



RELATIONSHIP BETWEEN VIOLENCE AND COGNITIVE FUNCTION IN THE ELDERLY

RELAÇÃO ENTRE VIOLÊNCIA E FUNÇÃO COGNITIVA EM IDOSOS RELACIÓN ENTRE VIOLENCIA Y FUNCIÓN COGNITIVA EN ANCIANOS

Andréa Mathes Faustino¹, Leides Barroso Azevedo Moura², Lenora Gandolfi³

ABSTRACT

Objective: to determine whether there is a relationship between the elderly cognitive ability and exposure to situations of violence. **Method:** population-based cross-sectional study, descriptive, conducted with elderly individuals and application of validated instruments to assess situations of violence and cognitive ability. The statistical software SPSS, version 20, has been used for analysis. The associations between categorical variables were studied by using Pearson and Spearman's test at a 0.05 significance level. **Results:** 237 elderly individuals, aged from 60 to 93 years; 69% women; 44% illiterate. There was an association between cognitive test and type of violence suffered, with significant values for sexual violence (0.039/0.034), neglect (0.046/0.045), and self-neglect (0.012/0.008). **Conclusion:** there was an association between sexual violence, neglect, and self-neglect and changes in the elderly cognitive function. The study results reinforce the idea that social determinants of health must be considered when analyzing the relationship between cognitive function and violence among the elderly. **Descriptors:** Elder Abuse; Violence; Cognition; Evaluation.

RESUMO

Objetivo: determinar se existe relação entre a capacidade cognitiva de idosos e a exposição às situações de violência. **Método:** estudo transversal de base populacional, descritivo, realizado com idosos e aplicação de instrumentos validados para avaliar situações de violência e capacidade cognitiva. Utilizou-se o programa estatístico SPSS, versão 20, para a análise. As associações entre as variáveis categóricas foram estudadas por meio dos testes de Pearson e Spearman em nível de significância de 0,05. **Resultados:** 237 idosos, com idade de 60 a 93 anos; 69% mulheres; 44% analfabetos. Houve associação entre o teste cognitivo e tipo de violência que sofrem, com valores significativos para violência sexual (0,039/0,034), negligência (0,046/0,045) e autonegligência (0,012/0,008). **Conclusão:** houve associação entre a violência sexual, negligência e autonegligência e mudanças na função cognitiva de idosos. Os resultados do estudo reforçam a ideia de que determinantes sociais da saúde devem ser considerados na análise da relação entre função cognitiva e violência entre pessoas idosas. **Descritores:** Maus-Tratos ao Idoso; Violência; Cognição; Avaliação.

RESUMEN

Objetivo: determinar si existe una relación entre la capacidad cognitiva de ancianos y la exposición a situaciones de violencia. **Método:** estudio transversal basado en población, descriptivo, realizado con ancianos y aplicación de instrumentos validados para evaluar situaciones de violencia y capacidad cognitiva. Se utilizó el software estadístico SPSS, versión 20, para el análisis. Las asociaciones entre variables categóricas se estudiaron mediante el uso de pruebas de Pearson y Spearman a un nivel de significancia de 0,05. **Resultados:** 237 ancianos, con edad de 60 a 93 años; 69% mujeres; 44% analfabetos. Se observó una asociación entre la prueba cognitiva y el tipo de violencia que sufren, con valores significativos para violencia sexual (0,039/0,034), negligencia (0,046/0,045) y auto-negligencia (0,012/0,008). **Conclusión:** se observó una asociación entre la violencia sexual, negligencia y auto-negligencia y cambios en la función cognitiva de ancianos. Los resultados del estudio refuerzan la idea de que determinantes sociales de la salud deben ser considerados al analizar la relación entre función cognitiva y violencia entre ancianos. **Descriptor:** Maltrato al Anciano; Violencia; Cognición; Evaluación.

