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ORIGINAL PAPER

Health Related Lifestyle and Preventive Medical Care of Rural Spanish Women Compared to Their Urban Counterparts

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Abstract The objective of this work is to study the differences in health related behavior, habits and preventive health care attendance between women living in rural areas and their metropolitan counterparts in Spain. We analyzed health related behavior (such as leisure time physical activity, smoking, alcohol use and other health related dietary patterns) and preventive medical attendance (gynecological attendance, mammography frequency, flu vaccinations, cholesterol and blood pressure checks) in a total of 17,833 women older than 16 from the Spanish National Health Survey 2006. A multinomial logistic regression model was employed to compare groups (adjusted for age and social class). The main findings of this study is that the likelihood of receiving and attending to preventive public health care services was significantly lower for women in medium-sized urban or rural and remote locations than those living in metropolitan areas, as well as differences in health-related lifestyle behaviours.

Keywords Rural · Women health · Lifestyle · Gynecological examination · Mammography · Preventive medicine

Introduction

Understanding health promotion means thinking about the structure of lifestyles, where individual and social behaviour, together with the sets of public resources and public health services, interact with each other [1]. Rural settings are of special interest for health promotion because their characteristics suppose an important challenge for public health workers. Around 66 % of the population in developing countries and about 25 % in developed countries live in rural areas, or from a global perspective, approximately 56 % of the entire world population [2].

One of the main public health problems happening in rural areas compared with urban settings is the difficulty of access to health services and health professionals, as well as, the complications with the amount and availability of other public services which are related to population wellbeing, for example, public transportation, health care specialists, high educational institutions or sport facilities. Not only this, but another problem is the loss of family and community networks as younger generations move to the cities in search of employment and education [2]. This is the main reason why rural populations contain more older people and a higher proportion of men than the urban population. Also, retirement sometimes makes people go back to rural areas [2].

Besides the difficulties rural environments have developing basic public services and health care structures, there are differences in health lifestyle patterns between rural and urban people [3]. Preventive health care practices, preventive medical counseling and health related lifestyle behavior lead to health benefits, but regardless of these documented benefits, rural residents with low income and a low educational level are less likely to use preventive services, whereas their urban counterparts are more likely to make use of them [4]. Rural residents also need a milieu fostering lifelong health education, good health related skills and healthy lifestyle behavior. In contrast to the rural areas, in urban metropolis people experience constant stimuli towards the use of health services and the selection of healthy goods for self [4].

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In addition to the above mentioned, there are considerable differences in ways of life between men and women as we move along the rural–urban continuum [5]. Rural setting inhabitants tend to achieve lower levels of education and experience greater poverty, furthermore, they tend to be more politically conservative and show a greater concern in traditional values, including sexual behaviors, gender roles and interpersonal relationship [6].

These special sex role beliefs and gender diversification in rural areas move us to study the differences in health related behaviors, habits and preventive health care attendance between women living in rural areas and their metropolitan counterparts in a western country like Spain.

Methods

Data Sources and Participants

Data came from the last National Health Survey of Spain, a cross-sectional study conducted by the Ministry of Health and Social Policy, between June 2006 and June 2007. A sample of 29,478 persons (11,645 men and 17,833 women older than 16) were interviewed using the National Health Survey Questionnaire 2006. The sample consisted of 50 provincial subsamples, and was selected using a multistage procedure designed using stratified multistage sampling: the first units were the Spanish census tracts, the second stage units were main family dwellings, and for the last stage, a person over 16 from each dwelling was selected. The census tracts were selected within each stratum with probability proportional to size, whereas households and individuals were selected by random procedure taking into account sampling age and sex quotas. To minimize seasonal biases, in terms of morbidity and lifestyle, the questionnaire was administered in four stages of 15 days and the reference period for each variable spanned between 2 weeks and 1 year from the day of data collection. Interviewers, who where trained for this task, carried out the survey.

Principal Variables

Classification of the municipalities according to their number of inhabitants was employed, in relation to previous guidelines on the distribution of the municipal groups in Spain adapted to well-defined geographical facts [7]. Three groups were defined: metropolitan areas (large urban areas, up to one million inhabitants), urban municipalities (medium-sized urban areas, from 10,000 to 1 million inhabitants), and rural municipalities (<10,000 inhabitants).

