

Risk factors and cardiovascular events in adult latin american immigrants in the Macarena District, Seville, Spain: a pilot study*

FATORES DE RISCO E EVENTOS CARDIOVASCULARES EM IMIGRANTES LATINO AMERICANOS ADULTOS NO DISTRITO MACARENA, SEVILLA, ESPANHA: ESTUDO PILOTO

FACTORES DE RIESGO Y EVENTOS CARDIOVASCULARES EN INMIGRANTES LATINOAMERICANOS ADULTOS EN EL DISTRITO MACARENA, SEVILLA, ESPAÑA: ESTUDIO PILOTO

José Rafael González-López¹, María de las Mercedes Lomas-Campos², María de los Ángeles Rodríguez-Gázquez³

ABSTRACT

In order to estimate the prevalence of self-reported risk factors and cardiovascular events in an adult immigrant Latin American population of District 2 (Macarena) in Seville, we conducted a pilot study using cross-sectional descriptive research. We used an anonymous questionnaire with self-reported risk factors and cardiovascular events. 34 people participated (18% of the sample); mean age: 31.8 years, mean residence: 6.5 years, women: 52.9%. Prevalence of risk factors: diabetes 8.8%, high cholesterol 14.7% and high blood pressure 23.5%. Prevalence of coronary events was 8.8%; angina pectoris, myocardial infarction and stroke, 2.9% each. The conclusion is that self-reported prevalence of cardiovascular events was higher than in the literature, this issue deserving the attention of health agencies. This knowledge should be considered by nurses to develop culturally appropriate care plans of the context of immigrants.

DESCRIPTORS

Emigration and immigration
Latin America
Cardiovascular diseases
Risk factors
Health Promotion
Nursing care

RESUMO

Este estudo teve como objetivo estimar a prevalência de auto-relato de fatores de risco e eventos cardiovasculares na população latinoamericana imigrante adulta do Distrito 2 (Macarena) de Sevilla. Estudo piloto de investigação descritiva de corte transversal, utilizou-se um questionário anônimo com auto-relato de fatores de risco e eventos cardiovasculares. Participaram 34 pessoas, (18% do total da mostra), idade média: 31,8 anos, residência média: 6,5 anos, mulheres: 52,9%. Prevalências de fatores de risco: 8,8% diabetes, 26,5% colesterol elevado e 14,5% hipertensão arterial. Prevalência de eventos coronários é de 8,8%: angina de peito, infarto do miocárdio e acidente cerebrovascular, com 2,9% cada um. A conclusão é que a auto-relatada prevalência de eventos cardiovasculares é maior do que a literatura, esta questão merece a atenção de agências de saúde, este conhecimento deve ser considerada pelas enfermeiras para desenvolver planos de cuidados culturalmente apropriado do contexto dos imigrantes.

DESCRITORES

Migração internacional
América Latina
Doenças cardiovasculares
Fatores de risco
Promoção da Saúde
Cuidados de enfermagem

RESUMEN

Con el objetivo de estimar la prevalencia por autorreporte de factores de riesgo y eventos cardiovasculares en población latinoamericana inmigrante adulta del Distrito 2 (Macarena) de Sevilla, se realizó un estudio piloto de investigación descriptiva de corte transversal. Se utilizó un cuestionario anónimo con autorreporte de factores de riesgo y eventos cardiovasculares. Resultados: participaron 34 personas, (18% de la muestra), edad media: 31,8 años, residencia media: 6,5 años, mujeres: 52,9%. Prevalencias de factores de riesgo: 8,8% diabetes, 14,7% colesterol elevado y 23,5% hipertensión arterial. Prevalencia de eventos coronarios es de 8,8%: angina de pecho, infarto de miocardio y accidente cerebrovascular, con 2,9% cada uno. La conclusión es que la prevalencia de eventos cardiovasculares autorreportados es superior a la literatura, mercedo este asunto a la atención de los organismos sanitarios, este conocimiento debe tenerse en cuenta por enfermería para elaborar planes de cuidados adaptados culturalmente al contexto de este colectivo inmigrante.

