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Morbid Conditions and Lifestyle of Climacteric Women

ORIGINAL

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Abstract

Introduction: Women experience aging in a peculiar way, as the climacteric is inherent in this phase of the female life cycle. This is a period characterised by functional, morphological and hormonal changes that affect the quality of life of women, as well as causing changes in the occurrence/prevalence of chronic diseases.

Objectives: To identify the most prevalent diseases in climacteric women in the city of Cajazeiras-Paraíba, Brazil, and the interference of lifestyle in the occurrence and progression of diseases such as systemic arterial hypertension (SAH) and diabetes in women investigated.

Method: This is a cross-sectional survey, in which data collection was carried out in an interview guided by structured script. The data collected were used in SPSS to statistically correlate the presence of at least one disease, systemic arterial hypertension (SAH) and diabetes versus meals/day, BMI, physical inactivity, smoking and alcohol consumption.

Results: The results showed statistical dependence between overweight/obesity with at least one disease ($p < 0.001$), SH ($p < 0.001$) and diabetes ($p = 0.016$), in addition to alcohol abuse with at least one disease ($p = 0.004$) and hypertension ($p = 0.005$).

Conclusion: The occurrence and progression of chronic diseases may be influenced by unhealthy lifestyle habits adopted by women. Thus, policies designed to promote the adoption of better living habits such as regular physical exercise and the abandonment of the use of harmful substances to the body, can interfere positively in the prevention/progression of the most prevalent chronic disease in climacteric.

Keywords
Climacteric; Lifestyle; Chronic Diseases.

Introduction

Population aging is one of the most significant trends of the twenty-first century, with important and far-reaching implications for all areas of society [1]. Thus, understanding the aging process of a population leads to the understanding of all the biopsychosocial aspects involving morbid paintings inherent to this population.

We consider that the increase in life expectancy is one of the major social achievements of modernity, not being privileged to some countries or classes, but a worldwide phenomenon. This implies greater longevity and a consequent increase in the time living with chronic diseases that limit and impair the quality of life of the elderly population [2].

Women age in a particular way because they experience perimenopause concurrent with the aging process. This transitional and critical period is characterised by the progressive hypoestrogenism which culminates in the final cessation of menstrual cycles [3]. It is a period of female biological evolution, characterised by menstrual, physical, bone, vasomotor, cardiovascular and psychological changes. Such changes may increase cholesterol levels and influence the emergence of many diseases, including cardiovascular disease and diabetes. These pathophysiological processes can directly affect the well-being of women, causing physical and emotional changes that can influence it in the workplace, culture, customs and personal characteristics [4]. Thus, it is necessary to understand how diseases manifest in this part of the population.

The entire Brazilian population has gone through an intense demographic transition, becoming a country with the highest prevalence in the elderly population. In less than 40 years, Brazil has a mortality scenario itself of a young population to a framework of complex and costly diseases, typical of the oldest countries, characterised by multiple chronic diseases that last for years, with demands constant care, continuous medication and periodic reviews [5].

From the presented epidemiological panel studies, the most prevalent chronic diseases prioritised in lines of care for diseases/risk factors are: reno cardiovascular diseases; diabetes; obesity; chronic respiratory diseases; and cancer (breast and cervix). Among the most prevalent are systemic arterial hypertension (SAH) and diabetes; chronicity of these diseases has a great economic impact on society, and a need for health promotion strategies and the detection of risk groups for preventive interventions [6].

Before the impact of these diseases in the elderly, there is a greater social focus on prevention, aimed not only at longer life expectancy, but at the health of the population [7].

Within the preventive model, risk factors for morbidity tables can be monitored by the lifestyles adopted, including options and decisions made by the individual with respect to their health and ways of living [8]. Thus, preventing tobacco use, the harmful use of alcohol and maintaining healthy habits such as healthy eating and physical activity reduce the risk of chronic diseases [9].

The study is justified by the extremely important research into the impact of the adoption of healthy habits on morbid conditions, as the increased occurrence of these diseases due to the aging population results in a greater demand for medical care, with a consequent increase in public spending on health.