Health related lifestyle variables were recorded by a trained interviewer, and those employed in this study are grouped into two large groups:

Health related behavior: habitual leisure time physical activity practice (yes or no), smoking status (smoker, ex-smoker, non smoker), alcohol intake in the last 2 weeks (yes or no), daily fruit intake (yes or no), daily vegetables intake (yes or no), daily pastries and/or sweets intake (yes or no), daily sweetened beverages intake (yes or no) and regular teeth brushing (healthy—at least twice daily—and unhealthy).

Preventive medical attendance: flu vaccination in the last year (yes or no), blood pressure checks at least one time in their life (yes or no), cholesterol profile checks at least one time in their life (yes or no), gynecological attendance at least one time in their life (yes or no), motive of gynecological attendance (sickness or habitual revision), mammography at least one time in their life (yes or no), cytology at least one time in their life (yes or no).

Potential Confounding Variables

Age and socioeconomic status were established as potential confounding variables, because of the asymmetrical distribution of age and social status in Spain according to residential place. Socioeconomic status was determined using the proposal of the Spanish Society of Epidemiology, based on the classification of Goldthorpe [8]. Social class is assigned to all members of the family unit according to the occupation of the household breadwinner. Originally, five main categories are established, using the questions of employment, position and sector of activity. Participants were grouped in three groups as follows:

Class I-II: Executives of government and business. Senior officials. Professionals. Technicians. Managers and owner-managers of trade and personal services. Other technicians (non-high technicians). Artists and athletes.

Class III: Middle managers. Administrative staff. Military and security protection services.

Class IV–V: Semi-skilled and manual workers of the industry, trade and services. Unskilled workers.

Statistical Analysis

A multinomial logistic regression model was employed, and odds ratio (OR) and 95 % confidence intervals were calculated to establish the relationship between residential characteristics and potential health related lifestyle variables, adjusted for potential confounding variables (age and social class). All the analysis was conducted with the 15.0 SPSS version.

Results

Spain is a European country divided into 17 autonomous regions, which have regional governments that administrate

public resources and have specific competences in health, education and other services related to public health and the welfare state. These regions differ slightly in their demographic and socioeconomic characteristics (for example, population density and percentage of people living in rural areas), and regional politics in public services try to resolve the singular needs of each region. Moreover, in most regions we can consider that rural women have a lower prevalence in the use of their preventive health care services, i.e., gynecological examinations and mammogram tests (see Figs. 1, 2 respectively). The global percentage of women who have never been gynecologically examinated or have never got a mammogram is 17.6 and 50.2 %, respectively. Considering rural (under 10,000 inhabitants) and urban (more than 10,001 inhabitants) areas, rural settings are places in which these medical preventive checks are less common: 78.9 % in urban and 21.1 % in rural for gynecological examination and 77.3 % in urban and 22.7 % in rural for mammogram test in the whole female Spanish population.

Taking into account all medical preventive care variables studied (see Table 1) and depending on the area of residence, we have found differences in virtually all of them, except for the flu vaccination and blood pressure checkups, in which Spanish women do not differ depending of the living area. When compared with metropolitan women, rural and urban women were less likely to report cholesterol checkup (OR 0.84 and 0.77, $p < .05$; $p < .01$ respectively), preventive gynecologist attendance (OR 0.73 and 0.56 respectively, $p < .001$ for both groups), mammography (OR 0.82 and 0.77 respectively, $p < .001$ for both groups) and cytology (OR 0.71 and 0.58 respectively, $p < .001$ for both groups). They also attend the gynecologist mainly for health problems and not for preventive care when compared with their metropolitan counterparts (OR 1.49 and 1.55 respectively, $p < .001$ for both groups).

When the prevalence of certain health behavior in metropolitan settings was compared with that in urban and rural areas, the multinomial logistic regression analysis showed that there are statistically significant differences in many of these forms of behavior (see Table 2). For residents in medium-sized urban and rural settings, we have found a lower prevalence of being active (OR 0.83 and 0.84 respectively, $p < .001$ for both groups), less frequent daily vegetable intake (OR 0.70 and 0.76 respectively,

