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Valuation of fall risk factors by elderly

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Abstract:-
Background: Falls are the most reported adverse event in nursing homes. Reduction in fall prevalence, risk factor control and implementation of preventive measures are emergent and it is a public health challenge, because falls are the fifth cause of death in elderly.
To assess the elderly opinion about frequency of each factor contributes to fall. To relate the elderly opinion regarding the frequency that each factor contributes to fall with age, gender, to have fallen before institutionalization, duration of institutionalization and, to have information regarding risk factors.
Methods: This is a correlational study. The created scale was subject to appreciation of experts and to pre-test. Posteriorly, it was validated and the study was conducted with a sample of 156 elderly from six nursing homes. In addition, a structured interview constituted by sociodemographic data and the scale for Valuation of fall risk factors by elderly (built and validated in this study) was conducted. During the conduction of this study, we met all principles from the Helsinki declaration.
Results: The instrument presents good psychometric characteristics. Elderly value changes in balance, chronic diseases, and changes in blood pressure as major risks to fall. Those who had information, value changes in conscience state (p=0.037) and difficulties to walk (p=0.026).
Conclusions: Appreciation, or not, of risk factors by elderly can influence fall prevalence and adherence to prevention programs.

Keywords: Falls; Elderly; Risk Factors; Scale.

Introduction

Fall is a complex problem of multifactorial etiology, resulting from an interaction between individual or intrinsic factors and environmental ones.[1]

Authors classified risk factors as intrinsic (mobility, pathologies, incontinence and medication) and extrinsic. These are subdivided as environmental, shoes and professional factors. Environmental ones include obstacles, luminosity, contrast and, absence of support bars. Professional ones include personal, training, and nursing primary care.[2]

Different risks intersect – creating a complex network of interactions between these factors and

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the secondary changes to aging process when, in many times, an exchange is created between what is risk and consequence. Thus, in many cases, what determines falls can change due to itself, for example, depressive symptoms can be a risk factor, but after the fall, it can appear as consequence of it.[3]

Researchers agree that prevention and control of this adverse event should be policy priority for health promotion of active aging; and training; clinical practice and, investigation should convert to solve this problem.

Beyond policies in a macro level, fall prevention and control in nursing homes should be a preoccupation for professionals and elderly[4] who should be actively involved in identifying risks and implementing preventive measures.

Identification of risk factors is a central element of any prevention program, Morse considers the major prevention challenge is to predict the fall, using an assessment instrument, overall to separate accidental from recurrent falls.[5] The risk assessment is more complex and hard in nursing homes than in hospitals.[4]

In a systematic review, researchers identified the assessment instruments used to determine the risk of fall in the elderly population. The authors concluded that researchers used different instruments to assess risk, isolated or in conjunct, since scales for fall risk assessment, scales and tests for functional assessment, assessment instruments for mental health and a check-list to identify individual factors that could predispose fall.[6]

Instruments of risk assessment lacks specificity related to individual risk factors. When an elderly has high risk of fall, when, where and why risk occurs, are not clear in the instrument. In addition, instruments assessing risk should effectively reduce fall risk.[7]

Despite the existence of evidence about risk factors and preventive measures, results from studies are not sufficient to comprehend this phenomenon's complexity, especially with institutionalized elderly, where beyond the multiple factors (intrinsic and extrinsic), practices, and behaviors of elderly and their caregivers increase variables of fall genesis.

On the other hand, in the assessment of elderly risk, they are stereotyped as a homogeneous group, when they are not. They are diverse, with different ages, with a unique experience of aging and for this reason, the approach in the management of fall risk should also be adequate to this heterogeneity[8], and the valuation of fall risk factors should also be valued different. We consider that valuing or not risk factors can interfere in safety practices and behaviors of elderly in the management of fall risk.

Facing the exposed, this study aims to assess the frequency that each factor contribute to fall, at elderly's opinion, regarding the frequency that each factor contributes to fall correlated to their age, gender, to have fallen before institutionalization, duration of institutionalization and to have information about risk factors.