DESCRIPTORES

Migración internacional
América Latina
Enfermedades cardiovasculares
Factores de riesgo
Promoción de la Salud
Atención de enfermería

* From Research Project "Análisis de las conductas de salud y prevalencia de enfermedades de la población inmigrante y autóctona de la ciudad de Sevilla", University of Seville, 2009-2012. ¹Ph.D. International in Health Sciences. Master in New Trends in Health Sciences. Nurse. Professor Faculty of Nursing, Physiotherapy and Podiatry. Department of Nursing, University of Seville, Spain. joserafael@us.es ²Ph.D. in Medicine. Full Professor, Faculty of Nursing, Physiotherapy and Podiatry. Department of Nursing, University of Seville, Spain. mlomas@us.es ³Ph.D. in Public Health, Epidemiologist, Nurse. Associate Professor, Faculty of Nursing, University of Antioquia, Medellín, Colombia. mariangelesrodriguezg@hotmail.com

INTRODUCTION

In a globalized world, it is indisputable that migration is an increasingly important phenomena, both in its scope and complexity, affecting virtually every country in the world⁽¹⁾.

In Spain, during the first decade of the 21st century, the immigrant population grew from 1.8% to 11.4% of all residents; 40% of the foreigners came from Europe, followed by 31% from South America⁽²⁾. The increase in immigration has been a major challenge for social adaptation, including the issues related to health and the organization of the health system⁽³⁾. This phenomenon has required the performance of studies about the health of the immigrants, which identified this group as a healthy young population⁽⁴⁾, with a good perceived health status and with morbidity similar to that of the local populations⁽⁵⁾.

Access to and use of health services on the part of the immigrants has been the focus of much of the research interest; additionally, since the early nineties, periodic population based surveys have been used to obtain an epidemiological profile, as well as to understand the accessibility and utilization of health services⁽⁶⁾.

In Spain, although some work exists related to immigrant health, the importance of socio-demographic, economic and lifestyle factors⁽⁷⁾, quality of life⁽⁸⁾, and the use of health services⁽⁹⁾, there has been a scarcity of research into the prevalence of risk factors and chronic diseases in this population. Despite the fact that they were conducted in the autochthonous population, existing literature indicates that some health problems are similar in both populations⁽⁶⁾, predominantly respiratory infections, depressive syndromes and low back pain, in primary care settings⁽¹⁰⁾; whereas the prevalence of other problems is lower in recent immigrants than what is estimated in the native population⁽¹¹⁾. However, after an extended stay, they may suffer diseases more related to the lifestyle of the host countries, such as hypertension, diabetes and various respiratory or cardiovascular diseases⁽¹⁰⁾.

According to the *National Immigrant Survey*⁽¹²⁾, 8% of the Latin American immigrants in Spain in 2009 were in Andalusia; this group represented almost half of the immigrant population (46.3%) in Seville, of which one of every three could be found in the Macarena district.

Nursing as a profession provides care to sick and healthy people throughout their lifespan; it is required that professionals address the human responses of individuals, families and communities in a comprehensive manner⁽¹³⁾. We believe, therefore, that one of the great challenges posed to this discipline is to promote health through the provision of quality care, avoiding risky be-

haviors and promoting healthy lifestyles, considering attitudinal and behavioral aspects of the user. Hence, we proposed to measure the prevalence of risk factors and cardiovascular events, in the Latin American adult immigrant population in the Macarena district of the city of Seville, in order to use this measurement as a factor indicative of health problems and the need for care for this group, from the nursing discipline.