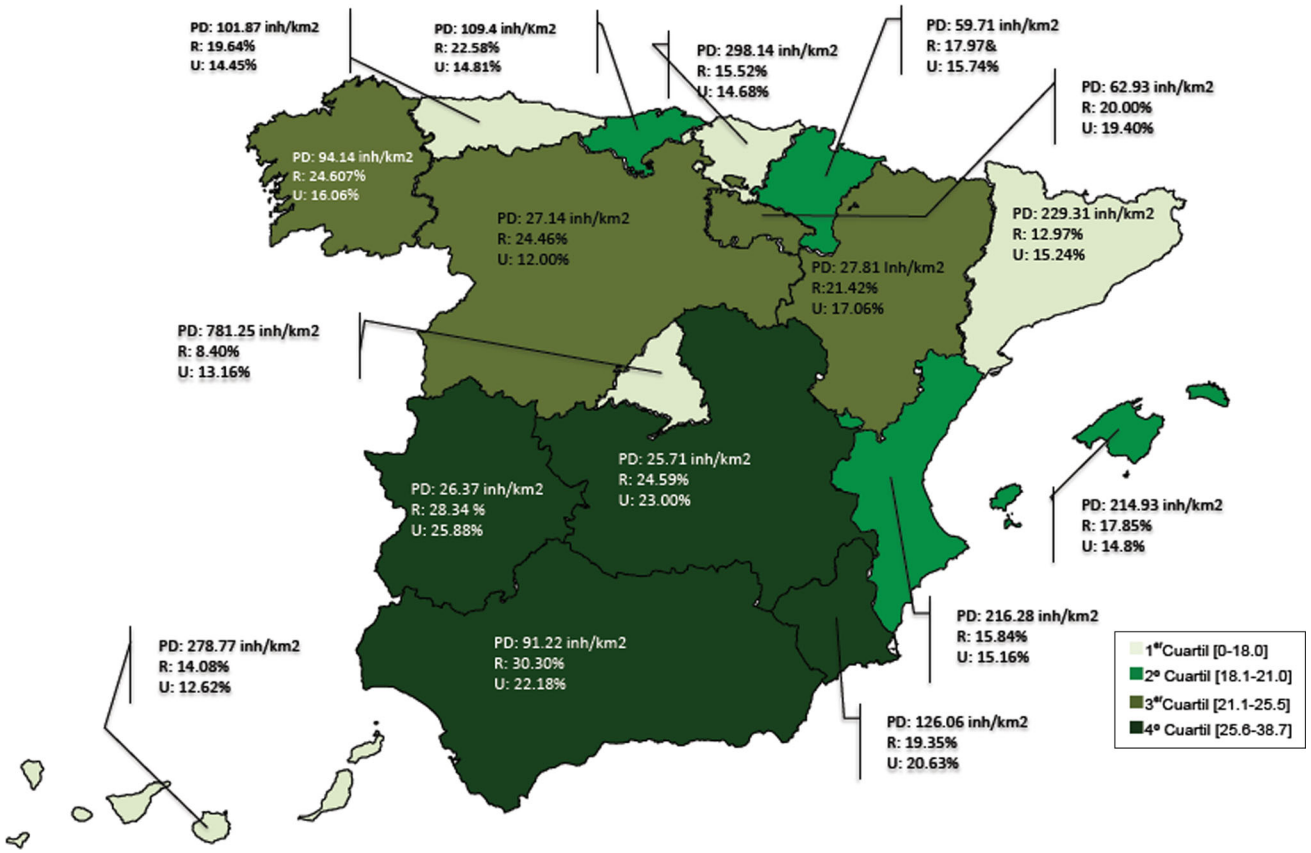

Fig. 1 Distribution of percentage of women who have never had gynecological examined in Spain. Regions have been classified by quartiles, *darker colors* indicate regions with a larger amount of non-gynecological examined women. Population density (*PD*, inhabitants per square kilometer), rural (*R*) and urban (*U*) prevalence of non-gynecological examined women have also been detailed for each region (Color figure online)

