115(100)	1.00	
Illiterate(female)/Low	145(56.0)	114(44.0)	259(100)	1.40	0.020
Living arrangements					
Family/Partner	193(62.9)	114(37.1)	307(100)	1.00	
Single	31(46.3)	36(53.7)	67(100)	1.44	0.012
Presence of disease (s)					
No	11(100)	0(0)	11(100)	1.00	
Yes	213(58.7)	150(41.3)	363(100)	1.46	0.006
Use of medicines					
No	25(89.3)	03(10.7)	28(100)	1.00	
Yes	198(57.3)	148(42.7)	346(100)	3.98	0.001
Loss of urine					
No	156(73.2)	57(26.8)	213(100)	1.00	
Yes	68(42.2)	93(57.8)	161(100)	2.16	0.001
Falls (last 12 months)					
No	164(66.7)	82(33.3)	246(100)	1.00	
Yes	60(46.9)	68(53.1)	128(100)	1.59	0.001
Hospitalization (last 12 months)					
No	173(66.3)	88(33.7)	261(100)	1.00	
Yes	51(45.1)	62(54.9)	113(100)	1.63	0.001

PR: prevalence ratio.

allows the individual a better access to information and services, financial resources and employment opportunities.

In this way, to strengthen the possibility of Brazilians having a healthy and autonomous ageing, public investments in broad strategies are used, such as strengthening and qualification of the access to formal education and the promotion of actions and services that subsidize and increase the access to qualified information of contents promoters

of health to the empowerment on health, in the search for overcoming of experienced structural barriers and more social equity.

Even, we found that the frailty is significantly greater in individuals who live alone, in contrast with the cross-transversal investigation carried out in the domicile with 339 elderly of Minas Gerais State⁽¹⁸⁾. It is assumed that living alone may contribute to the elderly becoming less

Table 2. Initial and final explanatory models of frailty in elderly attended in outpatient care specialty clinics. Ponta Grossa, PR, Brazil, 2016.

Variables	Initial Model	Final Model
	PR [IC95%]	PR [IC95%]
Gender		
Male	1.00	1.00
Female	1.18 [1.06–1.30]*	1.17[1.06-1.30]*
Age 1		
60–69	1.00	
70–79	1.03 [0.93–1.14]	-
Age 2		
70–79	1.00	
80 ou mais	1.10 [0.91–1.33]	-
Marital status		
Single/ Widow/Divorced	1.00	1.00
Married	1.10 [0.99–1.22]	0.91 [0.82–1.01]
Schooling		
High/medium	1.00	1.00
Illiterate (female)/Low	1.13 [1.03–1.24]*	1.13 [1.03–.24]*
Living arrangements		
Single	1.00	1.00
Family/Partner	0.89 [0.78–1.01]	0.89 [0.79–1.01]
Presence of disease(s)		
Yes	1.00	1.00
No	0.89 [0.90–0.96]*	0.88 [0.80–0.96]*
Use of medicines		
Yes	1.00	1.00
No	0.80 [0.67–0.97]*	0.80 [0.67–0.97]*
Loss of urine		
Yes	1.00	1.00
No	0.79 [0.72–0.86]*	0.79 [0.72–0.86]*
Falls		
Yes	1.00	1.00
No	0.88 [0.90–0.96]*	0.88 [0.80–0.96]*
Hospitalization		
Yes	1.00	1.00
No	0.86 [0.78–0.94]*	0.86 [0.78–0.94]*

* $p \leq 0.05$; PR: prevalence ratio; 95%CI: confidence interval of 95%.

active and more prone to depressive processes that trigger the unwillingness to perform physical activities and daily life and less care of their own health. The advanced age contributes to the prevalence of the syndrome in the older persons^(12,16), which are more vulnerable to stressing events, present increased functional burden and difficulties to maintain homeostasis^(6,19). However, in the present study, the presence or not of frailty was similar in the different age

groups, unlike other researches that used the same tool to assess the frailty in Brazilian elderly of the community^(11,19).

With regard to the involuntary loss of urine, more than half of the researched pointed out negatively to this condition, however, this variable showed as associated with the frailty. In the cross-sectional research carried out with Chinese elderly persons of the community, it was found that the syndrome predominated in the elderly with urinary

incontinence in comparison with those without (60.7 *vs* 32.3%, $p < 0.001$)⁽²⁰⁾. The urinary loss is understood as a limiting factor of the mobility among the elderly persons, since the fear of experiencing a situation of constraint contributes to the elderly becoming less active with consequences for its life quality.