¹Nurse, Adjunct professor, Department of Nursing, University of Brasília (UnB). Coordinator, Center for Studies and Research of the Third Age (NEPTI), Center for Multidisciplinary Advanced Studies (CEAM). Brasília (DF), Brazil. Email: andreamathes@unb.br; ²Nurse, Adjunct professor, Department of Nursing, University of Brasília (UnB). Brasília (DF), Brazil. Email: lmoura@unb.br; ³Physician, Emeritus professor, Researcher, University of Brasília (UnB). Brasília (DF), Brazil. Email: l.gandolfi@yahoo.com

INTRODUCTION

Aging-related phenomena have been widely investigated, such as quality of life in old age, social determinants of health, political, economic, and social aspects. One area in the aging subject that needs to be further addressed concerns the violence suffered by the elderly and we have to consider the participation of many sectors of society in preventive actions.¹

Elder abuse is a public health issue, it is regarded as a violation of a major fundamental right of human beings, which is the right to a violence-free life. U.S. studies suggest that 1 out of 10 elderly individuals in the USA will undergo the experience of suffering domestic violence, and many will experience it in various forms. Evidence in the literature also suggests that situations of violence are more frequent among elderly individuals with cognitive impairment and dementia and that elder abuse associated with mortality is more usual among those with lower levels of cognitive function.²

In Europe, the scenario does not seem to be any different. A study on the prevalence of abuse and violence against elderly women involving five member countries of the European Union revealed that, on average, 28% of respondents experienced some kind of abuse. There was an association between violence and impaired physical and mental health, low-income household, non-participation in social activities, and loneliness.³

Elder abuse and domestic violence are more prevalent when elderly individuals have some degree of physical or mental impairment, prior history of a life pattern permeated by a relationship of violence, caregiver's stress, problems and difficulties arising from the routine itself, shared housing with other generations, material loss, social isolation, diseases, and consequent reduced functional and cognitive ability.⁴⁻⁸

Impaired cognitive function among the elderly has been associated with a larger number of events related to elder abuse characterized as self-neglect, however, this type of abuse, as well as many other geriatric syndromes, may occur at a continued functional decline of an elderly individual associated with other situations, such as in the presence of loss and bereavement or comorbidities, such as in cases of depressão.⁹ So, this study aims to:

- Determine whether there is a relationship between the elderly cognitive

ability and exposure to situations of violence in her/his daily lives.

METHOD

Population-based cross-sectional study, with a descriptive and observational nature, conducted with the elderly population provided with care at a primary health care (PHC) service, in the Metropolitan Region of Brasilia, Distrito Federal, Brazil.

The study area is characterized as a region of high social and economic vulnerability. Data from a regional census on the location pointed out that the per capita income was 1 minimum wage. As for the issue safety, the survey showed that 9.02% of the population suffered some type of violence in 2012, and the most common types of aggression among the victims were robbery and theft and that 57% of these cases took place in the streets.¹⁰

The elderly were individually addressed, after a medical appointment, in a reserved room, where the interviews were conducted face to face, with an average length of 50 minutes. Data collection was conducted within the period from July 2012 to November 2013.

The criteria for inclusion in the sample were: being ≥ 60 years old, both men and women, attending the health services within the collection period, having no diagnosis of any type of dementia or cognitive impairment, and agreeing to participate in the research.

To address violence, a data collection instrument was used, containing semi-structured questions validated by a group of assessors in gerontology.

The instrument consisted of sociodemographic and personal information and the types of violence were: psychological, physical, sexual, abandonment, neglect, financial abuse, and self-neglect.

The Mini-Mental State Examination[®] (MMSE), 2nd edition, was used to assess cognitive function. This is a scale that aims to help investigating possible cognitive deficits in individuals at risk of developing dementia, with scores adapted to Brazil according to the educational levels.¹¹

The MMSE consists of questions on various evaluative aspects of specific cognitive functions, grouped into 7 categories: orientation in time (5 points), orientation in space (5 points), immediate memory (3 points), attention and calculation (5 points), evocation, remembering the 3 words (3 points), language (8 points), and visual constructive ability (1 point). The scale ranges

from 0 to 30 points. For analysis purposes, the classification scores suggested by Brucki: for illiterates, minimum average score of 20; for educational level between 1 to 4 years, 25; from 5 to 8 years, 26.5; from 9 to 11 years, 28; for individuals with an educational level higher than 11 years, 29.¹¹

We used the statistical software SPSS, version 20, for all analyses. The associations between categorical variables were studied by using Pearson and Spearman's test at a 0.05 significance level.