Due to the lack of Brazilian studies on the subject and taking into account the specific nature of the population studied, this study aimed to identify the prevalence of morbid pictures in climacteric women of the city of Cajazeiras, Paraíba, Brazil, the diseases that affect this population and its relationship with the lifestyle adopted by these women.

Method

This is a cross-sectional study with a quantitative approach, performed in the Family Health Units

(BFHU) in the city of Cajazeiras - PB, from January 2013 to March 2014. This municipality is located in the high state of the hinterland, lies 476 km from the capital, has a land area of 566 km² and has 58,443 inhabitants, according to the latest census conducted by the Brazilian Institute of Geography and Statistics [10].

The sample of this research was calculated probabilistically, based on a sample calculation of finite population, adopting a significance level of 5% sampling error and 95% confidence interval, based on a population of 9996 women aged 35 to 65 years. The sample to be investigated was calculated to be 385 women; however, 543 interviews were performed. After applying the exclusion criteria, the final study included 396 women.

Women in the age group from 40 to 60 years who were enrolled in the health units of the municipality's family and who agreed to participate after reading and signing the informed consent were included. Those who had undergone hysterectomy and used hormone replacement therapy (HRT) and/or hormonal contraceptive and with the absence of climacteric symptoms were excluded.

To perform the data collection, interviews were performed, using a structured script as a template, and considering items that have identified socioeconomic, demographic, health indicators and the occurrence of climacteric symptoms.

Interviews were conducted in UBSF, taking advantage of the presence of women in units to perform cytological analysis, Hypertension Program consultation and Diabetes (HIPERDIA), and home visits with community health workers.

This study was a quantitative approach, analysing the variables statistically using the chi-squared test. The instruments of data collection were listed for the Statistical Package for Social Sciences (SPSS) version 17, free downloadable version. For the variables age, education and per capita income, the mean and standard deviation were identified.

The variables consisted of demographic data: age, education, income per capita, ethnicity, marital status, menopausal status, and Lifestyle: physical activity, meals/day, smoking, alcohol consumption and BMI; the data were obtained by morbid paintings by the interviewees' reports. The presence of hypertension and diabetes was confirmed by registering at the HIPERDIA program and the use of hypotensive and hypoglycaemic data.

The per capita income was obtained by dividing the sum total household income by the number of family components, with reference to the minimum wage in force at the time of actual data collection. Schooling was evaluated based on the total number of complete years of formal study. Regarding ethnicity, this was dichotomized as white or not white and marital situation was with or without a steady partner.

Smoking was defined as daily smoking, regardless of the number of cigarettes. Women who reported physical activity at least three times a week, with a minimum duration of 30 minutes, were considered not sedentary.

Alcohol consumption was defined as the use of alcohol at least once a week. To categorise daily feeding, those women who had up to three daily meals were distinguished from those who had four or more.

The Body Mass Index (BMI) was evaluated by applying the formula BMI = weight (kg)/height^2 (m^2). Patients were categorised as normal (18.5-24.9 kg/m^2), overweight (25.0-29.9 kg/m^2) and obese (≥30.0 kg/m^2) [11]. In this research, BMI was categorised into two classes: normal weight and overweight/obesity. This grouping was due to the fact that overweight is a predisposing factor for chronic diseases and obesity is a morbid factor that is therefore referred to by the WHO as a multifactorial origin of disease.

This research followed the ethical recommendations of Resolution 196/96 of the National Health Council, which deals with human research.

It is part of a research "Symptoms of menopause: severity and associated factors", which was approved by the Research Ethics Committee of the State University of Paraíba – UEPB, according to CAAE protocol number 0462.0.133.000-11, dated 14/09/2011. The subjects involved were guaranteed the freedom to choose whether to participate or not in the study, confidentiality and respect regarding the information collected, awareness of the results and the possibility to leave the study at any time without harm to the participant.