The clinical variables, diseases, use of medicines, falls and hospitalization in the last 12 months were associated with the frailty and consistent with different studies found in the literature^(18,21-25). In the cross-sectional study carried out with elderly of an Open University for the Studies on the Elderly in Brazil, it was found association between frailty and diseases ($p = 0.004$)⁽²²⁾. Elderly persons who live in developing present a greater number of chronic diseases as they get older⁽²¹⁾, as a consequence the diseases can accelerate the appearance of the fragility⁽¹⁰⁾, with an emphasis on the diabetes mellitus, arterial hypertension, dyslipidemia and cardiovascular diseases⁽¹⁾.

The polypharmacy is pointed out as one of the factors related to development of the frailty⁽⁶⁾. It stands out the longitudinal study with 4,402 American elderly which found that the participants made use of 4-6 medicines presented a 55% greater risk for frailty ($HR = 1.55$; $p < 0.001$)⁽²³⁾. Each additional drug used in the baseline increased the risk of frailty following in 11% ($HR = 1.11$)⁽²³⁾.

The fall^(18,24) is another clinical aspect commonly associated with the frailty. Chronic diseases, consumption of different medicines and cognitive deficit increase the risk for this event⁽⁴⁾. Authors of a recent systematic review identified the event fall associated with frailty in the elderly ($OR = 1.80$; $IC95\% 1.51-2.13$)⁽²⁴⁾.

In addition to the falls, the ageing process contributes to greater hospitalization. In the longitudinal research conducted with 515 elderly of Ribeirão Preto, a higher average score was identified in the EFS in the hospitalized elderly⁽²⁵⁾, with significant statistic association ($p < 0.001$). Thus, it is understood that the hospital environment can compromise the functional state of the elderly, which demonstrates the need for actions such as implementation of care protocols, considering the admission, procedures, surgeries, hospital stay, hospital discharge and hospital post-release.

Based on the above and aimed at preventing the development of the frailty syndrome in elderly persons, it is suggested that investments in qualification of the health services be done, enabling them actually able to guarantee, with equity and quality, the health needs of this population group, by means of subsidies for prevention, early diagnosis, treatment and harm reduction of this syndrome. And still, a look in the long term, regarding the growing ageing process, by promoting intersectoral and concrete transdisciplinary actions, with the potential to promote significant improvements in the quality in all the Brazilians' life cycles, enabling them to enjoy an active and healthy ageing.

Among the study limitations is the cross-sectional design, which make it impossible to assess the cause-and-effect relationships. Moreover, the sampling is representative of a local community, so that it does not allow generalizing the results for other territories. It is suggested to carry out longitudinal studies that enable monitoring the frailty syndrome and its relationship with associated factors in the elderly of the community.

CONCLUSION

The frailty prevalence identified was slightly inferior to the one verified in other study with elderly of a reference center and superior to the elderly of the community. It stands out the female gender, the low schooling, self-referred disease, the use of medicines, the loss of urine, falls and hospitalization as factors associated with the frailty in elderly attended in the outpatient care. The results presented can ground, together with healthcare professionals, the construction of gerontological nursing care plans aiming at preventing functional decline and negative outcomes of fragility, contributing to improve the quality of care provided.

REFERENCES

1. Maciel GMC, Santos RS, Santos TM dos, Menezes RMP de, Vitor AF, Lira ALB de C. Avaliação da fragilidade no idoso pelo enfermeiro: revisão integrativa. *Rev Enferm do Centro-Oeste Min* [Internet]. 2016 [cited on Dec. 10, 2017];6(3):2430-8. Available at: <http://dx.doi.org/10.19175/recom.v6i3.1010>.
2. Rolfson DB, Majumdar SR, Tsuyuki RT, Tahir A, Rockwood K. Validity and reliability of the Edmonton Frail Scale. *Age Ageing* [Internet]. 2006 [cited on Dec. 10, 2017];35(5):526-9. Available at: <http://dx.doi.org/10.1093/ageing/af041>.
3. Lee L, Patel T, Hillier LM, Maulkhan N, Slonim K, Costa A. Identifying frailty in primary care: A systematic review. *Geriatr Gerontol Int* [Internet]. 2017 [cited on Dec. 10, 2017];17(10):1358-77. Available at: <http://doi.wiley.com/10.1111/ggi.12955>.
4. Morley JE, Vellas B, van Kan GA, Anker SD, Bauer JM, Bernabei R, et al. Frailty Consensus: A Call to Action. *J Am Med Dir Assoc* [Internet]. 2013 [cited on Dec. 10, 2017];14(6):392-7. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S1525861013001825>.
5. Dent E, Kowal P, Hoogendijk EO. Frailty measurement in research and clinical practice: A review. *Eur J Intern Med* [Internet]. 2016 [cited on Dec. 10, 2017];31:3-10. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S0953620516300279>. <https://doi.org/10.1016/j.ejim.2016.03.007>.