This study complied with the national and international standards of ethics in research involving human beings and it was approved by the Research Ethics Committee (REC) of the Foundation for Research and Education in Health Sciences (FEPECS), under the Brazilian Certificate of Submission for Ethical Assessment (CAAE) 01365512.7.0000.5553.

RESULTS

The sample consisted of 237 elderly individuals. Most of them were women (69.9%), with an average age of 70.25 years (SD = 6.94 and range between 60 and 93

years). Regarding self-reported ethnicity, most were white-skinned (48.1%), 38% were married, and 31% were widowed. The predominant religion was Roman Catholic (62%). The low educational level (44% illiterates) observed is combined to the high distribution of elderly individuals from Northeastern Brazil, which is the region showing the largest migration flow to the country's capital. The monthly income was up to 1 minimum wage (46%) and 89% lived with at least 1 family member.

Overall, participants showed a low educational level. Combining the group of illiterates to those with up to 4 years of school education, we obtained a percentage of more than half (79.3%) of the elderly. As for the results of the MMSE testing, at all education levels the average was lower than expected when compared to the score levels, ending up 1 or 2 points below the minimum threshold grade (i.e. 20). The lowest average was found in the group of illiterates, which had an average of 19.7 points; the expected score was 20 (Table 1).

Table 1. Educational level and cognitive function in the MMSE*. Brasília, 2012-2013.

Educational level in years	N (%)	Average in the MMSE*	Minimum threshold in the MMSE*	Maximum threshold in the MMSE*
Illiterates	105 (44.3)	19.17	9	29
1-4	83 (35.0)	23.12	16	30
5-8	36 (15.2)	23.77	17	30
9-11	6 (2.5)	26.33	15	30
≥ 12 years	7 (3.0)	28.71	27	30

*MMSE: Mini-Mental State Examination.

Regarding the educational level and the distribution of situations of violence, which means herein any type occurred after 60 years of age, the highest percentage rates emerged among those who had a lower educational level, and it was observed in the group of

illiterates or people having 1 to 4 years of school education, something which represented 50.2% of the elderly. The prevalence of cases among elderly women who have suffered abuse was also noteworthy, with 72% of the sample (Table 2).

Table 2. Sex, educational level, and prevalence of violence. Brasília, 2012-2013.

Variables		Sex			
		Female		Male	
		Violence after 60 years		Violence after 60 years	
		Yes	No	Yes	No
		N (%)	N (%)	N (%)	N (%)
Educational level (years)	illiterates	46 (63.89)	26 (36.11)	17 (51.52)	16 (48.48)
	1-4	40 (67.80)	19 (32.20)	16 (66.6)	8 (33.4)
	5-8	21 (80.70)	5 (19.30)	5 (50.00)	5 (50.00)
	> 9	5 (62.50)	3 (37.50)	4 (80.00)	1 (20.00)

Statistically significant associations were found between the cognitive test and sexual violence, neglect, and self-neglect (Table 3). It was observed that, when participants have

some cognitive impairment, there is greater probability that they may undergo any type of elder abuse listed above.

Table 3. Score of the MMSE and types of violence. Brasília, 2012-2013.

Types of violence	Total score of the MMSE	
	Pearson	Spearman
Humiliation	0.097	0.101
Discrimination	0.061	0.067
Physical violence	0.124	0.119
Sexual violence*	0.039	0.034
Neglect*	0.046	0.045
Self-neglect*	0.012	0.008
Abandonment	0.080	0.073
Financial abuse	0.072	0.063
*Significant < 0.05		

Cognitive function may have a great influence concerning the situations of elder abuse, because in these cases they are no longer able to exercise self-care, requiring total or partial assistance or they are already in a situation of sexual abuse without consent, since there may be a decreased perception of the intensity of violence, as they are mentally impaired.

DISCUSSION

This study showed that, when elderly people have some cognitive impairment, there is a greater chance of abuse, particularly sexual, neglect, and self-neglect. The results also indicate that the lower the educational level, the greater the chance of being exposed to situations of violence in daily life, with the largest number of cases of abuse occurring among elderly women.