Results

The average age of the sample was 49.84 (± 5.80), with the range 40 to 60 years. Regarding menopausal status, 47.2% (n = 187) were women who had no menses for 12 months or more. Overall, 69.9% (n = 277) of women had a steady partner. As for per capita income, the average minimum wage was 0.71 (± 0.69). The average years of schooling was 7.63 (± 4.73) and 51.8% (n = 205) were caucasian (data not shown in table).

As shown in **Table 1**, of the 396 women interviewed, 47.5% (n = 188) reported some pathology of chronic degenerative character or hormonal disorder, 35.1% (n = 139) had systemic arterial hypertension (SAH) and 10.9% (n = 43) had diabetes, associated or not with other health problems. There were also women who had some kind of disease such as cancer, osteoporosis and hormonal disorders (thyroid), among others.

In the pursuit of understanding those factors affecting the occurrence of morbid conditions of the menopausal women surveyed, there was a correlation between the presence of at least one disease (1), SAH (2) and diabetes (3) with the lifestyle variables **(Table 2)**.

The correlation of morbid conditions with meals/day was not statistically significant. BMI showed an association with at least one disease and hypertension (p <0.001 in both), and diabetes (p = 0.016) **(Table 2)**.

Table 1. Distribution of conditions reports morbid climacteric women. Cajazeiras, PB.

Co-Morbid Conditions	n	%
n = 396		
At least one disease	188	47.5
Hypertension (SAH)	139	35.1
Diabetes	43	10.9
n = 396		
Only SAH	88	46.8
Only Cancer	4	2.1
Only Diabetes	14	7.4
Only Osteoporosis	18	9.6
Only hormonal disorder	8	4.3
SAH and cancer	1	0.5
SAH and diabetes	23	12.2
SAH and osteoporosis	13	6.9
SAH and hormonal disorder	6	3.2
Cancer and diabetes	1	0.5
Diabetes and osteoporosis	1	0.5
Osteoporosis and hormonal disorder	2	1.1
SAH and cancer and osteoporosis	1	0.5
SAH, diabetes and osteoporosis	3	1.6
SAH, diabetes and hormonal disorder	2	1.1
SAH, osteoporosis and hormonal disorder	1	0.5
Diabetes, osteoporosis and hormonal disorder	1	0.5
All of these diseases (n=188)	1	0.5

Source: Survey data, 2013-2014.

Table 2. List of morbid conditions with lifestyle variables.

Lifestyle variables	Comorbid Conditions						*p*
	At least one Disease (1)		SAH (2)		Diabetes (3)		
	n	%	n	%	n	%	
Meals Day							(1) 0.258
Up to 3	86	45.5	67	35.4	18	9.5	(2) 0.254
4 +	102	49.3	72	34.8	25	12.1	(3) 0.257
BMI							(1) <0.001
Overweight/ obesity	133	55.2	105	43.6	33	13.7	(2) <0.001
Proper weight	55	35.5	34	21.9	10	6.5	(3) 0.016

Lifestyle variables	Comorbid Conditions						*p*
	At least one Disease (1)		SAH (2)		Diabetes (3)		
	n	%	n	%	n	%	
Sedentary lifestyle							(1) 0.288
Yes	133	45.9	97	33.4	32	11.0	(2) 0.254
No	55	51.9	42	39.6	11	10.4	(3) 0.507
Smoking							(1) 0.986
Yes	39	47.6	27	32.9	11	13.4	(2) 0.372
No	149	47.5	112	35.7	32	10.2	(3) 0.403
Alcohol consumption							(1) 0.004
Yes	30	34.5	20	23.0	6	6.9	(2) 0.005
No	158	51.1	119	38.5	37	12.0	(3) 0.123

Source: Survey data, 2013-2014.

In relation to physical activity and smoking, there was no statistical significance in any of the variables correlated with morbid conditions **(Table 2)**.

When assessing the use of alcohol with morbid conditions, we found a statistical dependence with at least one disease (p = 0.004) and hypertension (p = 0.005) **(Table 2)**.

Discussion

The findings with respect to age, in this study, are approximate to that which has been found in other studies in Brazil, addressing postmenopausal women, with an average age of 48.9 years (± 6.27) [12].