Methods

Considering the objectives previously presented, we designed a correlational study.

Population and sample

The study population was seniors residing in institutions. Inclusion criteria were: people aged 65 years or more, without cognitive deficit, of both genders and, to freely consent the wish to participate in the study. To assess cognitive state, we applied the Portuguese version of the Mini Mental State Examination (MMSE).[9]

To determine the sample size and because of the intention to determine instrument characteristics to measure elderly opinion regarding the frequency that each factor contributes with fall, we used the criteria of 5 respondents per item.[10]

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One hundred and fifty six seniors residing in six nursing homes participated in the study with a response rate of 33.8% (total sample of 462).

Instrument

Considering that we did not identify an instrument to assess elderly opinion regarding the frequency that each factor contributes to fall, we decided to build one. Thus, we followed the steps described below.

To build the instrument and after identifying in the literature the main fall risk factors in nursing homes, three experts observed the equipment for elderly in order to help the selection of items to include in the scale. After building the first version of the scale, we recurred to the three experts and 21 seniors to test the comprehension by the targeted population (instrument's qualitative analysis). Participants were asked to pronounce about clarity of questions, difficulties in comprehending items and/or filling it, which allowed enhancement of items from shared comments, verification of item's comprehensibility and filling instructions, and analysis of interpretations.[10-11]

The instrument was constituted by two parts. The first with questions regarding demographic characteristics and, the second with the scale.

The final instrument application was conducted during a face-to-face interview, after completing the MMSE.

The scale version distributed to participants was constituted by 22 items. Participants were asked regarding how fall risk factors attribute to frequency of falls in their opinion, through a Likert type scale in which answers were as follows: (1) – does not contribute, (2) – contributes few times – 25%; (3) – contributes sometimes – 50%; (4) contributes many times – 75), (5) always contributes. Percentages were added to help seniors choosing answers.

The determination of psychometric characteristics will be presented and analyzed in the results section.

Ethical procedures

In order to conduct this investigation, we concretely respected ethical principals of the Helsinki protocol, the informed consent, privacy and confidentiality.[12]

Interviews were always conducted by the researcher, after the free and informed consent.

Results

One hundred and fifty-six elderly of both genders constituted the sample, 67.63% were women and 32.7% were men, of 81.2 years of mean age (SD: 6.7).

Most of the sample were of low education (29.5% were illiterate, 29.5% knew how to read and write, but did not complete an educational level).

When asked about the occurrence of falls after 65 years of age, and before entering the institution, 66% answered positively and 17.9% of the population had information about the risk of fall from this age.

From those who were informed, 67.5% obtained information through family and friends, 27.9% from health centers, and 4.7% from the media.

a) Psychometric characteristics of the scale

The Scale presented good internal consistency, presenting a good Cronbach's alpha for the 22 scale items (α=0,824). However, Cronbach's α values were found without the item similar to the total alpha value. Nevertheless, items were not excluded because its exclusion did not benefit its total value (Table 1).

Regarding Person's correlation values of each item with the total scale without the item, we verified values varying between 0.192 and 0.504.[10] It should be noted that although one of the indicators presented correlation values lower than 0.20, we opted for not excluding it because it was an important indicator for the study, and the correlation was significant ($p<0,05$) for this value considering the sample size.

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Table 1 – Pearson's correlation of scale items and Cronbach's alpha of items with total, without the item. Lisbon, Portugal, 2014.

