

MULTIDIMENSIONAL ASSESSMENT OF OLD PEOPLE OF VERY LOW INCOME IN ARGENTINA

Jauregui JR^{1,3}, Lavalle R², Musso CG³, Kaplan R^{3,4}

¹Head Geriatric Section ²Community and Family Medicine Department - Hospital Italiano of Buenos Aires.

³Geriatric Division - Hospital italiano of San Justo, Agustín Rocca.

⁴Professor in Geriatric Medicine, Buenos Aires University School of Medicine, Argentina and Salamanca University School of Medicine, Spain.

[carlos.musso @ hospitalitaliano.org.ar](mailto:carlos.musso@hospitalitaliano.org.ar)

Rev Electron Biomed / Electron J Biomed 2011;1:(in press)[Spanish version](#)

[Comment of the reviewer José Luis Hernández Caceres PhD.](#) Profesor Titular de la Universidad Médica de La Habana. Cuba.

[Comment of the reviewer Dr. Ignacio Martínez Sancho MD.](#) Family Medicine Specialist. Centro de Salud "Gamonal Antigua". Burgos, España.

SUMMARY Objective: To describe the functional state, socio-economic status, and environmental situation of a very poor elderly (older than 65 years old) population in Argentina, and its relationship with their autonomy. **Methods:** This was a descriptive and prospective study, the applied instrument was the Spanish Red Cross Scales. The above mentioned evaluation was completed by applying a second instrument for social evaluation described by Marin et al in Chile in 1994. Besides, other general information was collected from the studied population such as: environmental, family, and social conditions. A group of inhabitants of a shanty town was evaluated. Statistical analysis was based on Chi-square test, while Student t test or non parametric one were applied on the data depending on their distribution. **Results:** A sample of 219 people, with a mean value age of 69.6 years old, was functionally evaluated using the Spanish Red Cross Scale, being the obtained data classified by age (less or older than 75 years old), education, income, and gender. There was no statistical difference between both age groups in any scale value (p=NS, ANOVA-Bonferroni). **Conclusion:** No significant difference was found in the functional state, capability for performing daily life activities, cognitive state among the studied people depending on their age, gender, educational level and economic income.

KEY WORDS: Old people. Functional state. Low income. Autonomy

RESUMEN: VALORACIÓN GERIÁTRICA DE ANCIANOS DE MUY BAJOS RECURSOS SOCIO-ECONÓMICOS EN LA ARGENTINA

Objetivos: Describir el estado funcional, socio-económico y la situación ambiental de una población muy pobre de ancianos (mayores de 65 años) de Argentina, y su relación con su autonomía. **Métodos:** Se trata de un estudio descriptivo y prospectivo. El instrumento empleado fue la escala de la Cruz Roja en español. La evaluación arriba mencionada fue completada aplicando un segundo instrumento para evaluación social descripto por Marin y colaboradores en Chile en 1994. Además, se recolectó información general de la población estudiada, como: condiciones ambientales, familiares y

sociales. La comparación estadística se realizó mediante prueba de Chi-cuadrado, mientras que el test de Student o un test no paramétrico fue empleado según la distribución de los datos. **Resultado:** De una muestra de 219 personas, con una edad media 69 ± 6 años, se obtuvo la evaluación funcional de cada uno de ellos aplicando la escala de la Cruz Roja, clasificando los datos según la edad (mayor o menor de 75 años), educación, ingreso económico y género. No se halló diferencia estadísticamente significativa entre los grupos etareos comparados, en ninguna de las escalas aplicadas ($p=NS$, ANOVA-Bonferroni). **Conclusion:** No se halló diferencia estadísticamente significativa entre las personas estudiadas ni en los estados funcionales, habilidad para realizar tareas de la vida diaria, ni estado cognitivo en función de su edad, género, nivel educativo y económico. **PALABRAS CLAVE:** Valoración funcional. Geriátrica. Escasez de recursos económicos.