A limitation of this study is that the sample was not representative, so the results may not be generalized to Brazil as a whole. However, this study represents a region with characteristics similar to many cities across the country, such as low educational levels, low income, and co-residence with other family members. In addition, the study shows elderly Brazilians who experience various types of violence; this can lead to better information on situations of violence among this population and even encourage people to report abuse itself. Another limitation was the fact that in this sample the elderly sought the health service, so they had the physical ability to walk, thus facilitating access to a health facility. It was not possible to observe those with weakness or those with physical disabilities who managed to keep their cognitive ability and suffer from some sort of violence due to the difficulty of reaching a health facility.

Violence is a social determinant of health for elderly adults. It is associated with predictors of a decline in general health, considering that health could be affected by characteristics of the social context, since these factors that got into the domain of the

elderly relationships can trigger inequality and vulnerability.

Studies indicate that the prevalence of situations of violence among people in general, such as murder or violent argument, is twice as high when compared to these situations that take place in communities where social control is a part of their *modus operandi*.¹²

And when we notice a lack of social control in the denunciation and confrontation of violence, due to lack of social support networks, people seek solutions to situations of violence on an individual basis. Therefore, the issue of violence gains different dimensions in clashes between generations, because younger individuals get into environments with practices involving vulnerability to violence and the elderly are associated not only with the environment they live in, but also the changes brought about by the aging process, marked by drops in functioning, as well as changes in the economic and social status.¹³

From the viewpoint of the elderly psychological and mental health, those who have less social support show a greater chance of exposure to situations of abuse when compared to those who have preserved such functions.^{14,15}

Some studies claim that a higher proportion of elderly individuals suffer abuse when they have some cognitive impairment and/or dementia, and financial abuse is more often observed in this situation. The elderly are no longer able to take care of their finances, delegating this role to their family members or they are banned by their legal guardians and end up harmed.^{16,17}

There is also a relationship between depression and suffering violence; depression is a condition that weakens people not only mentally, but also physically, making them more fragile, something which makes the individual more exposed to situations of abuse. Moreover, the presence of symptoms of depression can lead to social isolation, which is another risk factor for abuse; hence the importance of the protective effect of social

Faustino AM, Moura LBA, Gandolfi L.

Relationship between violence and cognitive...

relationships on violence prevention. It is known that this condition of depression increases the risk of psychological violence and neglect.^{9,16}

Negligent acts against the elderly may be defined as “refusal or omission by those responsible for them to provide food, shelter, health care, or protection to a vulnerable elderly individual, and this vulnerability also includes the elderly with cognitive or mental disabilities,” and self-neglect is the “individual’s failure to provide essential services for himself as a result of physical or mental disability that can start with neurodegenerative and mental health issues, followed by changes in executive functions, and impaired daily life activities.”^{16,18}

These situations may be associated with inadequate support services for the elderly, due to lack of ability to care for and protect oneself or because extrinsic issues are observed, such as poverty or lack of social and family support, resulting in situations of self-neglect.¹⁸

Preserving cognitive ability in later life is a significant protective factor because it keeps the ability to take part in the decision making process, i.e. the preservation of autonomy. However, in cases where the elderly go through situations of isolation, suffering, and shame can have a major impact on the ability to make decisions for oneself, exposing her/him to abuse.^{19,20}

Some studies with elderly populations in inpatient units or long-term care institutions have found that the chance of abandonment increases when a cognitive impairment is associated with functional loss regarding self-care. Such situations require caregivers to provide a series of procedures for these rather dependent elderly individuals and caregivers reported feeling tired, frustrated, angry, and mentally exhausted, and domestic violence is one of the most common among the elderly.²¹⁻²⁴

Cognitive impairment includes memory impairment, mental confusion, hallucinations, paranoia, difficulty concentrating, or difficulty communicating, so it is not hard to understand why cognitive impairment can lead to physical abuse and verbal aggression.^{21,25}

CONCLUSION

This study showed a relationship between cognitive dysfunction and violence that people may suffer after 60 years of age among the Brazilian elderly. Sexual abuse, neglect, and self-neglect were the main types of violence

associated with cognitive function. At general levels, the elderly population under study had low educational levels and the study results reinforce the idea that the social determinants of health should be considered in the analysis of the relationship between cognitive function and exposure to violence in Brazil.