The incipient amounts shown in the years of study and per capita income reveal the low socioeconomic status of women investigated. Evidence of this nature have been demonstrated in several studies that cover this topic in Brazil [13-14]. In turn, the significant number of women addressed in this study that had a fixed partner, represents a percentage consistent with other studies addressing sociodemographic factors in climacteric women [15].

In the present study, we investigated the presence of morbid pictures in climacteric women. The most prevalent diseases mentioned by them were hypertension, diabetes, cancer (and isolated or associated with other diseases), osteoporosis and hormone disorders (both isolated and/or associated with other diseases). A study conducted in Belo Horizonte with climacteric women between 40 and 65 years of age showed a rate of 28.4% and 6.7% for hypertension and diabetes, with both diseases relating to obesity and postmenopausal women [16].

It is known that, regardless of sex and stage of the life cycle in which each individual is, the determinants of their health condition are directly related to the adopted lifestyle. As perimenopause is an important phase in the female aging process, this denotes the value of knowing the components and factors that influence this important step, and the diseases that are most prevalent during this phase.

Although none of the morbidities show statistical significance with the amount of meals per day, it is known that the nutritional status and energy consumed during the day are determining factors in the presentation and progression of diseases.

In this sense, a study conducted in Pinheiral - RJ, Brazil, showed that 55% of surveyed women had a caloric intake which was below recommendations [17]. To support this, in a study with 200 women in Caxias do Sul - RS, it was demonstrated that the studied patients consumed 21.6 kcal/kg/day, which is also below recommended levels. However, this information has not been able to confirm a relationship with comorbidities or chronic diseases inherent in the climacteric, and consequently with aging [18].

The results found in this study may be explained by the fact that the investigation was restricted to asking about the number of meals eaten by women during the day. For different possible outcomes, more complex methods can be developed, such as the completion of questionnaires that inquire about the daily energy consumption, the different types of food consumed and the pattern of macro- and micronutrients in the diet.

Standing out from the extreme statistical dependence between BMI and the presence of at

least one disease are hypertension and diabetes, highlighting the high percentage of women who were overweight/obese. Corroborating the results found, a retrospective study that analysed the medical records of 272 patients treated at Multidisciplinary Outpatient Climacteric Hospital of the Ribeirão Preto Medical School - USP, during 1983 and 2007, found that 78% were overweight or obese. When asked about the disease, 83.5% were hypertensive, 39.4% were diabetic and 69% had dyslipidaemia [19].

In another study with 307 women treated at the Clinic of Gynaecology and University Hospital of Obstetrics ABC Paulista, it was shown that 33.6% had hypertension, 4.9% had type II diabetes mellitus, 5.2% had hypercholesterolaemia and 6.8% had cardiovascular disease (CVD); the mean BMI of the group was 27.3 (± 4.3) [20].

The relationship between the state of oestrogen deprivation, characteristic of menopause, weight gain and chronic diseases is evident. The changes that occur during menopause may be responsible for the emergence of diseases such as cancer, osteoporosis, sleep disorders, depressive symptoms, diabetes and hypertension. Thus, weight gain is related to the adoption of inappropriate food choices, predisposing climacteric women to chronic degenerative diseases [21]. It should be stressed that factors such as frequent weight gain associated with dyslipidaemia, hyperglycaemia, hypertension and insulin resistance favour the onset of metabolic syndrome.

Therefore, overweight and obesity in climacteric women is a public health problem in developed and underdeveloped countries. It is estimated that NCDs are responsible for 60% of deaths occurring worldwide. According to the Ministry of Health [22], in Brazil, NCDs account for 62.8% of deaths from known causes, noting that increasing BMI has a negative effect on the health of climacteric women, reducing welfare, causing difficult social integration, low self-esteem and social stigmatisation, and promoting a negative impact on quality of life. When correlated with the presence of any disease, hypertension or diabetes with regular physical exercise did not show any statistical dependence, despite the high number of interviewees categorised as sedentary. Even without a relationship between the variables, the influence of physical exercise in the prevention, presentation or progression of chronic diseases in the population is clear, especially in climacteric women [23].