Number and content of items	Person's correlation of the total without the item	Cronbach's α without the item
1. Changes in conscience state	.311	.820
2.Decrease of muscle strength	.325	.819
3.Difficulties to walk	.263	.821
4. Changes in balance	.355	.819
5.Changes in vision	.422	.815
6.Changes in hearing	.467	.812
7.Muscle and Joint pains	.353	.818
8.Medications	.286	.821
9.Anxiety	.338	.819
10.To not be able to perform Activities of Daily Living	.398	.816
11.Fear of falling	.353	.818
12.Sedentary behavior	.449	.813
13. To have a slimmed appearance	.497	.811
14.Feet problems	.324	.819
15.Incontinence	.479	.811
16.Innapropriate shoes	.313	.819
17.Tight clothing	.464	.812
18.Loose clothing	.438	.814
19.Chronic diseases	.192	.824
20.Older age	.504	.810
21.Fall in the past six months	.497	.811
22.Changes of blood pressure	.247	.822
Total alpha	0.824	

When conducting the factorial analysis in a sense to assess construct validity, we verified that although the good statistical criteria for diverse solutions found, we opted for considering it as uni-factorial because, when interpreting it, it did not make sense for us.

The scale scores between 22 and 110 points.

b) Elderly opinion about the frequency that each factor contributes with falling

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In the elderly opinion, risk factors that most contribute with falls (Table 2) are the decrease of muscle strength (4.57±0.84), changes in balance (4.57±0.73), chronic diseases (4.42±0.94), and changes of blood pressure (4.19±0.96).

The ones that least contribute and that appear signalized as being "few times" responsible for falls, are medications (1.92±1.26), to wear loose clothes (2.38±1.42), to have a slimmed aspect (2.47±1.29), changes in hearing (2.51±1.34), incontinence (2.63±1.45) and the muscle and joint pains (3.62±1.20).
We can verify that in total, indicators presented a score of 75.69 for attributed importance to fall risk factors by elderly, which is very far from the maximum expected value (110) (Table 2).
Table 2 – Elderly sample characteristics, according to valuation of fall risk factors. Lisbon, Portugal, 2014.

Number and content of items	M	SD
1.Changes in conscience state	3.88	1.28
2.Decrease of muscle strength	4.57	.84
3.Difficulties to walk	4.66	.66
4.Changes in balance	4.57	.70
5.Changes in vision	3.42	1.27
6.Changes in hearing	2.51	1.34
7.Muscle and joint pains	3.62	1.20
8.Medications	1.92	1.26
9.Anxiety	3.36	1.38
10.To not be able to perform Activities of Daily Living	3.12	1.38
11.Fear of falling	3.10	1.45
12.Sedentary behavior	3.06	1.36
13.To have a slimmed appearance	2.47	1.29
14.To have feet problems	4.06	1.10
15.To have incontinence	2.63	1.45
16.To not have shoes appropriate to feet characteristics	4.18	.98
17.To wear too tight clothing	2.76	1.42
18.To wear too loose clothing	2.38	1.42
19.To have chronic diseases	4.42	.94
20.To be older	3.60	1.39
21.To have fallen on the past six months	3.21	1.41
22.Changes in blood pressure	4.19	.96
Scale Total (22-110)	75.69	26.6

c) Relationship between risk factors valuation by elderly accordingly to age, gender, to have fallen before institutionalization, duration of institutionalization and to have information about risk factors

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After applying the Mann-Whitney U test, we verified a relationship between gender and few risk factors named anxiety, fear of falling and to have muscle and joint pain, at $p < 0.05$ (Table 3), where women value more anxiety (p=0.009), risk of falling (p=0.046) and to have muscle and joint pain (p=0.019).

Table 3 – Results of the Mann-Whitney U test application to the valuation of fall risk factors by seniors and their gender. Lisbon, Portugal, 2014.