6. Lu Y, Tze Ying Tan C, Nyunt MSZ, Hei Mok EW, Camous X, Kared H, et al. Inflammatory and immune markers associated with physical frailty syndrome: findings from Singapore longitudinal aging studies. *Oncotarget* [Internet]. 2016 [cited on Dec. 10, 2017];7(20):28783-95. Available at: <http://www.oncotarget.com/fulltext/8939>. <https://doi.org/10.18632/oncotarget.8939>.
7. Bandeen-Roche K, Seplaki CL, Huang J, Buta B, Kalyani RR, Varadhan R, et al. Frailty in Older Adults: A Nationally Representative Profile in the United States. *J Gerontol Ser A Biol Sci Med Sci* [Internet]. 2015 [cited on Dec. 10, 2017];70(11):1427-34. Available at: <https://academic.oup.com/biomedgerontology/article-lookup/doi/10.1093/gerona/glv133>. <https://doi.org/10.1093/gerona/glv133>.
8. Da Mata FAF, Pereira PP da S, Andrade KRC de, Figueiredo ACMG, Silva MT, Pereira MG. Prevalence of Frailty in Latin America and the Caribbean: A Systematic Review and Meta-Analysis. *PLoS One* [Internet]. 2016 [cited on Dec. 10, 2017];11(8):e0160019. Available at: <http://dx.plos.org/10.1371/journal.pone.0160019>.
9. Carneiro JA, Cardoso RR, Durães MS, Guedes MCA, Leão Santos F, Costa FM da, et al. Fragilidade em idosos: prevalência e fatores associados. *Rev Bras Enferm* [Internet]. 2017 [cited on Dec. 10, 2017];70(4):780-5. Available at: <http://dx.doi.org/10.1590/0034-7167-2016-0633>.
10. Duarte MCS, Fernandes MGM, Rodrigues RAP, Nóbrega MML. Fragilidade, morbidade referida e capacidade funcional em mulheres idosas. *Rev Enferm UERJ* [Internet]. 2016 [cited on Dec. 10, 2017];24(2):e6801. Available at: <http://dx.doi.org/10.12957/reuerj.2016.6801>.
11. Freitas V, Sarges NE, Moreira CS, Carneiro R. Avaliação de fragilidade, capacidade funcional e qualidade de vida dos idosos atendidos no ambulatório de geriatria de um hospital universitário. *Rev Bras Geriatr Gerontol* [Internet]. 2016 [cited on Dec. 20, 2017];19(1). Available at: <http://dx.doi.org/10.1590/1809-9823.2016.14244>.
12. Dent E, Lien C, Lim WS, Wong WC, Wong CH, Ng TP, et al. The Asia-Pacific Clinical Practice Guidelines for the Management of Frailty. *J Am Med Dir Assoc* [Internet]. 2017 [cited on Dec. 20, 2017];18(7):564-75. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S1525861017302414>.
13. Bertolucci PHF, Brucki SMD, Campacci SR, Juliano Y. O Mini-Exame do Estado Mental em uma população geral: impacto da escolaridade. *Arq Neuropsiquiatr* [Internet]. 1994 [cited on Jun. 20, 2017];52(1):1-7. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0004-282X1994000100001&lng=pt&tlng=pt.
14. Folstein M, Folstein S, McHugh P. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* [Internet]. 1975 [cited on Jun. 20, 2017];12(3):189-98. Available at: [http://dx.doi.org/10.1016/0022-3956\(75\)90026-6%0A](http://dx.doi.org/10.1016/0022-3956(75)90026-6%0A).
15. Fabricio-Wehbe SCC, Cruz IR, Haas VJ, Diniz MA, Dantas RAS, Rodrigues RAP. Reproducibility of the Brazilian version of the Edmonton Frail Scale for elderly living in the community. *Rev Lat Am Enfermagem* [Internet]. 2013 [cited on Dec. 20, 2017];21(6). Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692013000601330&lng=en&tlng=en. <http://dx.doi.org/10.1590/0104-1169.2933.2371>.
16. Chen S, Honda T, Chen T, Narazaki K, Haeuchi Y, Supartini A, et al. Screening for frailty phenotype with objectively-measured physical activity in a west Japanese suburban community: evidence from the Sasaguri Genkimon Study. *BMC Geriatr* [Internet]. 2015 [cited on Dec. 20, 2017];15(1). Available at: <http://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-015-0037-9>.
17. Perna S, Francis MDA, Bologna C, Moncaglieri F, Riva A, Morazzoni P, et al. Performance of Edmonton Frail Scale on frailty assessment: its association with multi-dimensional geriatric conditions assessed with specific screening tools. *BMC Geriatr* [Internet]. 2017 [cited on Dec. 20, 2017];17(1). Available at: <http://dx.doi.org/10.1186/s12877-016-0382-3>.
18. Fhon JRS, Rodrigues RAP, Santos JLF, Diniz MA, Santos EB, Almeida VC, et al. Factors associated with frailty in older adults: a longitudinal. *Rev Saúde Pública* [Internet]. 2018 [cited on Dec. 20, 2017];52:74. Available at: <http://dx.doi.org/10.11606/S1518-8787.2018052000497>.
19. Carneiro JA, Ramos GCF, Barbosa ATF, Mendonça JMG, Costa FM, Caldeira AP. Prevalence and factors associated with frailty in non-institutionalized older adults. *Rev Bras Enferm*. 2016;69(3). <http://dx.doi.org/10.1590/0034-7167.2016690304j>.
20. Wang C-J, Hung C-H, Tang T-C, Chen L-Y, Peng L-N, Hsiao F-Y, et al. Urinary Incontinence and Its Association with Frailty Among Men Aged 80 Years or Older in Taiwan: A Cross-Sectional Study. *Rejuvenation Res* [Internet]. 2017 [cited on Dec. 20, 2017];20(2). Available at: <http://online.liebertpub.com/doi/10.1089/rej.2016.1855>. <https://doi.org/10.1089/rej.2016.1855>.