Taking into account that to provide nursing care to support people in maintaining or regaining their health must take into account the culture, health and illness beliefs, values and practices of the people⁽¹⁴⁾, nurses must be prepared to face the challenge of caring for the immigrant community⁽¹⁵⁾. To accomplish this, it is of interest to know the health behaviors⁽¹⁵⁾, many of which are culturally determined⁽¹⁶⁾, so that they can intervene to maintain or restore health. In the past decade, how care should be tailored to the immigrant population has been an issue of concern in nursing⁽¹⁵⁾, asserting that the nursing care for this group is based on the application of integrated care based on cultural knowledge and of the initial assessment, identifying the main nursing diagnoses with those who will implement their intervention in conjunction with the immigrant person, resulting in a plan of care culturally tailored to their context⁽¹⁷⁾. The objective of our investigation was to estimate the prevalence of self-report of risk factors and cardiovascular events in the Latin American adult immigrant population in District 2 (Macarena) of Seville, during the year 2010.

Taking into account that to provide nursing care to support people in maintaining or regaining their health must take into account the culture, health and illness beliefs, values and practices of the people, nurses must be prepared to face the challenge of caring for the immigrant community.

METHOD

A quantitative, descriptive study was developed, using a transversal method with a stratified proportional sample of the variables of gender, age and nationality, in which 34 adult Latin American immigrants participated, corresponding to 17.8% of the population, estimated to constitute a pilot study. The range of age in this study was between 25 to 44 years, which is the most frequent age group in this population⁽¹²⁾.

We used some sections of the *Behavioral Risk Factor Surveillance System* questionnaire associated with behavior (2009) from the *Centers for Disease Control and Prevention* of the United States⁽¹⁸⁾. In this article we present the results of: a) sociodemographic data of the respondent (gender, age, marital status, educational level, place of birth, length of stay in Spain, and occupation), b) knowledge of having suffered from hypertension, diabetes and / or high cholesterol; c) changes in dietary habits, practice of physical exercise; d) correct knowledge of signs and symptoms of a heart attack or of a cerebral vascular accident: recognition of at least four of the six signs and / or symptoms listed of each pathology (options for response:

Yes/No)⁽¹⁸⁾; and e) inferences about the variables mentioned previously.

The prevalence of the risk factors and cardiovascular events were calculated by dividing the number of persons who affirmed that a physician or a nurse had commented that they had a factor or that they were suffering / had suffered a cardiovascular event, by the total number of participants in the study.

For this investigation, we adopted the definition of immigrant used by the *National Institute of Statistics* (INE) in its *National Immigrant Survey of 2007* (ENI 2007)⁽¹⁹⁾: *any person who has as his/her country of origin one other than Spain, who at the moment of conducting the survey has established his/her habitual residence within the national territory.*

The collection of data occurred in the month of April of 2011, the recruitment of participants was made through different immigrant associations. The selection criteria were: resident of either gender in one of the official neighborhoods or census tracts of the second administrative district (Macarena) of Seville; aged between 25 and 44 years; having been born in some of the countries considered by the United Nations⁽²⁰⁾ in its classification of nationalities, territories and regions as Latin American or South American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Paraguay, Peru, Uruguay, Venezuela) and having migrated to Spain; ability to communicate and understand the requirements of the study and having signed the informed consent. To avoid biases in information we had a single interviewer, a healthcare provider, who asked the questions and filled in the responses. The interview lasted an average of 15 minutes and occurred in different associations and groups of Latin American immigrants in the district to facilitate the collection of the data.

The procedures used to conduct this study followed general ethical principles, and were approved by the Ethics Committee of the University of Seville for studies with human subjects in Spain and the European Union. For this, we obtained informed written consent and, in relation to sociodemographic data, in order to protect honor and personal privacy, the questionnaires were anonymous because the respondents were not asked their names.

Data were analyzed using the statistical program, *Statistical Package for the Social Sciences* (SPSS) version 17.0 for Windows. Descriptive analyses were performed, using measures of central tendency and dispersion such as mean and standard deviation. To check whether the quantitative variables complied with the criteria of normality, the Kolmogorov-Smirnov (KS) test for a sample was employed. In the case of qualitative variables, proportions were calculated and the chi-square test was applied (χ^2). In all cases, we adopted the value of $p < 0.05$ for statistical significance.

