Original article

Inequities in visual health and health services use in a rural region in Spain

Sergio Latorre-Arteaga[a,b,c,*], José Fernández-Sáez[a,b], Diana Gil-González[a,b,d]

[a] *Public Health Research Group, University of Alicante, Alicante, Spain*
[b] *Department of Community Nursing, Preventive Medicine and Public Health and History of Science, Faculty of Health Sciences, University of Alicante, Alicante, Spain*
[c] *Department of Optometry, Faculty of Health Sciences, University of Lurio, Nampula, Mozambique*
[d] *CIBER de Epidemiología y Salud Pública (CIBERESP), Spain*

A B S T R A C T

Objective: To analyse perceived visual health and health services use in a rural population in relation to socioeconomic characteristics and compared with the general population in Spain.
Method: Cross-sectional study in a rural population using a structured questionnaire including questions comparable to the Spanish National Health Survey (2012). A descriptive analysis was carried out through the calculation of frequencies and prevalence, the χ^2 test for independent variables, contrasts of proportions and logistic regression to obtain associations between the rural and general populations and socioeconomic variables.
Results: For the rural population studied, the prevalence of poor perceptions of visual health is 40.8% in men and 39.4% in women, and is strongly associated with age, employment situation, income and presence of chronic diseases ($p < 0.001$). Compared with the general population, the rural population has a higher risk of presenting with serious difficulties related to farsightedness (OR: 2.56; 95% CI: 1.32-4.95) and make less use of optical correction (OR: 0.57; 95%CI: 0.44-0.74). The use of health services is not sufficient for adequate prevention, particularly in diabetics. For those affected by poor vision, the distance to travel to receive an eye exam, the belief that eyesight problems come with age and the cost of glasses are the principal reasons used to explain why eyesight problems are not resolved.
Conclusions: The rural population presents worse visual health that is influenced by social and economic factors. Improving accessibility and reducing barriers is essential to tackle avoidable visual disability and reduce health inequities.

Desigualdades en salud visual y uso de servicios de salud en una población rural en España

R E S U M E N

Objetivo: Analizar la salud visual y el uso de servicios de salud en una población rural periférica en relación a variables socioeconómicas y a la población general española.
Métodos: Estudio transversal en población rural con administración de cuestionario estructurado incluyendo preguntas comparables a la Encuesta Nacional de Salud en España (2012). Se realizó un análisis descriptivo a través del cálculo de frecuencias y prevalencias, el uso de la prueba χ^2 para la independencia de variables y el contraste de proporciones y regresión logística para obtener asociaciones entre variables en población rural y general.
Resultados: En la población rural estudiada, la prevalencia de mala salud visual percibida es del 40,8% en los hombres y del 39,4% en las mujeres, y está fuertemente asociada a la edad, la situación laboral, el nivel de ingresos y la presencia de enfermedades crónicas ($p < 0,001$). Presentan mayor riesgo de afrontar importantes dificultades en visión lejana (*odds ratio* [OR]: 2,56; intervalo de confianza del 95% [IC95%]: 1,32-4,95) y hacen un menor uso de corrección óptica (OR: 0,57; IC95%: 0.44-0.74) en comparación con la población general. El uso de los servicios de salud es insuficiente para una adecuada prevención, particularmente en las personas diabéticas. Aquellos/as con dificultades visuales señalaron la distancia al centro de salud, asociarlo a la edad y el precio de las gafas como principales barreras en el acceso a una solución.
Conclusiones: La población rural presenta peores indicadores de salud visual, influenciados por factores socioeconómicos. Se requieren acciones que aborden la discapacidad visual por causas evitables y reducir las inequidades en salud.

* Corresponding author.
  E-mail address: Sergio.latorre@ua.es (S. Latorre-Arteaga).

Introduction

Visual disability affects negatively the autonomy and quality of life especially at advanced ages and is associated with worse mental health,[1] greater cognitive deterioration[2] and a greater risk of falls and injuries.[3]

Vision may be impaired due to multiple reasons being uncorrected refractive errors the most common cause worldwide. The prevalence of vision impairment and blindness is unequally distributed and strongly associated with socioeconomic factors and health services availability.[4] Ageing, gender, socioeconomic status, ethnicity and place of residence are factors that determine inequalities in both visual health and use of eye health services. Prevalence of vision impairment, including blindness, is higher in women.[5] Low-income populations and minority ethnic groups have less probability of access to preventive eye care services.[6] Live in rural areas has been shown as a risk factor for certain common eye conditions such as cataracts or diabetic retinopathy compared to urban populations.[7]