Number and content of items	Female (N=105)	Male (N=51)	U	Z	P
	Mean of orders	Mean of orders			
1.Changes in conscience state	80.51	74.36	2466.500	-.846	.398
2.Decrease of muscle strength	81.14	73.06	2400.000	-1.359	.174
3.Difficulties to walk	80.11	75.19	2508.500	-.859	.390
4.Changes in balance	78.09	79.35	2634.000	-.200	.841
5.Changes in vision	81.19	72.97	2395.500	-1.095	.274
6.Changes in hearing	77.57	80.42	2579.500	-.381	.703
7.Muscle and joint pains	84.22	66.73	2077.000	-2.354	.019
8.Medications	76.94	81.72	2513.500	-.687	.492
9.Anxiety	84.92	65.27	2003.000	-2.614	.009
10.To not be able to perform Activities of Daily Living	78.08	79.37	2633.000	-.172	.863
11.Fear of falling	73.58	88.63	2161.000	-1.997	.046
12.Sedentary behavior	76.15	83.34	2430.500	-.959	.338
13.To have slimmer aspect	76.70	82.21	2488.500	-.735	.462
14.To have feet problems	76.76	80.60	2495.000	-.533	.594
15.To have incontinence	79.84	75.75	2537.000	-.546	.585
16. To not have shoes appropriate to feet	81.01	73.33	2414.000	-1.077	.281
17.To use too tight clothing	76.61	82.39	2479.000	-.768	.443
18.To use too loose clothing	73.66	86.85	2200.500	-1.787	.074
19.To have chronic diseases	80.44	74.51	2474.000	-.907	.364
20.To be older	74.63	86.46	2271.500	-1.590	.112
21.To have fallen in the past 6 months	78.54	78.41	2673.000	-.017	.986
22.Changes in blood pressure	77.69	80.17	8157.500	-.347	.728

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We did not found a significant statistical relationship (Mann-Whitney U Test) between the elderly opinion about the frequency of each risk factor and to have fallen or not before entering the institution ($p>0.05$).
We did not found significant statistical relationship between the elderly opinion regarding the frequency of each risk factor and age (Spearman's correlation). In relation to months of institutionalization, a positive and significant correlation was verified between age and to have a slimmer aspect. Those who were for longer time in the institution evaluated this indicator as contributing with higher frequency of falls (Table 4).

Table 4: Results of the Spearman's correlation related to the valuation of fall risk factors by elderly, their age, and time admitted in the institution. Lisbon, Portugal, 2014.

Number and content of items	Age	Months in the institution
1.Changes in conscience state	-.109	-.020
2.Decrease of muscle strength	.031	.137
3.Difficulties to walk	-.130	.123
4.Changes in balance	.038	.125
5.Changes in vision	.008	.098
6.Changes in hearing	-.014	.078
7.Muscle and joint pains	-.050	.108
8.Medications	-.002	-.008
9.Anxiety	-.037	.087
10.To not be able to perform ADL	-.014	.070
11.Fear of falling	-.113	-.103
12.Sedentary behavior	-.123	.056
13.To have slimmer aspect	.021	**.178***
14.To have feet problems	-.023	.045
15.To have incontinence	-.017	.084
16.To not have shoes appropriate to feet	-.031	.029
17.To wear too tight clothing	-.020	-.043
18. To wear too loose clothing	-.022	.011
19.To have chronic diseases	-.089	.006
20.To be older	-.038	.035
21.To have fallen in the past 6 months	.097	.038
22.Changes in blood pressure	-.115	-.003

The p values in Table 5 allow affirming that who had more information about fall risk factors more frequently value the changes in conscience state ($p=0.037$) and difficulties to walk ($p=0.026$), as fall risk factors.

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Table 5 – Results of the Mann-Whitney U test application related to the valuation of fall risk factors by elderly and to have or not information about risk factors. Lisbon, Portugal, 2014.