RESULTS

Sociodemographic Characteristics

The age variable, which was normally distributed (probability in the z of the test K-S = 0.192), had a mean of 31.8 ± 5.8 years. In Table I the sociodemographic profile of the 34 people studied can be seen; women, less than 30 years, single and who had secondary education predominated. For country of origin, the majority came from Bolivia and Ecuador. In relation to current and previous occupation, the majority of subjects were employed by others.

When analyzing the time of residence in Spain, it was found that the sample had a mean of 6.5 ± 3.5 years, slightly higher than the mean residence time in the city of Seville (5.8 ± 3.6 years). Both variables also had a normal distribution, which was verified in the probabilities of the test of K-S of 0.480 and 0.914, respectively.

Table 1 – General characteristics of 34 Latin American adult immigrants of the Macarena District of Seville

Variable	Value
Gender; n (%)	
Female	18 (52.9)
Male	16 (47.1)
Age group; n (%)	
25 to 29 years	17 (50.0)
30 to 34 years	7 (20.6)
35 to 39 years	6 (17.6)
40 years and older	4 (11.8)
Marital status; n (%)	
Single	16 (47.1)
Married	15 (44.1)
Living together / unmarried partner	2 (5.9)
Separated	1 (2.9)
Level of education; n (%)	
Primary education*	4 (11.7)
Secondary education†	19 (55.9)
Higher education‡	6 (17.6)
University degree§	5 (14.8)
Nationality; n (%)	
Bolivia	13 (38.2)
Brazil	1 (2.9)
Colombia	3 (8.8)
Ecuador	9 (26.5)
Paraguay	2 (5.9)
Perú	4 (11.8)
Venezuela	2 (5.9)
Previous occupation; n (%)	
Employee	28 (82.4)
Self-employed	2 (5.9)
Unemployed	1 (2.9)
Student	3 (8.8)
Current occupation; n (%)	
Employee	26 (76.5)
Self-employed	2 (5.9)
Unemployed	4 (11.8)
Student	2 (5.9)

*: Primary studies / Elementary school; †: Secondary studies / Elementary Baccalaureate / FP / Basic Training Course; ‡: Higher Education / Baccalaureate / Higher Formative Cycle; §: University degree (3 with undergraduate degree and 2 with graduate degree or doctorate).

Prevalence and preventive behaviors for three risk factors for cardiovascular disease

Diabetes. Of the total population surveyed, 41.2% (14 individuals) were measured frequently for blood glucose, including 13 persons (38.2%) who did so several times a year, whereas one person (2.9%) did so several times a month. The remaining population never did this.

It is important to note that 38.2% of the subjects in the study sample were overweight and 20.6% were obese, while the remaining (51.2%) were of normal weight. The probability of the z of the test of K-S for the IMC was 0.969, which signified that this variable had a normal distribution.

The prevalence of self-reported diabetes was 8.8%, namely: three people claimed to have been diagnosed as diabetic (two with gestational diabetes and a man with type I diabetes). Of the three people who reported having been diagnosed with diabetes: one was taking medication to control it; all had changed their eating habits to control their blood sugar; none examined their feet to detect possible wounds by irritation; only one practiced physical exercise as a way to improve insulin sensitivity, and all said they had not attended any educational activity to learn how to control blood sugar.

Hypertension. Of the total population surveyed, 55.9% (19 people) said that their arterial blood pressure was measured several times a year, with those never doing so accounting for 44.1% (15 people). When asked how long ago the blood pressure level was analyzed: 16 people (47.1%) stated that they measured it in the past year, nine people (26.5%) had never had it done, four people (11.8%) had measured it in the past two years, two people (5.9%) in the past five years, and for three people (8.8%) it was five years or more. In 76.5% of the total sample (26 people), none had a medical or nursing professional indicate that they presented with high blood pressure or hypertension.