In this sense, although the present study did not demonstrate statistical dependence between the presence of diseases and physical inactivity, it promotes the adoption of healthy lifestyle habits, especially physical activity, and seeking better health and quality of life.

Although smoking did not appear to be related to morbid conditions, research shows that smoking is responsible for 71% of lung cancer cases, 42% of chronic respiratory disease cases and 10% of cardiovascular disease cases [24].

However, exposure to tobacco smoke is a cardiovascular risk factor, and quitting smoking is probably the most effective natural lifestyle measure to prevent cardiovascular disease such as stroke and myocardial infarction [25].

Associating smoking with diabetes, some studies have sought to show tobacco use as a predisposing factor for diabetes. However, these were unsuccessful, showing that only people considered diabetic and smokers had higher chances of developing certain types of cancer, and diabetic nephropathy [26-27].

Alcohol use was the second variable that presented statistical dependence on the presence of morbid conditions in menopausal women in this research. The few studies that address this issue within specific populations hinder the verification of the data; however, there is evidence that correlates the abuse of alcohol and the prevalence of chronic diseases [8]. According to the Ministry of Health of Brazil, alcohol consumption has increased within the female population, predisposing them to deve-

lop several chronic diseases, including liver disease, cancers, and mental illness [28].

The relationship between alcohol consumption and hypertension was first described over 100 years ago when it was noticed that the sailors who drank litres of wine during the trips were more prone to high blood pressure [29]. However, the occurrence of hypertension secondary to alcohol ranges from 5% to 11%, in studies with different populations, suggesting the idea of potentially treatable causes of hypertension [30].

Relating alcohol use with diabetes did not demonstrate a statistical significance in this study, a fact confirmed by other analyses that, at most, have shown a tendency to a higher prevalence of diabetes among the study alcoholics [31].

One of the limitations of the research was the exclusion of women whose climacteric complaints were absent. However, climacteric symptoms are self-reported complaints; most are subjective in nature and therefore difficult to measure. They can often be overestimated or exacerbated by the participant at the time of collection.

In our study, most of the comparative studies were exploratory; therefore, the time at which the factors analysed arose could not be inferred which does not allow causality to be identified.

Conclusions

This study is innovative for suggesting, with a satisfactory sample of the population, that the adoption of healthy lifestyle habits can contribute to a better quality of life in menopausal women, and can reduce the impact and occurrence of chronic diseases.

Although there are limitations of this research because it was conducted at a single moment, without intervention, without following the study population, failing to have specific laboratory tests conducted, and self-reporting symptoms, the results raise hypotheses about morbid frames in climacteric that deserve further investigation. Due to the complexity of the issue in question, much remains to be investigated.

Finally, this study highlights the need to carry out further studies, since research showed statistical trends that can only be proven or disproved via a longitudinal survey and case-control studies, trying to demonstrate cause and effect of variables lifestyle with the diseases cited by the women investigated.