Number and content of items	Yes (n=28)	No (n=128)	-U	Z	p
	Mean of orders	Mean of orders			
1.Changes in conscience state	93.71	75.17	1366.000	-2.088	.037
2.Decrease of muscle strength	80.29	78.11	1742.000	-.299	.765
3.Difficulties to walk	91.27	75.71	1434.500	-2.222	.026
4.Changes in balance	78.27	78.55	1785.500	-.037	.971
5.Changes in vision	83.64	77.38	1648.000	-.683	.494
6.Changes in hearing	77.04	78.82	1751.000	-.195	.845
7.Muscle and joint pains	88.70	76.27	1506.500	-1.368	.171
8.Medications	74.13	79.46	1669.500	-.627	.530
9.Anxiety	77.11	78.80	1753.000	-.185	.853
10.To not be able to perform ADL	89.57	76.08	1482.000	-1.467	.143
11.Fear of falling	70.11	80.34	1557.000	-1.111	.267
12.Sedentary behavior	72.93	79.72	1636.000	-.740	.459
13.To have slimmer aspect	68.09	80.78	1500.500	-1.386	.166
14.To have feet problems	78.21	77.95	1772.000	-.030	.976
15.To have incontinence	85.34	77.00	1600.500	-.910	.363
16.To not have shoes appropriated to feet	77.39	78.74	1761.000	-.155	.877
17.To wear too tight clothing	67.46	80.91	1483.000	-1.461	.144
18.To wear too loose clothing	74.16	78.85	1670.500	-.520	.603
19.To have chronic diseases	82.25	77.68	1687.000	-.572	.567
20.To be older	83.80	77.34	1643.500	-.711	.477
21.To have fallen in the past 6 months	78.02	78.61	1778.500	-.064	.949
22.Changes in blood pressure	66.09	81.21	1444.500	-1.735	.083

Discussion

The scale presents psychometric characteristics with values considered good by reference authors.[10-1] The non-identification of a similar instrument makes it difficult to discuss the scale's characteristics.

The scale can score between 22 to 110 points. The higher values correspond to higher valuation of fall risk factors, considering each item being able to core between 1 and 5 in a Likert type scale.

The selection of items used in the scale came from fall risk factors identified in the literature as

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predictors of falls in nursing homes. We highlight that different investigations have presented different results about what predicts or not falls; although to have fallen on the past 12 months seems to be the best predictor of a new fall[6] it have not been identified in some studies.

The Assessment Scale of Frequency by Elderly in which each Risk Factor contributes with falls demonstrate the most contributing risk factors being the ones related to the processes of the musculoskeletal system, named as decrease of muscle strength (4.57±0.847), changes in balance (4.57±0.730) and difficulties to walk (4.66±0.669), as well as to have a sedentary behavior (3.06±1.368), that contributes to the loss of muscle strength, range of motion, changes in balance and loss of trust in the gait capacity.

One study identified seven predictors of fall in institutionalized elderly in the logistic regression model: MMSE< 17, OR=2.17; impulsive behavior higher or equal to 2, OR= 2.78; balance when standing up <6, OR=2.40; need of gait assistance, OR=2.07; fall in the previous year, OR=3.46; to take anxiolytic/hypnotic medication, OR=3.75 and to take antidepressant medication, OR=2.92.[13]
A meta-analysis of fall risk factors for elderly in nursing homes and in hospitals included 24 studies and concluded that while in hospitals falls are essentially associated to the history of falls (OR=2.85), in nursing homes, the association is with history of falls (OR=3.06), use of a gait assistance (OR=2,08) and moderate incapacity (OR=2.08).[14]

During the physiological aging process, diverse postural changes occur, contributing to risk increments as: forward head posture, shoulders protrusion, increase of thoracic kyphosis, lumbar rectification, tendency to abdominal ptosis and knee flexion,[15] provoking alterations of the support basis, of the gravitational center and, directly interfering on balance and gait quality.

In a study with a group of elderly who fell had a performance decrease in gait (TUGT, time of gait – 6 meters) and balance tests (One-Leg Standing Test; Tandem Walk Test), comparing with the group who did not fall.[16] Other study used the Tinneti Scale to assess balance and gait. Although none of elderly had scores lower to 19, 75% of the study population who fell at least once did not score 28, which led investigators to conclude that gait and balance changes are associated with fall and its recurrence. Seniors who were informed about fall risk factors valued in higher frequency difficulties to walk (p=0.026) as a fall risk factor.[17]

Mobility changes increased the risk of dependence of one to perform Activities of Daily Living (ADL). Elderly devalue this risk factor, considering not being able to conduct activities of daily living presenting a mean of 3.12±1.38.