The self-reported prevalence of this disease was 23.5%, for the remaining eight people who claimed to have been diagnosed with the disease, one of which was during her pregnancy. In the analysis of the eight people who said they were diagnosed with hypertension, only one (12.5%) reported taking medication to control the high blood pressure; five (62.5%) had changed their eating habits; all had reduced their consumption of salt and alcohol and, finally only three people (37.5%) practiced physical exercise as a way to reduce blood pressure.

Cholesterol. There were 26.5% of the study participants (9 persons) who had their blood cholesterol level checked; five of them (55.6%) had done so in the last year.

The prevalence of self-reported hypercholesterolemia was 14.7% (five people were informed by a medical practitioner or nurse). Of these, only two claimed to take medi-

cation for its control; four had modified their eating habits, reducing the consumption of fats; five had decreased the consumption of cigarettes and alcohol; and, only two used physical exercise as a way to reduce blood high cholesterol. We did not find statistically significant differences between the variable cholesterol and alcohol intake ($\chi^2 = 3.214$, $p = 0.073$).

Prevalence of cardiovascular events and recognition of signs and symptoms associated with these complications

The prevalence of self-report for cardiovascular events was 8.8%: with one case each for acute myocardial infarction, angina pectoris and cerebrovascular accident. In the case of cerebrovascular accident, the patient went to rehabilitation and changed his lifestyle as a consequence of suffering cardiac pathology.

Regarding the recognition of symptoms for the events of heart attack and cerebrovascular accident, the more recognized symptoms by this group were: difficulty breathing and pain or discomfort in the chest, for the former, and severe headache and sudden trouble walking for the later (Table 2).

Table 2 – Recognition of symptoms associated with heart attack and cerebrovascular accident.

Symptoms	n (%)
Heart Attack Symptoms	
Difficulty breathing	28 (82.4)
Pain or discomfort in the chest	24 (70.6)
Feeling dizzy or faint	16 (47.1)
Sudden changes in vision	15 (44.1)
Pain or discomfort in the arms	15 (44.1)
Pain in mandible, neck or back	10 (29.4)
Cerebrovascular Accident Symptoms	
Intense pain in the head	28 (82.4)
Sudden trouble walking	26 (76.5)
Sudden difficulty speaking	22 (64.7)
Sudden weakness in face, arm or leg	22 (64.7)
Sudden changes in vision	21 (61.8)
Chest pain	10 (29.1)

The total proportion of correct answers to recognition of the signs and symptoms of heart attack was 52.9% versus 63.2% for cerebrovascular accident; this difference was not statistically significant ($\chi^2 = 0.54$, $p = 0.46$).

DISCUSSION

Habitually, morbidity studies in foreign populations have been focused on imported pathology and only recently have begun to analyze chronic diseases⁽²¹⁾. In our study, in relation to diabetes, 8.8% of subjects had been

told by a medical professional or nurse that they were suffering from this disease, data significantly higher than the 2.7%⁽¹¹⁾ or 5%⁽²²⁾ in other studies. The bias could be due to the different sample size, since the smaller the sample, the more possibilities exist that the results are not representative of the study population, another attributable cause may be the range of ages studied. It is noteworthy that all people with diabetes in the sample had changed their dietary habits, but had not attended any formative course on diabetes nor were feet examined for possible wounds from irritations. Therefore, a priori, we observed deficient knowledge related to care in subjects with diabetes in our sample.

Proceeding with other chronic disease such as arterial hypertension, its prevalence by self-report in our sample (23.5%) represented a much higher figure than the 4.1% recorded in one study⁽¹¹⁾ or the 10.8% another found⁽²²⁾, but we can establish a convincing explanation for these differences, which may be due to the reasons previously mentioned of the sample size. It is necessary to comment that half of those diagnosed subjects performed health promoting behaviors when confronting their disease, such as decreasing the intake of alcohol and / or salt and / or increasing physical exercise.