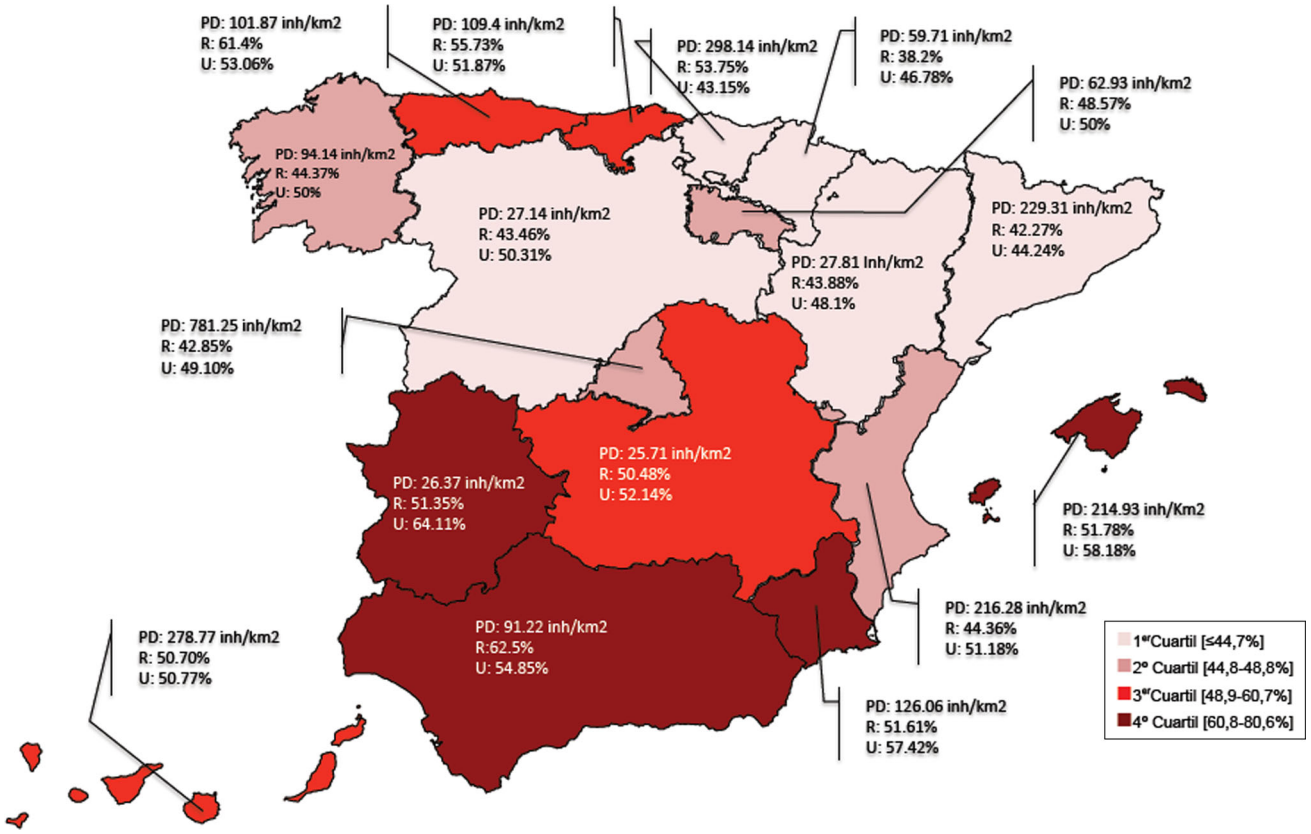

Fig. 2 Distribution of percentage of women who have never got a mammogram in Spain. Regions have been classified by quartiles, *darker colors* indicate regions with a larger amount of women who have never got a mammogram. Population density (*PD*, inhabitants per square kilometer), rural (*R*) and urban (*U*) prevalence of women who have never got a mammogram have been also detailed for each region (Color figure online)

$p < .001$ for both groups) and less teeth brushing frequency (OR 0.70 and 0.39 respectively, $p < .001$ for both groups), but we also found a lower risk of alcohol consumption (OR 0.83 and 0.84, $p < .001$; $p < .01$ respectively), as well as less women being ex-smokers in both places (OR 0.88 and 0.70, $p < .01$; $p < .001$ respectively) or there were more women who had never smoked in rural settings (OR 0.69, $p < .01$). Sugar enriched foods are consumed often in metropolitan settings, and women living in medium-sized cities consume less pastries or sweets (OR 0.75, $p < .001$), and rural women drank sweetened beverages less often (OR 0.80, $p < .05$).

Discussion

This work illustrates a number of key differences in several health domains between urban and rural areas, in terms of preventive health care and lifestyle habits among Spanish women. There are other studies with related results, which conclude that living in rural settings is a risk factor for the development and prevalence of health problems [2, 9]. Our study has revealed that living in metropolitan settings is associated with an increased likelihood of preventive health care services use in Spanish women. Particularly, preventive gynecological examinations, mammography and cytology checkups among the medium-sized urban and rural population studied are less frequent, as well as the differences in cholesterol check and gynecologist attendance, being less common preventive medical attendance and counselling in these groups. Rural–urban differences in women for preventive medical health care attendance have been described in other studies [6, 10–12], but this is the first study, to our knowledge, that describes this phenomenon in Spanish women.