In studies conducted by Duca, Antes and Hallal, authors verified the risk of fall being lower in independent ones and in dependents, it is higher for those who need partial help to perform ADLs. Elderly with functional incapacity between one and five ADLs presented a 46% higher probability to fall.[18] But in results of other research, the risk of fall progressively increase with the increment of dependence level, with exception of totally dependent elderly[3]. It seems that those who fell had lower scores in the modified Barthel scale.[13]
In a study conducted in an Inpatient Rehabilitation Unit using the Functional Independence Measure (FIM), authors verified the FIM score being inversely related to the rate of falls.[19]

To have a chronic disease is a risk factor of heavy weight (4.42±0.948) for elderly, following difficulties to walk, decrease of muscle strength and balance changes. Some investigations observe a positive association between the number of diagnoses and the increase of fall risk.[3]

Residents with Alzheimer (OR=0.23) and stroke (OR= 0.42) have lower incidence of falls with severe lesions.[3] On the other hand, authors did not find a statistical significance relationship between fall, depression and, stroke in a meta-analysis.[14]

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Changes in blood pressure (4.19±.969) are the fifth most valued risk by elderly, with evidence of the association of fall with consumption of hypotension medication.[20]

Cognitive decline has also been identified as a risk factor, that increases 5% for each less point in the MMSE, justifying the introduction of interventions to prevent cognitive decline of who has a MMSE< 24.[13] Many elderly consider cognitive decline being associated to risk of fall, translated in the scale's result as the mean answer was 3.88±1.28. Those who had information about fall risk factor valued more frequently the changes in conscience state (p=0.037) as a risk of falling.

The Body Mass Index can influence the occurrence of falls.[21] Elderly considered to have a slimmer aspect contributing 25 to 50% with the occurrence of falls, as the answers' mean was 2.47±1.295. [21] Those who are in institutions for longer contribute with higher frequencies of falls.[21]

Concerning changes in vision, elderly considered that sometimes these changes can contribute with falls (3.42±1.27). The literature points changes in vision making elderly more likely to fall.[22] In the normal aging process, there is ability's decline to assess depth and distance from objects, which interfere in avoiding obstacles.[23]

Changes in vision along with furniture color might not propitiate a clear contrast of limits between chairs or bed corners and the mattress color.[7] However, measuring only the vision acuity might not be sufficient to identify elderly in risk of falling, because there is no significant statistical relationship between falling and visual changes.[14] Although some investigators associate hearing changes to an increased risk of falling,[24] others do not find associations between them.[22]

Medication consumption is a less valued risk by elderly (1.92±1.266). There is evidence associating consumption of four or more medications and increase of fall risk, particularly if there is use of psychotropic medication.[25] This apparently devaluation by the elderly might be an indicative of not knowing the adverse events of some drugs. Future studies should associate this devaluation, self-medication, and fall occurrence.

Elderly valued shoe as a risk factor (4.18±.980), more than inadequate clothing, once they refer that too tight clothing contributing sometimes (2.76±1.424) and wearing lose clothing few times (2.38±1.428) for fall episodes. Future investigations should explore clothing and shoe characteristics and its associations with falls.

After a fall episode, even if there is no lesion, elderly can develop fear of falling again. This condition can lead to limiting their activities, to reduction of mobility and physical fitness, consequently increasing the risk of falls.[26]

The apparently devaluation of some risk factors considering that total indicators had a score of 75.69, what is found far from the maximum expected value (110), could be associated to elderly low education level, as well as with low literacy, but it was not the objective of this study to relate these aspects. There is a need to explore if this devaluation of risk is related to the idea of falling as a "natural consequence" of aging, as well as the association between risk valuation and prevalence of falls.

Future studies should explore this association, as well as to explore the association among genders, the scale scoring and falling, once women value more anxiety (p=0.009), and fear of falling (p=0.046) and to have muscle and joint pain (p=0.019).

Conclusions

The scale that we built and validated revealed a good internal consistency, presenting a good Cronbach's alpha for a total of 22 items of the scale (α=0.824), allowing elderly opinion regarding the frequency that each factor contributes to falls.