The presence of blood cholesterol and diagnosis of hypercholesterolemia were indicated by 14.7% of the sample, a new figure significantly higher than the 5.4% analyzed by self-report⁽²⁰⁾. These differences may be due to the measurement of the variable, or the time of residence in Spain was lower than in our sample and they had not abandoned the nutritional habits of the country of origin; also all the sample in the latest study came from Latin America, as compared to only 75%. It should be noted that, of all subjects diagnosed with high cholesterol, the totality had stopped smoking, and the vast majority (80%) had changed their eating habits; not found in the reviewed literature data that was collected, but also significant, was that half of those practiced exercise to improve their health. Research has found no statistically significant differences between this variable and the intake of alcohol.

REFERENCES

1. Naciones Unidas. Diálogo de alto nivel sobre la migración internacional y el desarrollo. En: Asamblea General de las Naciones Unidas; 2006 sept.14-15; New York [Internet]. New York; 2006 [citado 2011 nov. 17]. Disponible en: <http://www.un.org/spanish/migration/index.html>
2. Cardim M, Luzón JL. Distribución por el territorio español de los inmigrantes procedentes de América Central y Caribe. En: Luzón JL, Cardim M, coordinadores. Problemas sociales y regionales en América Latina: estudio de casos. Barcelona: Universidad Autónoma de Barcelona; 2009. p. 128-49.
3. Oliva J, Pérez G. Inmigración y salud. *Gac Sanit.* 2009;23 Supl 1:1-3.
4. Conceiro Rúa A, Pita-Vizoso R, Gómez-Besteiro I. Fulfillment of basic needs of the moroccan female immigrant population in Arteixo. *Rev Esc Enferm USP* [Internet]. 2010 [cited 2011 Nov 17];44(2):249-56. Available from: http://www.scielo.br/pdf/reeusp/v44n2/en_02.pdf
5. Carrasco-Garrido P, Jiménez-García R, Hernández Barrera V, López de Andrés A, Gil de Andrés A. Significant differences in the use of health care resources of native-born and foreign born in Spain. *BMC Public Health.* 2009;9:201-13.

We can say that self-perceived cardiovascular health by participants of our study was good, only 2.9% (1 person) was diagnosed with a heart attack, also only 2.9% was informed that he suffered angina, and one subject suffered a cerebrovascular accident, with this data being similar to those described elsewhere⁽²²⁾, in which there existed a prevalence of other pathologies of the heart of 3.3% and 1.3% in one study⁽¹¹⁾, with data stemming from different autonomous communities, Catalonia and Madrid, respectively. No investigations were found about the knowledge of the immigrant population about the symptoms that appear both in heart attack and in cerebrovascular disease, although we believe that, given the average number of correct answers (58.1%), measures can be established of an educational nature and oriented towards primary prevention of such problems of health.

Among the limitations of this study, those that characterize a pilot study were found and dealt mainly with the number of subjects studied. This study will provide the basis of expanded research in the city of Seville, as well as to evaluate the suitability of the instrument used and the data collection performed.

CONCLUSION

The results of this study have provided an expansion of knowledge about the health status of the collective of immigrant people studied, which provide prevalences of self-reported risk factors and cardiovascular events in our pilot study higher than those found in the literature, meriting the attention of the health agencies.

It is important to continue this line of investigation, in order to guide the design and implementation of differential actions from the nursing perspective, adequate to the needs of the immigrant collective, such as formative activities in the prevention of diabetes or obesity to empower this population and thus improve their level of health.