21. Cesari M, Prince M, Thiyagarajan J, De Carvalho I, Bernabei R, Chan P, et al. Frailty: An Emerging Public Health Priority. *J Am Med Dir Assoc* [Internet]. 2016 [cited on Dec. 20, 2017];17(3):188-92. Available at: <https://doi.org/10.1016/j.jamda.2015.12.016>.
22. Sousa JAV de, Chuertnick JA, Grden CRB, Barreto MFC, Reche PM. Frailty syndrome and risk of falls among the elderly: a descriptive study. *Online Braz J Nurs* [Internet]. 2015 [cited on Dec. 20, 2017];14(4). Available at: <http://www.objnursing.uff.br/index.php/nursing/article/view/5119>. <https://doi.org/10.17665/1676-4285.20155119>.
23. Veronese N, Stubbs B, Noale M, Solmi M, Pilotto A, Vaona A, et al. Polypharmacy Is Associated With Higher Frailty Risk in Older People: An 8-Year Longitudinal Cohort Study. *J Am Med Dir Assoc* [Internet]. 2017 [cited on Dec. 20, 2017];18(7):624-8. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S1525861017301044>. <https://doi.org/10.1016/j.jamda.2017.02.009>.
24. Fhon JRS, Rodrigues RAP, Neira WF, Huayta VMR, Robazzi ML do CC. Fall and its association with the frailty syndrome in the elderly: systematic review with meta-analysis. *Rev da Esc Enferm USP* [Internet]. 2016 [cited on Dec. 20, 2017];50(6). Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342016000601005&lng=en&tlng=en. <http://dx.doi.org/10.1590/s0080-623420160000700018>.
25. Fabrício-Wehbe SCC, Rodrigues RAP, Haas VJ, Fhon JRS, Diniz MA. Association of frailty in hospitalized and institutionalized elderly in the community-dwelling. *Rev Bras Enferm* [Internet]. 2016 [cited on Dec. 20, 2017];69(4). Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672016000400691&lng=en&tlng=en. <http://dx.doi.org/10.1590/0034-7167.2016690411i>.