Rural area residents were significantly less likely to have a high number of physician visits, even though they have quite similar healthcare needs as their urban counterparts. In relation to mammography, other studies have shown that women residing in rural areas are more vulnerable to be diagnosed with breast cancer at later stages because of the lack of periodical attendance to simple medical checkups [13]. Furthermore, in this study, the sickness symptoms are the most common medical reasons for visiting a

Table 1 Multinomial logistic regression model analyzing preventive medical care use for women in Spain according to residence size (metropolitan, urban, and rural)

	Municipality size	
	Urban (medium-sized) OR (IC 95 %)	Rural OR (IC 95 %)
Flu vaccination		
No	1	
Yes	0.90 (0.78–1.03)	1.18 (1.00–1.37)
Blood pressure checks		
No	1	
Yes	1.00 (0.80–1.22)	1.06 (0.84–1.35)
Cholesterol checks		
No	1	
Yes	0.84 (0.71–0.99)*	0.77 (0.64–0.92)**
Attendance to gynecologist at least once in life		
No	1	
Yes	0.73 (0.63–0.85)***	0.56 (0.48–0.66)***
Reason for attendance to gynecologist last time		
Checkup	1	
Sickness symptom	1.49 (1.25–1.76)***	1.55 (1.29–1.88)***
Mammogram done at least once in life		
No	1	
Yes	0.82 (0.73–0.92)***	0.77 (0,68–0.88)***
Cytology done at least once in life		
No	1	
Yes	0.71 (0.63–0.80)***	0.58 (0.51–0.66)***

Comparison group is metropolitan settings. Age and social class adjusted analysis

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2 Multinomial logistic regression model analyzing health related behavior for women in Spain according to residence size (metropolitan, urban and rural)

	Municipality size	
	Urban (medium-sized) OR (IC 95 %)	Rural OR (IC 95 %)
Leisure time physical activity practice		
No	1	
Yes	0.83 (0.75–0.93)***	0.84 (0.75–0.95)**
Smoking habit		
Non smoker	1	
Ex smoker	0.88 (0.77–1.00)**	0.70 (0.60–0.82)***
Smoker	0.87 (0.74–1.01)	0.69 (0.57–0.82)**
Alcoholic drinks consumption		
No	1	
Yes	0.85 (0.77–0.95)**	0.88 (0.77–0.99)*
Fruit consumption frequency		
Not daily	1	
Daily	0.96 (0.84–1.08)	1.05 (0.91–1.21)
Vegetable consumption frequency		
Not daily	1	
Daily	0.70 (0.62–0.78)***	0.76 (0.67–0.86)***
Pastries and sweet consumption frequency		
Not daily	1	
Daily	0.75 (0.67–0.84)***	0.95 (0.84–1.07)
Sweetened beverages consumption frequency		
Not daily	1	
Daily	0.95 (0.84–1.07)	0.80 (0.67–0.96)*
Teeth brushing frequency		
Unhealthy	1	
Healthy	0.70 (0.60–0.80)***	0.39 (0.33–0.45)***

Comparison group is metropolitan settings. Age and social class adjusted analysis

* $p < .05$; ** $p < .01$; *** $p < .001$

gynecologist. In this sense, some studies have shown that the lower frequency of visits to a public health centre was caused by economic deprivation, and the absence of a good quality medical insurance [3, 14, 15], which is more common in rural settings. However, Spain is a country that has a public, free and universal health care system, so this hypothesis makes no sense. Lack of accessibility and availability of the primary care services is a more consistent hypothesis as well as the possibility of having a different perception of the need for medical attendance or a reduced expectation among rural residents for primary care [16].

Rural areas are at a disadvantage in terms of the geographical inaccessibility of a number of health services. This geographical isolation and the need for a good public transport system, as well as poor access to emergency services appear to be a negative determinant of health and wellbeing [17]. In Spain, available data shows low-to-moderate accessibility of primary care, medical assessment and monitoring in rural or small urban areas with wide discrepancies in their distribution within the country [18]. This study revealed deficits of preventive health care use in those people living in the less populated areas, and the need for interventions aimed to diminish this phenomenon. Recent Spanish studies have also underlined the necessity for the reorganization of the national healthcare system aimed at avoiding inequalities that could be the product of regional disparate policies or peculiarities of each region [19, 20]. Nevertheless, data regarding the rural–urban differences in preventive health care in Spain is limited, and it is remarkable that almost none of these studies evaluated the potential influence of other components of the health care system as accessibility.