6. Haas JS, Phillips KA, Sonneborn D, McCulloch CE, Baker LC, Kaplan CP, et al. Variation in access to health care for different racial/ethnic groups by the racial/ethnic composition of an individual's country of residence. *Med Care*. 2004;42(7):707-14.
7. Agudelo-Suárez AE, Ronda-Pérez, Gil-González D, Vives-Cases C, García AM, García-Benavides F, et al. Proceso migratorio, condiciones laborales y salud en trabajadores inmigrantes en España (proyecto ITSAL). *Gac Sanit*. 2009;23 Supl 1:S115-21.
8. García Gómez P, Oliva J. Calidad de vida relacionada con la salud en población inmigrante en edad productiva. *Gac Sanit*. 2009;23 Supl 1:S38-46.
9. Ángel N, Ramos JM. Utilización de servicios sanitarios por parte de las poblaciones inmigrante y nativa en la Comunidad Autónoma de la Región de Murcia. *Gac Sanit*. 2009;23 Supl 1:S12-8.
10. García Ballesteros A, Jiménez Basco B, Redondo González A. La inmigración latinoamericana en España en el siglo XXI. *Investig Geogr*. 2009;70(1):55-70.
11. Esteban-Vasallo MD, Domínguez-Berjón MF, Astray-Mochales J, Génova-Maleras R, Pérez-Sania A, Sánchez-Perruca L, et al. Prevalencia de enfermedades crónicas diagnosticadas en población inmigrante y autóctona. *Gac Sanit*. 2009;23(6):548-52.
12. España. Ministerio de Empleo y Seguridad Social; Secretaría de Estado de Inmigración y Emigración. Anuario Estadístico de Inmigración en 2008 [Internet]. Madrid; 2010 [citado 2010 nov. 4]. Disponible en: <http://extranjeros.empleo.gob.es/es/ObservatorioPermanenteInmigracion/Anuarios/Anuario2008.html>
13. Holloway A, Watson H. Función de auto-eficacia y el cambio de comportamiento. *Int J Nurs Pract*. 2002;8(2):106-15
14. Leininger M. *Transcultural nursing*. New York: Mc Graw-Hill; 1995. *Transcultural nursing: perspectives: basic concepts, principles and culture care incidents*; p. 57-90.
15. Moreno-Preciado M, Martín Hernández T. Inmigración y necesidades formativas de los cuidadores. *Cult Cuidados*. 2003;7(14):44-8.
16. Ruiz Salvador D, Torralbo Ojeda E, Ortiz Morales MA, Pino Alcaraz MI, Artero López C. Sociedad actual e inmigración: el reto de la enfermería humanista. *Cult Cuidados*. 2006;10(20):76-82.
17. Grupo ASANEC de Inmigración. Atención de enfermería en población de origen extranjero. Biblioteca Lascasas [Internet]. 2006 [citado 2011 jun. 1];2. Disponible en: <http://www.index-f.com/lascasas/documentos/lc0103.pdf>
18. Centers for Disease Control and Prevention (CDC). Behavioral risk factor surveillance system survey questionnaire. Atlanta (GA): U.S. Department of Health and Human Services; 2009.
19. Instituto Nacional de Estadística. Metodología de la Encuesta Nacional de Inmigrantes 2007 [Internet]. Madrid; 2009 [citado 2010 nov. 12]. Disponible en: <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft20%2Fp319&file=inebase>
20. Organización de las Naciones Unidas (ONU). World Population Prospects: the 2008 revision population database [Internet]. New York; 2009 [cited 2010 Nov 30]. Available from: http://www.un.org/esa/population/publications/wpp2008/wpp2008_highlights.pdf
21. Llisterri JL, Alonso FJ, Martincano JL, López JM, Rodríguez GC, Banegas JR. Prevalencia de la hipertensión arterial en la población inmigrante asistida en atención primaria en España. *Med Clin (Barc)*. 2007;129(6):209-12.
22. Vall-Llosera L, Saurina C, Sáez M. Inmigración y salud: necesidades y utilización de los servicios de atención primaria por parte de la población inmigrante en la región sanitaria Girona. *Rev Esp Salud Pública*. 2009;83(2):291-307.

(PI-0138), funded by the Ministry of Health of the Government of Andalusia (Government of Spain), in the notice of 2009, and implemented by the School of Nursing, Physiotherapy and Podiatry, University of Seville, Spain.