The scale can score between 22 and 110 points, it allows discriminating the total attributed importance, but also the individual analysis of

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each item. It should be noted that in the total elderly sample, it was scored 75.69 points in a total of 110 possible points, pointing to risk devaluation.

For the elderly, risk factors that contributed with higher frequency contributing to falls are decrease of muscle strength, changes in balance, chronic diseases, and changes in blood pressure. The least valued are the medications, loose clothing, to have a slimmer aspect, changes in hearing and incontinence.

Women value more anxiety, fear of falling and, having muscle and joint pain, as falling risk factors.
The valuing of risk factors is independent of having or not suffered falls before entering the institution.

Elderly who fell valued more difficulties to walk and to have chronic diseases as risk factors.
Future studies should associate the attributed importance given by each elderly to risk factors with their individual story of falls, to associate its occurrence to the risk valuation and adoption of safe behaviors.

Due to the gravity of its consequences for elderly functional decline, it is important to explore all variables that can help clarifying causes and elderly behavior to prevent falls.

We suggest the use of this scale in studies associating the risk of falling, to determine if the little importance that elderly give to risk factors can constitute itself an additional falling risk.

In clinical practice, this scale can guide professionals to educate elderly about risk factors, once who had information about risk factors before entering a nursing home value with more frequency the changes in conscience state (p=0.037) and difficulties to walk (p=0.026) with falling risk factors.

References

1. Al-Aama T. Falls in the elderly: Spectrum and prevention. Canadian Family Physician - Le Médecin de Famille Canadien. 2011;57(7),771-776.
2. Teresi JA, *et al*. Comparative effectiveness of implementing evidenced-based education and best pratices in nursing homes: effcts on falls, quality-of-life and societal costs. International Journal of Nursing Studies. 2013;50(4),448-463. doi: http://dx.doi.org/10.1016/j.ijnurstu.2011.07.003
3. Damián J, Pastor-Barriuso R, Valderrama-Gama E, and Pedro-Cuesta J. Fators associated with falls among older adults living in institutions. BMC Geriatrics. 2013;13(6); Retrieved november, 11, 2014, from: http://www.biomedcentral.com/1471-2318/13/6
4. Duffy A. The assessment and management of falls in residential care settings. British Journal of Nursing. 2013;22(5),259-263. doi: http://dx.doi.org/10.12968/bjon.2013.22.5.259
5. Morse J. Preventing Patient Falls (2th ed). 2009. New York: Springer Publishing Company.
6. Baixinho CL, and Dixe MªA Instrumentos de Avaliação do Risco de Queda na População Idosa – Revisão Sistemática de Literatura. International Journal of Developmental and Educational Psycology, 2012;1(4),383-391.
7. Nitz J. *et al*. Outcomes from the implementation of a facility-specific evidence-based falls prevention intervention program in residential aged care. Geriatr Nurs.2012;33(1),41-50. doi: 10.1016/j.gerinurse.2011.11.002
8. Hanson H, Salmoni AW, and Doyle PC. Broadening our understanding: Approaching falls as a stigmatizing topic for older adults. Disability and Health Journal, 2009;2(1),36-44.

DOI:10.18535/ijmsci/v3i12.16

doi: http://dx.doi.org/10.1016/j.dhjo.2008.11.001

9. Guerreiro M, Silva A, Botelho A, Leitão O, Castro-Caldas A, and Garcia C. Adaptação Portuguesa do Mini Miental State- MMS. 1993. Lisboa: Laboratório de Estudos de Linguagem do Centro de Estudos Egas Moniz.

10. Waltz C, Strickland O, and Lenz E. Measurement in Nursing and Health Research (4th. Ed.). 2010. New York: Springer Publishing Company.

11. Streiner DL, Norman GR Health and Measurement Scales. A practical guide for their development and use (4th ed.). 2008. Oxford: Oxford University Press.