INTRODUCTION Global geriatric assessment (GGA) is the interdisciplinary diagnostic process dedicated to determine medical, psico-social, functional and environmental resources in the elderly, in order to develop a long term global treatment and follow up plan to improve the evolution of the frail one¹This instrument has been used by geriatrics in Great Britain since 1946, and finally ratified in 1987 as a tool powerful enough to detect the multiple problems of the elderly patients². The GGA appears as an answer to the high prevalence of undiagnosed needs of reversible or preventible dysfunctions and dependences which escape from the traditional biomedical clinical assessment. It is multidimensional and dynamic, which quantifies the skills as well as the important alterations of the medical, functional, mental, and social sphere. The GGA allows for the knowledge of autonomy as well as the dependency degree and/or the need of assistance to perform daily activities. In order to obtain the best evaluation, it is recommended to use standardized and internationally validated instruments. In Argentina, there is no recorded information which assesses the functional capabilities in low income patients older than 65 years old, but there is published information from neighbouring countries which shows tight relationship among age, poverty, and frailty³. The conditions which strongly influence in their autonomy are: age, physical condition, mental and functional state, the socioeconomic status, and the environment. The loss of this autonomy secondary to ageing, as well as to the loss of muscle mass (sarcopenia), multiple comorbidities, low income, restricted mobility, hostile environment, among other factors, lead to a situation of dependency and progressive illness difficult to stop⁴⁻⁶. In Argentina there are 3030112 people older than 65 years old, 100000 of which are historically poor. Besides, 15 % of them are illiterate, and 75% only receive minimum pension⁷⁻⁹. Due to all which was exposed above, and with the objective of documenting a reality unusually reported in Argentina, we decided to evaluate the functional state of very poor elderly people in our country. Additionally, we had the aim of detecting factors associated to a successful ageing in a hostile environment. To this end we decided to apply internationally standardized assessment instruments to be able to evaluate daily life activities, cognitive state, instrumental daily life activities, and socio-economic status. We thought that obtaining the above mentioned information would be useful for planning how to administrate the available resources in a better way on this old and poor population^{2, 10}. **Objective:** To describe the functional state, socio-economic status, and environmental situation of a very poor elderly (older than 65 years old) population in Argentina, and its relationship with their autonomy.

MATERIAL AND METHODS: All the people who took part in this study were

anonymous volunteers. Inclusion criteria: Every old person who lived in the poor evaluated areas (historically poor), and accepted to be studied (geriatric test).

Applied instrument: The applied instrument was a complete survey to determine socio-demographic and environmental aspects, and the Spanish Red Cross Scales which allow to explore the following aspects of the enrolled people: their home, socio-environmental data and functional evaluation. This instrument, internationally validated, has sensitivity and specificity values close to 80%, and a correlation quotient (coefficient) of 0.8 or higher¹¹.

Such instrument requires a simple training to apply it, since the scales have a score between zero to five (zero being the worst and five being the best). In order to classify a patient under one of the six degrees of the scale, it is necessary to obtain the information which allows to include a patient in the degree which best reflects their situation. Neither the application of other scales nor its previous validation against other instruments was needed. The above mentioned evaluation was completed by applying a modified second instrument for social evaluation described by Marin et al in Chile in 1994¹². Besides, other general information was collected from the studied population such as: environmental, family, and social conditions.

Methodology :Design: This was an observational and prospective study, based on field epidemiology strategies. **Techniques and procedures for the collection of data:** In 2008 the instrument was applied to the inhabitants of a shanty town, located in the Province of Buenos Aires. The interviewers were Residents in General Medicine in Hospital Belgrano and participating physicians were from the Geriatrics Program of the Family and Community Medicine Service of the Hospital Italiano in Buenos Aires. The participating doctors were previously trained in the use of the above mentioned instrument. In 2009 the same instrument was applied to a group of inhabitants of San Justo in La Matanza, Province of Buenos Aires in the external offices of the San Justo branch of the Hospital Italiano Agustín Rocca. **Statistics:** Position and dispersion measurements were used in the sample description. To compare the proportions the Chi-square test was used, while Student t test or non parametric one were applied on the data depending on their normal or not normal distribution. The informatic programmes used for data processing were: Excel XP, Access XP and Fox Pro for Windows and Stata IC10.