As well as the above mentioned, differences in health-related lifestyle behaviours are common when adjusting to age and social class, and medium-sized urban and rural dwellers participating in this study are less frequently

alcohol drinkers and smokers in the same way as they eat sugar-enriched food less frequently. Otherwise, metropolitan women are more physically active, eat vegetables more often and take better care of their teeth. These facts, from a social and cultural point of view, are not only related to geographical isolation. Women living in less populated areas have different lifestyles [21]. According to previous studies, there are gender differences in lifestyle behaviour such as smoking prevalence, drinking patterns or leisure time physical activity practice [4, 22]. These differences appear to diminish when the social development of women is comparable to that of men, occurring often in metropolitan settings. Female social empowerment is associated with changes in lifestyle behaviour for better and for worse (i.e., smoking, drinking patterns or leisure time physical activity prevalence are increased in women who live in female empowered societies) [1, 23, 24]. Despite the fact that Spain is one of the countries in the world where gender inequalities are not so notable compared to other European countries [20], the big issue is that gender inequalities exist within the country and these inequalities are the ones that alert the need for the development of political and public policies. We can see these differences especially between the more and the less populated areas of Spain, where regions with low population density and the most ruralised autonomous communities are the less gender developed regions in this sense [25].

We should take into account that there is a methodological aspect that could bias the findings in the observed differences in our study, because the use of an interview could skew some of the analyzed phenomena. Habits and health care attendance were self-reported by the interviewees and therefore prone (in particular smoking habits and alcohol consumption) to social desirability bias. Another aspect that makes it difficult is the use of diverse criteria in order to define the terms of health behavior or more precisely, what constitutes a healthy lifestyle. Moreover, the strengths of the study include the access and use of the Spanish National Health Survey, a biannual survey with significant data and a representative sample, including a relatively large number of rural residents. Unlike similar studies dealing with differences between rural and urban areas, in this one we focus on a wide range of health-related lifestyle behaviour. The dataset employed occurred across multiple settings reflecting the broad nature of a healthy lifestyle, attendance to public health services and medical preventive counselling.

Despite what we mentioned above, this study demonstrates the need for additional health promotion in rural settings to provide resources that lead to improved female health. We can hypothesize that preventive medical care use could be related to a disadvantage in medical access in some small towns (even in a country with free healthcare such as Spain), but also we can observe that not only in rural settings but in medium-sized urban areas as well (with good medical facilities), there are differences in this sense and also, in some health behaviour that we have studied. In our opinion, it is possible that observed differences in this relationship between residence settings can be attributed, mainly, not only to the different variety of the area characteristics and the socioeconomic conditions, and due to the different living concepts, sex roles and gender-related cultural background in medium-sized urban and rural areas when compared with the metropolitan ones.

Interventions aimed at improving women's health should not be directed only to medical access but must also focus on women's health education and gender social development, which according to other studies, could be one of the main leading causes of rural–urban differences in health related lifestyle and preventive medical care of Spanish women [26].

As a conclusion, the likelihood of receiving and attending to preventive public health care services was significantly lower for persons in medium-sized urban or rural and remote locations than those living in metropolitan areas, as well as there being differences in health-related lifestyle behaviour. Further investigation of issues related with social determinants and cultural beliefs underlying these differences in health care needs, between rural and urban setting, will strengthen the evidence base to improve the public Spanish health care system, and provide basic knowledge for healthy lifestyle promotion and intervention programs among Spanish women.

References

1. Rütten A. The implementation of health promotion: a new structural perspective. Soc Sci Med. 1995;41(12):1627–37.
2. Andrews GA. Demographic and health issues in rural aging: a global perspective. J Rural Health. 2001;17(4):323–7.
3. Zhang P, Tao G, Irwin KL. Utilization of preventive medical services in the United States: a comparison between rural and urban populations. J Rural Health. 2000;16(4):349–56.
4. Murimi MW, Harpel T. Practicing preventive health: the underlying culture among low-income rural populations. J Rural Health. 2010;26:273–82.
5. Millward H, Spinney J.··Active livinğ related to the rural-urban continuum: a time-use perspective. J Rural Health. 2011; 27:141–50.
6. Curtis AC, Waters CM, Brindis C. Rural adolescent health: the importance of prevention services in rural community. J Rural Health. 2011;27(1):60–71.
7. Rojo Perez F, Fernandez-Mayoralas G, Rodriguez Rodríguez V, et al. Residential environment of the elderly people in Spain. Towards a municipal categorization. Boletín de la asociación de geógrafos españoles. 2007;43:369–74.
8. Regidor E. The Goldthorpe social class classification: reference framework for a proposal for the measurement of social class by the Working Group of the Spanish Society of Epidemiology. Rev Esp Salud Publica. 2001;75(1):13–22.