During the last decade, the prevalence of visual impairment is growing in Spain and is unequally distributed among groups with an increased risk in lower-income regions.[8] National surveys on the prevalence of blindness and visual disability in Spain show that these problems affect more than 900,000 people, of whom 69% are over age 65 and two thirds are women;[9] life expectancy may contribute to this gap as in Spain is greater in women than in men, 86.2 years *versus* 80.4 years.[10] Age and diabetes are considered principal risk factors, given the fact that age-related macular degeneration and diabetic retinopathy are the blinding conditions with the greatest increase in recent years.[11] In Spain, patients searching medical eye care are referred by their family doctor and the average waiting time to receive specialized consultation is 68 days estimated by the NHS in 2015.[12]

For Spanish society, visual health is becoming more relevant as a public health concern, with an expected doubling of the population over age 65 by the year 2050, the greatest elderly population in Europe.[13]

There is a scarcity of research related to visual health status and the use of eye care services, particularly in rural areas. A regional survey carried out in Catalonia showed that the elderly and women with low incomes are particularly vulnerable to perceived poor vision[14] and some rural populations have been identified at risk for ocular conditions such as diabetic retinopathy.[15]

The Spanish National Health Survey[16] (NHS) addresses visual health in the population through five unique questions about the use of glasses or contact lenses and the capacity for near sight and far sight. In this study, we aim to analyze perceived visual health and health services use in a peripheral rural population in Madrid in relation to sociodemographic, socioeconomic and health characteristics. We also compared the use of optical correction and eyesight limitations between the rural population and the general population in Spain.

Method

Study population, sample and data collection

This study was carried out in the rural municipality of Cenicientos, located at the farthest site of the Southwest Sierra in the province of Madrid, reason for which was selected for the study. Cenicientos has a population of 2,073 inhabitants (50.7% women) and an ageing index –percentage of population over 65 years of age– of 27% compared to 19%, 17% and 18% in the area, province and country respectively.[17] At the national level, 7.4% of the total population lives in municipalities with 2000 inhabitants or less and

Table 1
Total population and study sample in the rural municipality of Cenicientos.

Age groups (years)	Population census N (%)		Study sample n (%)	
	Men	Women	Men	Women
18-44	354 (41%)	341 (39%)	54 (38%)	58 (36%)
45-64	267 (31%)	227 (26%)	36 (25%)	47 (29%)
>65	238 (28%)	309 (35%)	52 (37%)	55 (34%)
Subtotal	859 (100%)	877 (100%)	142 (100%)	160 (100%)
Total	1736 (100%)	302 (100%)		

the average ageing index in these populations is 24%, similar to the studied rural municipality.

At the time the study was carried out, the health center with ophthalmological specialty was located 70 kilometers away, connected by frequent public transportation. In Cenicientos, like other municipalities in Spain with a similar number of inhabitants, there are no existing specialized visual health services, nor any ophthalmologist or optometrist office, and the local health center does not include specific resources necessary for the identification of refractive errors or ocular pathologies.[18]

We conducted a cross-sectional study in a stratified random sampling of 302 individuals over age 18, representing 17.4% of the total population censed at rural municipality of Cenicientos (Table 1). The surveys were administered face-to-face in randomly selected households to complete the quotas stablished by age and sex. Data was collected during August of 2013 by local interviewers that received prior training. All of those approached accepted participation, with a response rate of 100%.

A questionnaire was developed to collect data based on questions comparable to the Spanish NHS (2012). After consulting other regional surveys in Spain[19,20], the questionnaire was completed with ad-hoc questions in order to obtain information relevant to the study objectives (Table 2). Information regarding use of eye care services in the child population (<16 years old) was collected through the adults interviewed.

The questionnaire was applied previously in a pilot sample of 15 people in order to explore applicability and data collection. The study was approved by the Ethics Committee of the University conducting the study and developed in cooperation with authorities of Cenicientos (Madrid) that provided human and logistical resources. All interviewees consented by signature to use anonymous data in this study.

Variables

Several outcomes were collected for the categories: state of health and visual health, use of optical correction, visual limitations at far and near sight, use of health services, and perceived barriers to improve visual health including options for multiple response and open answers.

The term visual health was explained to participants as the capacity to see well at any distance without discomfort and without ocular disease. The description of questions and outcomes related to visual health included in the data collection instrument is presented in Table 2.

The sociodemographic and socioeconomic variables collected at the study includes: age (ranges: 18-44, 45-64, <65 years), sex, marital status, education level (no studies/primary, secondary, university), employment situation (employed, self-employed, household, unemployed, student or retired), professional category of the current or last job (NHS 2012 classification later grouped into low, medium and high rank) and income level (combined contributions of all family members per month: less than 800 €, between 800 € and 1550 €, more than 1550 €).