12. World Medical Association. WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects. 2013; Retrieved july, 7, 2015, from: http://www.wma.net/en/30publications/10policies/b3/,

13. Whitney J, Close JCT, Lord S, and Jackson SHD. Identification of high risk fallers among older people living in residential care facilities: a simple screen based on easily collectable measures. Archives of gerontology and Geriatrics. 2012;55,690-695. doi: http://dx.doi.org/10.1016/j.archger.2012.05.010

14. Deandrea S, Bravi F, Turati F, Lucenteforte E, Vecchia C, and Negri E. Risk fators for falls in older people in nursing homes and hospitals. A systematic review and meta-analysis. Archives of Gerontology and Geriatrics. 2013;56(3),407-415. doi: http://dx.doi.org/10.1016/j.archger.2012.12.006

15.Silvério ALS, and Generoso CKP. Associação entre autopercepção de déficits visual e auditivo e ocorrência de quedas em idosos na cidade de Juiz de Fora, Minas Gerais. 2011. Monografia, Faculdade de Fisioterapia - Universidade Federal de Juiz de Fora, Brasil.

16. Shimada H, *et al*. Physical fators underlying the association between lower walking performance and falls in older people: a structural equation model. Archives of Gerontology and Geriatrics. 2011;53(2),131-134. doi:10.1016/j.archger.2010.11.003

17. Piovesan AC, Pivetta HMF, and Peixoto JMB. Fatores que predispõem a quedas em idosos residentes na região oeste de Santa Maria. Rev. Bras. Geriatr. Gerontol. 2011;14(1),75-83. doi: http://dx.doi.org/10.1590/S1809-98232011000100009

18. Duca GF, Antes DL, and Hallal PC. Quedas e fraturas entre residentes de instituições de longa permanência para idosos. *Rev Bras Epidemiol*. 2013;16(1),68-76.

19. Forrest G, Huss S, Patel V, Jeffries J, Myers D, Barber C, and Kosier M. Falls on an Inpatient Rehabilitation Unit: Risk Assessment and Prevention. Rehabilitation Nursing, 2012;37,56–61. doi: 10.1002/RNJ.00010

20. Biazus M, Balbinot N, and Wibelinger LM. Avaliação do risco de quedas em idosos. RBCEH, 2010;7(1),34-41. doi:10.5335/rbceh.2010.004

21. Grávalos GJD, Vásquez CG, Pereira VA, Payo RA, Araujo SA, and Hermida SR. Fatores asociados con la aparición de caídas en ancianos institucionalizados:un estudio de cohortes. Rev Esp Geriatr Gerontol. 2009;44(6),301–304. doi:10.1016/j.regg.2009.06.013

22. Farias MM. Vidmar MF, and Wibelinger LM. Risco de quedas em mulheres idosas com

DOI:10.18535/ijmsci/v3i12.16

osteoartrose de joelho. Revista Brasileira de Ciências da Saúde, 2011;9 (27),7-13.

23. Menant JC, George RJ, Fitzpatrick RC, and Lord SR. Impaired depth perception and restricted pitch head movement increase obstacle contacts when dual-tasking in older people. J Gerontol A Biol Sci Med Sci. 2010;65(7),751-757. doi: 10.1093/gerona/glq015

24. Kuang TM, *et al*. Impairment and falls in the elderly: the shihpai eye study. Clin. Med. 2008;71(9),467-472. doi: 10.1016/S1726-4901(08)70150-3

25. Bleijlevens MH, Hendriks MR, Van Haastrgt JC, Crebolder HF, and Van Eijk JT. Lessons learned from a multidisciplinary fall-prevention programme: The occupational-therapy element. Scandinavian Journal of Occupational Therap. 2010;17(4),319–325. doi: 10.3109/11038120903419038

26. Bridebaugh S, and Kressing R. Laboratory Review: The Role of Gait Analysis in Seniors' Mobility and Fall Prevention. Gerontology. 2011;57(3), 256-264. doi: 10.1159/000322194

DOI:10.18535/ijmsci/v3i12.16