9. Mckenzie S, McLaughlin D, Dibson A, Byles J. Urban-rural comparisons of outcomes for informal carers of elderly people in the community: a systematic review. Maturitas. 2010;67:139–43.
10. Metintas S, Arykan I, Kalyoncu C, Ozalp S. Menopause rating scale as a screening tool in rural Turkey. Rural Remote Health. 2010;10:1230.
11. Adams J, Sibbritt D, Lui CW. The urban-rural divide in complementary and alternative medicine use: a longitudinal study of 10,638 women. Complement Altern Med. 2011;11:2.
12. Unger CC, Warren N, Canway R, Manderson L, Grigg K. Type 2 diabetes, cardiovascular disease and the utilization of primary care in urban and regional settings. Rural Remote Health. 2011;11:1795.
13. Celaya MO, Berke EM, Onega TL, Gui J, Riddle BL, Cherala SS, Rees JR. Breast cancer stage at diagnosis and geographic access to mammography screening (New Hampshire, 1998–2004). Rural Remote Health. 2010;10:1361.
14. Jackson M, Davis W, Waldron W, McNeel T, Pfeiffer R, Breen N. Impact of geography on mammography use in California. Cancer Causes Control. 2009;20:1339–53.
15. Peipins L, Graham S, Young R, Lewis B, Foster S, Flnagan B, Dent A. Time and distance barriers to mammography facilities in the Atlanta Metropolitan Area. J Community Health. 2011; 36:675–83.
16. Goodridge D, Lawson J, Rennie D, Marciniuk D. Rural/urban differences in health care utilization and place of death for persons with respiratory illness in the last year of life. Rural Remote Health. 2010;10:1349.
17. Johnson IR, McDonnell C, O′Connell AM. Patient perspective on health, health needs, and health care services in a rural Irish community: a qualitative study. Rural Remote Health. 2011;11:1659.
18. Segura A, Villalbí JR, Mata E, De la Puente ML, Ramis-Juan O, Tresserras R. Las estructuras de salud pública en España: un panorama cambiante. Gac Sanit. 1999;13:218–25.
19. Navarro López V, Benach de Rovira J. Desigualdades sociales de salud en España. Rev Esp Salud Pública. 1996;70:505–636.
20. Regidor E, Borrell C, Pasarín I, Guitiérrez-Fisca JL, Lostao L, Galán I. Desigualdades sociales en salud: situación en España en los últimos años del siglo XX. Rev Esp Salud Pública. 2002; 76(1):65–7.
21. Röger U, Rütten A, Frahsa A, Abu-Omar K, Morgan A. Differences in individual empowerment outcomes of socially disadvantaged women: effects of mode of participation and structural changes in a physical activity promotion program. J Public Health. 2011;56:464–73.
22. Cockerham W, Rütten A, Abel T. Conceptualizing health lifestyles: moving beyond weber. Sociol Q. 1997;38(2):321–42.
23. Abu-Omar K, Rütten A. Relation of leisure time, occupational, domestic, and commuting physical activity to health indicators in Europe. Prev Med. 2008;47:319–23.
24. Rütten A, Gelius P. The interplay of structure and agency in health promotion: integrating a concept of structural change and the policy dimension into a multi-level model and applying it to health promotion principles and practice. Soc Sci Med. 2011;73:953–9.
25. Carrasco-Portiño M, Ruiz-Cantero MT, Gil-González D, Álvarez-Dardet Díaz C, Torrubiano-Domínguez J. Epidemiología de las desigualdades de desarrollo de género en España (1990–2000). Rev Esp Salud Pública. 2008;82:283–99.
26. Navarro V, Quiroga A. Políticas de Estado de Bienestar para la equidad. Gac Sanit. 2004;18(Supl 1):147–57.