REFERENCES

1. Sanches APRA, Lebrão ML, Duarte YAO. Violência contra idosos: uma questão nova? *Saúde Soc* [serial on the internet]. 2008 [cited 2015 Dec 28];17(3):90-100. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-12902008000300010&lng=en
2. Dong X, Simon M, Rajan K, Evans DA. Association of cognitive function and risk for elder abuse in a community-dwelling population. *Dement Geriatr Cogn Disord* [serial on the internet]. 2011 [cited 2015 Oct 28];32(3):209-15. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3237103/?report=reader>
3. Donder LD, Lang G, Luoma ML, Penhale B, Alves JF, Tamutiene I, et al. Perpetrators of abuse against older women: a multi-national study in Europe. *Journal of Adult Protection* [serial on the internet]. 2011 [cited 2015 Oct 28];13(6):302-14. Available from: <http://www.researchgate.net/publication/235264349>
4. Duque AM, Leal MCC, Marques APO, Eskinazi FMV, Duque AM. Violência contra idosos no ambiente doméstico: prevalência e fatores associados (Recife/PE). *Ciênc Saúde Coletiva* [serial on the internet]. 2012 [cited 2015 Oct 28];17(8):2199-208. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232012000800030&lng=en
5. Machado JC, Ribeiro RCL, Cotta RMM, Leal PFG. Declínio cognitivo de idosos e sua associação com fatores epidemiológicos em Viçosa, Minas Gerais. *Rev Bras Geriatr Gerontol* [serial on the internet]. 2011 [cited 2015 Oct 28];14(1):109-22. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1809-98232011000100012&lng=en
6. Fraga S, Costa D, Dias S, Barros H. Does interview setting influence disclosure of violence? A study in elderly. *Age Ageing* [serial on the internet]. 2012 [cited 2015 Oct 28];41(1):70-5. Available from: <http://ageing.oxfordjournals.org/content/41/1/70.long>
7. Cooper C, Selwood A, Livingston G. The prevalence of elder abuse and neglect: a systematic review. *Age Ageing* [serial on the internet]. 2008 [cited 2015 Oct 28];37(2):151-