References

1. Fundo de população das Nações Unidas – UNFPA; Helpage international. Envelhecimento no Século XXI: *Celebração e Desafio*. Nova York; 2012. [cited 2015 dec 19]. Available from: https://www.unfpa.org/sites/default/files/pub-pdf/Portuguese-Exec-Summary_0.pdf.
2. Garcia MAA, Odoni APC, Souza CSS, Frigério RM, Merlin SS. Idosos em cena: falas do adoecer. *Interface: Comunic, Saúde, Educ*, 2005; 9(18): 537-552. DOI: 10.1590/S1414-32832005000300006
3. De Lorenzi DRS, Catan LB, Cusin T, Felini R, Bassani F, Arpini AC. Caracterização da qualidade de vida segundo o estado menopausal entre mulheres da região sul do Brasil. *Rev. Bras. Saúde Matern. Infant.*, 2009; 9 (4): 459-466. DOI: 10.1590/S1519-38292009000400011
4. Ministério da Saúde (Brasil). Secretária de Atenção à Saúde. *Manual de Atenção à Mulher no Climatério/Menopausa.* Brasília: Ministério da Saúde; 2008.
5. Veras R. Envelhecimento populacional contemporâneo: demandas, desafios e inovações. *Rev Saúde Pública* , 2009; 43 (3): 548-554. DOI: 10.1590/S0034-89102009005000025
6. Ministério da Saúde (Brasil). Secretaria de Atenção à Saúde. *Diretrizes para o cuidado das pessoas com doenças crônicas nas redes de atenção à saúde e nas linhas de cuidado prioritárias.* Brasília: Ministério da Saúde; 2013. 28 p. [cited 2015 dec 22]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/diretrizes_cuidado_pessoas_doencas_cronicas.pdf.
7. Parahyba MI, Veras R. Diferenciais sociodemográficos no declínio funcional em mobilidade física entre os idosos no Brasil. *Ciên. Saúde Coletiva* , 2008; 13 (4): 1257-1264. DOI: 10.1590/S1413-81232008000400022
8. Malta DC, Iser BPM, Claro RM, Moura L, Bernal RTI, Nascimento AF, et al. Prevalência de fatores de risco e proteção para doenças crônicas não transmissíveis em adultos: estudo transversal, Brasil, 2011. *Epidemiol. Serv. Saúde* , 2013; 22 (3): 423-434.DOI: 10.5123/S1679-49742013000300007
9. Daudt CVG. *Fatores de risco de doenças crônicas não transmissíveis em uma comunidade universitária do sul do Brasil (UFRGS).* Porto Alegre. Tese (Doutorado) - Curso de Medicina, Universidade Federal do Rio Grande do Sul; 2013. [cited 2015 dec 20]. Available from: https://www.lume.ufrgs.br/bitstream/handle/10183/88424/000911726.pdf?sequence=