RESULTS Two hundred and twenty seven persons accepted to participate out of the 250 people who were contacted in the chosen communities. Eight polls were ruled out because there were flaws in filling their forms. A sample of 219 people with a mean value age of 69 ± 6 years, and a median value of 67 years with a range of 65 - 91 years old. The sample was composed by 87 men with a mean value of age 69 ± 5 years, and a range 65-85 years old, and 132 women with a mean value of 70 ± 6 and a range of 65-91 years old (table 1). The average monthly individual income was 146.57 pesos, and the average monthly income in the family group of the elderly was 365.20 pesos while the basic needs in Argentina are covered with 700 pesos at that moment, equivalent to 180 American dollars⁹ (table 2). Regarding the Red Cross social and functional evaluation the following data was obtained which was classified by age (less or older than 75 years old), education, income, and gender (Table 3). There is no statistical differences between both age groups in any scale value (p=NS, ANOVA-Bonferroni). (Graphic 1) There is no significant difference between the groups (younger-older, male-female, low or high income, educated-illiterate) in those patients with normal functional status (p = 0.09). Besides, there is also no significant difference between the groups in those patients with abnormal functional status (scales 3-5) (p = 0.74) (Graphic 2-

5) Graphic 2

Graphic 3

Graphic 4

Graphic 5

DISCUSSION: Common sense says that we should not consider all members of specific age as equals, but time is not the only dimension by which we can measure life. Senescence is a process and old age represents a field with blurry boundaries. Then, ageing is different in each person due to the phenomenon called "interindividual variability"¹³. This process is multidimensional (biological, social, and psychological) in its positive aspects (growth and development) as well as in its negative ones (deterioration)¹⁴. One of the interrogants of Geriatrics is why do some individuals have a healthy ageing and others have a bad one, it means a shorter lifespan, or a more dependent one¹⁵. Based on these concepts, we decided to evaluate an aged population who were on a very poor socio-economic condition. Our findings were that there was no significant difference in the functional scale between the aged groups, but 8% difference ($p = NS$) was found in that scale between people younger than 65 years old and those older than 75. However, the above mentioned absence of significance could be related to the low number of people studied, or that the frail individuals would die remaining only the strongest (social resiliency). Besides, the absence of people older than 85 years old among this population could be attributed to their lower life expectancy due to their very poor socio-economic level⁷. This evaluated population was historically poor, so in a "Darwinian" point of view we possibly assess the survivals. It would be interesting to compare how ageing could affect people with a very poor socio-economic situation and those with a good one. Because of that, we are currently performing a new study comparing these people with a very educated and with high incomes group (beginning at 50 years old). Bibliography and clinical experience show us that population with healthy environment, since intra-uterus development to adult age, they get a healthier senescence.

CONCLUSION: We described the functional assessment, socio-economic level, and environmental situation of 219 persons who were older than 65 years old and of very low income who live in a poor neighbourhood in Buenos Aires suburbs. No significant difference was found in the functional state, capability for performing daily life activities, cognitive state among the studied people depending on their age, gender, educational level and economic

Conflict of interest: Authors declare not to have any conflict of interest in this paper, and that they are responsible for its results and their opinions

ACKNOWLEDGEMENTS: To Susana Kulberg MD, and Marina De la Iglesia MD from the Hospital Gral. Belgrano - General Medicine Department San Martin, Buenos Aires, Argentina, for their compromise with assessment of elderly people in extremely hard conditions. To Kimberly B Fischer, from Cornell University, School of Medicine as student, NY, USA for her help to amend this paper in the time she was in Buenos Aires, performing Geriatric research in our Department.