60. Available from: <http://ageing.oxfordjournals.org/content/37/2/151.long>
8. Cooper C, Selwood A, Blanchard M, Walker Z, Blizard R, Livingston G. Abuse of people with dementia by family carers: representative cross sectional survey. *BMJ* [serial on the internet]. 2009 [cited 2015 Oct 28];22(338):b155. Available from: <http://www.bmj.com/content/338/bmj.b155>
9. Dong X, Simon MA, Wilson RS, Mendes de Leon CF, Rajan KB, Evans DA. Decline in cognitive function and risk of elder self-neglect: finding from the Chicago Health Aging Project. *J Am Geriatr Soc* [serial on the internet]. 2010 [cited 2015 Oct 28];58(12):2292-9. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3059228/?report=reader>
10. Brasília (Distrito Federal). Pesquisa Distrital por Amostra de Domicílios [document on the internet]. 2013 [cited 2015 Oct 28]. Available from: http://www.codeplan.df.gov.br/images/CODEPLAN/PDF/pesquisa_socioeconomica/pdad/2013/Pesquisa%20PDAD-DF%202013.pdf
11. Brucki SMD, Nitrini R, Caramelli P, Bertolucci PHF, Okamoto IH. Sugestões para o uso do mini-exame do estado mental no Brasil. *Arq Neuropsiquiatr* [serial on the internet]. 2003 [cited 2015 Oct 28];61(3B):777-81. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0004-282X2003000500014&lng=en
12. Vial EA, Junges JR, Olinto MTA, Machado PS, Pattussi MP. Violência urbana e capital social em uma cidade no Sul do Brasil: um estudo quantitativo e qualitativo. *Rev Panam Salud Pública* [serial on the internet]. 2010 [cited 2015 Oct 28];28(4):289-97. Available from: http://www.scielosp.org/scielo.php?script=sci_arttext&pid=S1020-49892010001000008&lng=en
13. Gaviria MMR. Controle social expresso em representações sociais de violência, insegurança e medo. *Sociologias* [serial on the internet]. 2008 [cited 2015 Oct 28];12(20):72-107. Available from: <http://p.redalyc.org/articulo.oa?id=86819551005>
14. Geib LTC. Determinantes sociais da saúde do idoso. *Ciênc Saúde Coletiva* [serial on the internet]. 2012 [cited 2015 Oct 28];17(1):123-33. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232012000100015&lng=en
15. Amstadter AB, Begle AM, Cisler JM, Hernandez MA, Muzzy W, Acierno R. Prevalence and correlates of poor self-rated health in the United States: The National Elder Mistreatment Study. *Am J Geriatr Psychiatry* [serial on the internet]. 2010 [cited 2015 Oct 28];18(7):615-23. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2893408/>
16. Garre-Olmo J, Planas-Pujol X, Lopez-Pousa S, Juvinya D, Vila A, Vilalta-Franch J, et al. Prevalence and risk factors of suspected elder abuse subtypes in people aged 75 and older. *J Am Geriatr Soc* [serial on the internet]. 2009 [cited 2015 Oct 28];57(5):815-22. Available from: <http://dx.doi.org/10.1111/j.1532-5415.2009.02221.x>
17. Beach SR, Schulz R, Castle NG, Rosen J. Financial exploitation and psychological mistreatment among older adults: differences between African Americans and non-African Americans in a population-based survey. *Gerontologist* [serial on the internet]. 2010 [cited 2015 Oct 28]; 50(6):744-57. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3003550/>
18. Taylor RM, Forum on Global Violence Prevention, Board on Global Health, Institute of Medicine, National Research Council. Elder Abuse and Its Prevention: Workshop Summary [document on the internet]. 2014 [cited 2015 Oct 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK189833/>
19. Sandmoe A, Kirkevold M, Ballantyne A. Challenges in handling elder abuse in community care. An exploratory study among nurses and care coordinators in Norway and Australia. *J Clin Nurs* [serial on the internet]. 2011 [cited 2015 Oct 28];20(23-24):3351-63. Available from: <http://dx.doi.org/10.1111/j.1365-2702.2011.03863.x>
20. Pillemer K, Breckman R, Sweeney CD, Brownell P, Fulmer T, Berman J, et al. Practitioners' views on elder mistreatment research priorities: recommendations from a research-to-practice consensus conference. *J Elder Abuse Negl* [serial on the internet]. 2011 [cited 2015 Oct 28];23(2):115-26. Available from: <http://doi.org/10.1080/08946566.2011.558777>
21. Conner T, Prokhorov A, Page C, Fang Y, Xiao Y, Post LA. Impairment and abuse of elderly by staff in long-term care in Michigan: evidence from structural equation modeling. *Interpers Violence* [Internet]. 2011 [cited 2015 Oct 28];26(1):21-33. Available from: [10.1177/0886260510362880](http://dx.doi.org/10.1177/0886260510362880)

22. Jackson JL, Mallory R. Aggression and violence among elderly patients, a growing health problem. *J Gen Intern Med* [serial on the internet]. 2009 [cited 2015 Oct 28];24(10):1167-8. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2745572/>
23. Skirbekk V, James KS. Abuse against elderly in India: the role of education. *BMC Public Health* [serial on the internet]. 2014 [cited 2015 Oct 28];14:336. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3984634/?report=reader>
24. Rodrigues IS, Feitosa C, Guimarães D, Mendes P, Figueiredo M. Violence against the elderly in health research: an integrative review. *Rev Enferm UFPE On Line* [serial on the internet]. 2015 [cited 2015 Dec 29];9(3):7126-32. Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/7492>
25. Dong X, Simon M, Leon CM, Fulmer T, Beck T, Hebert L, et al. Elder self-neglect and abuse and mortality risk in a community-dwelling population. *JAMA* [serial on the internet]. 2009 [cited 2015 Oct 28];302(5):517-26. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2965589/>

Submission: 2015/12/29

Accepted: 2016/02/10

Publishing: 2016/05/01

Corresponding Address

Andréa Mathes Faustino
Universidade de Brasília
Campus Universitário Darcy Ribeiro
Faculdade de Ciências da Saúde
Departamento de Enfermagem, sala 5 – Asa
Norte
CEP 70910-900 – Brasília (DF), Brazil