10. Instituto Brasileiro de Geografia e Estatística. IBGE cidades@. Cajazeiras– PB: dados básicos. [cited 2014 dec 07]. Available from: http://www.ibge.gov.br/cidadesat/painel/painel.php?codmun=250370.
11. Stockert PA. Nutrição. In: Potter PA, Perry GA. Fundamentos de Enfermagem. 6. ed. Rio de Janeiro: Guanabara Koogan; 2009.
12. Miranda JS, Ferreira MLSM, Corrente JE. Qualidade de vida em mulheres no climatério atendidas na atenção primária. *Rev. Bras. Enferm* , 2014; 5 (67): 803-809. DOI: 10.1590/0034-7167.2014670519
13. De Lorenzi DRS, Baracat EC, Saciloto B, Padilha Júnior I. Fatores associados a qualidade de vida após a menopausa. Rev. Assoc. Med. Bras., 2006; 52 (5):312-317. DOI: 10.1590/S0104-42302006000500017
14. Barboza WMO, Costa TV, Toledo Neto JL. Qualidade de vida em mulheres no período de climatério e menopausa. Rev. Odontologia. 2014; 14(7): 406-417.
15. Polisseni AF, Araújo DAC, Polisseni F, Mourão Júnior CA, Polisseni J, Fernandes ES, Guerra MO. Depressão e ansiedade em mulheres climatéricas: fatores associados. Rev Bras Ginecol Obstet., 2009; 1(31): 28-34.DOI: 10.1590/S0100-72032009000100006
16. Machado VSS, Valadares ALR, Costa-Paiva L, Morais SS, Pinto-Neto AM. Morbidades e fatores associados em mulheres climatéricas: estudo de base populacional em mulheres com 11 anos ou mais de escolaridade. Rev Bras Ginecol Obstet., 2012; 5 (34): 215-220. DOI: 10.1590/S0100-72032012000500005
17. Miranda MP, Oliveira FM, David HR, Avelino APA, Saron MLG. Caracterização do perfil antropométrico, lipídico e dietético de mulheres no climatério associados com o risco de doenças cardiovasculares. Cadernos UniFOA: Edição especial do curso de Nutrição, 2013; 8: 31-39. [cited 2016 Jan 06]. Available from: http://web.unifoa.edu.br/cadernos/especiais/nutricao/cadernos_especias_nutri%C3%A7%C3%A3o2_online.pdf.
18. Gallon CW, Wender MCO. Estado nutricional e qualidade de vida da mulher climatérica. Rev. Bras. Ginocol. Obstet., 2012; 34 (4): 175-183. DOI: 10.1590/S0100-72032012000400007
19. Santos RDS, Carvalho FGD, Lima TP, Viegas RL, Faria A, Suen VMM, et al. Perfil do estado de saúde de mulheres climatéricas. Medicina (Ribeirão Preto), 2012; 45 (3): 310-17. DOI: 10.11606/issn.2176-7262.v45i3p310-317
20. Ferreira JA, Pompei LM, Fernandes CE, Azevedo LH, Peixono S. Breast arterial calcification is a predictive factor of cardiovascular disease in Brazilian postmenopausal women. Climacteric, 2009; 5 (12): 439-444. DOI: 10.1080/13697130902957287
21. Palasuwan A, Margaritis I, Soogarun S, Rousseau S. Dietary intakes and antioxidant stauts in mind-body exercising pre- and postmenopausal women. J Nutr Health Aging., 2011; 7 (15): 577-584. PMID: 21808936
22. Ministério da Saúde (Brasil). Secretaria de Vigilância em Saúde. Secretaria de Gestão Estratégica e Participativa. Vigitel Brasil 2008: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília: Ministério da Saúde; 2009. 112 p.
23. Negrão RC, Moccellin AS. Importância de atividades em grupo para a qualidade de vida de mulheres pós-menopausa. *Rev Bras Promoç Saúde,* 2011; 24 (4): 376-383. DOI: 10.5020/18061230.2011.p376
24. Duncan BB, Chor D, Aquino EML, Bensenor IM, Mill JG, Schmidt MI et al. Doenças Crônicas Não Transmissíveis no Brasil: prioridade para enfrentamento e investigação. *Rev Saúde Pública,* 2012; 46 (1):126-134. DOI: 10.1590/S0034-89102012000700017
25. Mancia G, De Backer G, Dominiczak A, Cifkova R, Fagard R, Germano G, et al. 2007 Guidelines for the Management of Arterial Hypertension The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *Journal of Hypertension,* 2007; 25 (6): 1105-1187. PMID: 17563527 DOI: 10.1097/HJH.0b013e3281fc975a
26. Lyra R, Oliveira M, Lins D, Cavalcanti N. Prevenção do Diabetes Mellitus Tipo 2. *Arq Bras Endocrinol Metab,* 2006; 50 (2): 239-249. DOI: 10.1590/S0004-27302006000200010
27. Hocayen PAS, Malfatti CRM. Tabagismo em pacientes diabéticos: predisposição às doenças crônico-degenerativas e neoplasia. *Cinergis,* 2010;11 (2): 19-25. DOI: 10.17058/cinergis.v11i2.2056
28. Ministério da Saúde (Brasil). Departamento de Análise de Situação de Saúde. Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico: Vigitel 2010. Brasília: Ministério da Saúde; 2011.
29. Lian C. L'alcoholisme, cause d'hypertension arterielle. Bull Acad Med, 1915; 74: 525-528.
30. Stipp MAC, Leite JL, Cunha MN, Assis LS, Andrade MP, Simões RD. O consumo do álcool e as doenças cardiovasculares - uma análise sob o olhar da enfermagem. *Esc Anna Nery Rev Enferm,* 2007; 11 (4): 581-585. DOI: 10.1590/S1414-81452007000400004
31. Mendes TAB, Goldbaum M, Segri NJ, Barros MBA, Cesar CLG, Carandina L et al. Diabetes mellitus: fatores associados à prevalência em idosos, medidas e práticas de controle e uso dos serviços de saúde em São Paulo, Brasil. *Cad. Saúde Pública, 2011;* 27 (6): 1233-43.DOI: 10.1590/S0102-311X2011000600020