REFERENCES:

- 1.- Epstein AM, Hall JA, Besdine R, Cumella E Jr, Feldstein M, McNeil BJ, Rowe JW. The emergence of geriatric assessment units. The "new technology of geriatrics". *Ann Intern Med.* 1987;106:299-303.
- 2.- Rubenstein LZ. Exposing the iceberg of unrecognized disability. The benefits of functional assessment of the elderly. *Arch Intern Med.* 1987; 147:419-420.
- 3.- Marín RK, Somlai E, Valenzuela E, Castro A. Valoración geriátrica ambulatoria de 2116 adultos mayores pobres. *Rev Med Chile.* 1998. 126:609-614.
- 4.- Freedman VA, Martin LG,

Schoeni RF. Recent trends in disability and functioning among older adults in the United States: a systematic review. *JAMA*. 2002;288:3137-3146.5.- Parker MG, Thorslund M. Health trends in the elderly population: getting better and getting worse. *Gerontologist*. 2007 Apr;47(2):150-158.6.- Schoeni RF, Freedman VA, Martin LG. Why is late-life disability declining?. *Milbank Q*. 2008;86:47-89.7.- INDEC, B series, selected characteristics. Federal District. INDEC (Inst. Nac. de Estadística y censos): Buenos Aires, 2001.8.- INDEC, General Characteristics. Buenos Aires, 2001.9.- INDEC-CELADE, Projections of population according to gender and age; 1990-2010 Series 2, Demographic Analysis. INDEC: Buenos Aires, 2001.10.- Marín PP, Valenzuela E, Reyes P. Evaluación geriátrica de adultos mayores en un Hospital Universitario. *Rev Méd Chile* 1996; 122: 1362-1366.11.- González JI, Rodríguez C, Diestro P, Casado MT, Vallejo MI, Calvo MJ. Valoración funcional: comparación de la escala de Cruz Roja con el índice de Katz. *Rev Esp Geriat Geront* 1991; 26:197-202.12.- Marín PP, Valenzuela E, Saito N, Castro S, Hoyl T. Experiencia piloto en el uso de una ficha de evaluación geriátrica ambulatoria. *Rev Méd Chile* 1996; 124: 701-706.13.- Gavrilov LA, Gavrilova NS. Early-life programming of aging and longevity: the idea of high initial damage load (the HIDL hypothesis). *Ann N Y Acad Sci*. 2004 Jun;1019:496-501.14.- Guimaraes RM. Health capital, life course and ageing. *Gerontology*, 2007; 53:96-101.15.- Christensen K, Doblhammer G, Rau R, Vaupel JW. Ageing populations: the challenges ahead. *Lancet*. 2009;374:1196-208

Comment of the reviewer José Luis Hernández Caceres PhD. Full Professor. Havana Medical University. Cuba. Support provision to the most vulnerable ones is, beyond any faith or political point of view, essential for a civilized and fair society. In our global era, we know much about many indicators that apparently characterize a society (GDP per person, Human Development index, etc.). However, we know very little about the many aspects that allow knowing the real conditions that determine the health status of different sectors of a given population. In this connection, it is worth to praise the work completed by colleagues from the Republic of Argentina. We expect that this study can serve as a basis for similar research in other parts of Latin America. As the authors showed, obtained results are not always meeting the plausible expectation, and precisely this adds value to this study, since only knowing the real situation of such a vulnerable group is it possible to provide a support in accordance with their needs.

Comment of the reviewer Dr. Ignacio Martínez Sancho MD. Family Medicine Specialist. Centro de Salud "Gamonal Antigua". Burgos, España. Este interesante estudio nos introduce en la importancia de la valoración geriátrica integral (VGI), herramienta fundamental para conocer el grado de autonomía y de dependencia y por tanto, valorar la necesidad de ayuda que precisan los ancianos para la realización de las actividades diarias. Es bien conocida la relación entre edad, pobreza y deterioro funcional, por lo que los estudios que analizan las características de una valoración geriátrica son imprescindibles para la planificación de los cuidados sanitarios en esa población. Este estudio utiliza escalas validadas que permiten la evaluación funcional y mental en una población muy pobre de ancianos, no encontrando diferencias en ambas facetas en función de la edad, género, nivel educativo y económico.

Received: July 14, 2010. Received reviewed March 6, 2011
Published April 16, 2011