Investigación en España sobre desigualdades en la incidencia, mortalidad, prevención y atención del cáncer.

Estudio bibliométrico y de revisión de la literatura.

The state of research into inequalities in the incidence, death, prevention and healthcare in cancer in Spain. A bibliometric study and literature review. *Executive summary.*
Executive summary

**Title:** The state of research into inequalities in the incidence, death, prevention and healthcare in cancer in Spain.

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**Background**  
Several studies have been published in recent years regarding the influence of social determinants on the incidence of and death by cancer, as well as regarding the impact of inequalities on access to healthcare services. In 2005, a thorough revision of papers dealing with the situation in North America was undertaken, which agreed with previously published research in highlighting the fact that, despite the magnitude of the problem, there are relatively few studies into the relationship between social inequalities and different aspects of the disease. Several authors have described the existence of important gaps in our knowledge of the connection between social inequalities and the continuum of the disease (prevention, incidence, aetiology, screening, diagnosis, access to clinical trials, treatment, survival, morbidity and mortality).

The interest in identifying research into inequalities and cancer conducted in Spain lies in the potential applications of the information provided by such a review. We aim to clarify which research questions have been addressed and what answers to them have been found, as well as to identify possible actions to reduce inequalities. Moreover, the appraisal of the quality of Spanish studies and the description of those aspects which have been less widely studied will be potentially useful in identifying areas of investigation and in making methodological recommendations to improve future research into inequalities and cancer.

**Objective**  
The main objective of this review is to identify and characterise peer-reviewed published research conducted in Spain into inequalities. This includes inequalities in incidence, mortality, prevention, diagnosis, treatment and palliative care.

**Methodology**
A bibliographic review of literature was undertaken in order to identify research into social inequalities and cancer conducted in Spain.

The main bibliographic search to retrieve original papers was run on the Medline and Embase search engines. Language and publication dates were not restricted in the search, which was conducted in June 2007. Wide search strategies were employed in order to obtain high sensitivity. The Índice Médico Español (IME), the data base of doctoral theses of the Spanish Ministry of Education and Science (TESEO) and the Cochrane Library were also consulted. Furthermore, an additional manual search for references in Spanish journals was conducted in Gaceta Sanitaria, Medicina Clinica, Revista Española de Salud Pública, and Atención Primaria.

The main criteria employed to select papers were: 1) Research question: papers including amongst their principal objectives an appraisal of the relationship between a particular inequality variable (independent variables included socioeconomic status, sex, ethnicity, area of residence, etc.) and a particular cancer-related variable (incidence, mortality, use of services related to cancer prevention and care). 2) Design: systematic reviews, controlled clinical trials, original individual or ecologically based observational studies. 3) Population: studies of Spanish populations independently of country of publication.

The critical appraisal was conducted in accordance with the recommendations of the Critical Appraisal Skills Programme (CASP) adapted by CASP España (CASPe) on recently published individual-based studies (2000-2007). Each study was assessed independently by two reviewers. A third reviewer resolved discrepancies.

Results from the papers were qualitatively synthesised describing the main conclusions in function of the dependent variables studied and the axis of inequality. When several studies covered the same research question, a description of the level of coincidence amongst them was made.

Results

One-thousand three-hundred and thirty-seven references were collected in the initial search. After discarding duplicates and undertaking the first phase of selection (by title and abstract), 154 papers remained. The most common motive for exclusion was that the study did not investigate cancer inequalities. In a second selection phase (the full reading of the papers), eight papers that could not be retrieved and 90 that did not meet the inclusion criteria were excluded. Finally, 56 papers remained of which 45 clearly addressed the main objective of the present review whereas 11 did not seek to identify cancer inequalities amongst their main objectives but did provide data in this respect.
In 12 of the 45 papers dealing directly with cancer inequalities, the variable analysed was incidence of any sort of cancer in 12 papers (one of which also dealt with the use of services), mortality due to cancer was the theme of 11 papers, and the use of health services was studied in 23 papers. These 23 studies were subdivided by the specific themes of research: 12 investigated the influence of socioeconomic variables on prevention and use of cancer early detection programmes (most were focused on breast and cervical cancer); 4 addressed the inequalities in diagnosing and treating cancer; 4 dealt with the relationship between socioeconomic variables and aspects related to caring for terminally ill cancer patients; and 3 papers analysed a variety of themes. Economic status, educational level, employment, residence (rural/urban) and sex were the most frequently studied variables as possible axes of inequalities.

The journals with the greatest number of papers were Gaceta Sanitaria, Oncología, Medicina Clínica, Atención Primaria, Revista Española de Salud Pública, European Journal of Cancer Prevention, and the Journal of Epidemiology and Community Health. The institutions involved in the greatest number of studies were the Instituto Municipal de la Salud in Barcelona, the Instituto de Salud Carlos III and the Fundación Parc Taulí.

The methodological quality was assessed in the 14 individual-based studies published between 2000 and 2007 and ten were considered to be of high quality.

Incidence

Of the 12 papers that studied the relationship between socioeconomic variables and the incidence of any type of cancer (2 ecological and 10 individual-based studies), most of the associations found are compatible with higher incidences in more disadvantaged population groups. It is worth noting that one ecological study found a greater incidence of oral cavity, oesophageal and stomach cancer in the towns of the Granada province with the highest unemployment rates. Pharynx cancer was more frequent in persons with low and middle-low socioeconomic status according to another of the included studies after adjustment for alcohol and tobacco use. Furthermore, all of the studies found a correlation between low educational level and an increased incidence of lip cancer (after adjustment for alcohol and tobacco use and other risk factors) and of cervical cancer (after adjustment for history of Pap smear testing and other possible confounding variables).

Several case-control studies have addressed the incidence of a range of cancers by occupation. Urinary bladder cancer is found to be more frequent in certain manual occupations (farmers, spinners and weavers with long exposure times); non-melanoma skin cancer is more frequent in men working for more than 12 hours a day in open air occupations, and jobs involving exposure to silica or mineral powders are associated with higher incidence of gastric cancer.
Mortality

Eleven studies investigating the relationship between socioeconomic variables and death due to cancer may be considered as being ecological studies. Not all of these papers found a clear association between socioeconomic variables and mortality (e.g. one paper on mortality caused by malignant brain tumours and another on various kinds of cancer in paper industry workers). However, most papers do find some association although it may not always be concluded that an inequality is present. In fact 2 out of 3 countrywide studies into breast cancer mortality found rates to be greater in towns with higher economic levels. Moreover, a study into a variety of cancers in the city of Barcelona found that women with primary studies had a lower mortality rate due to cancer than women with university studies (RR = 0.81, CI 95%: 0.74-0.90) except for cervical cancer, which was related to lower educational levels. Another study into cervical cancer, which used the illiteracy rate as an independent variable, coincided with these findings.

An area deserving of further study is a possible interaction between socioeconomic level and sex. The same Barcelona study which hardly found any relationship between socioeconomic status and mortality due to cancer in women found that men with a lower educational level had a higher rate of mortality due to tumours (RR = 1.21, CI 95%: 1.13-1.29), especially as a result of mouth, pharynx, oesophageal, stomach, larynx and lung cancers.

Finally, it is noteworthy that 2 of 3 studies into digestive system cancer found a higher rate of mortality due to this cancer in more rural areas. The third study found an association between the lower economic level of a county and higher mortality caused by stomach cancer.

Prevention and use of early detection cancer programmes

Of the 12 studies that investigated inequalities in cancer prevention, one focused on participation in a colorectal cancer prevention programme and 11 on the early detection of female-specific cancers.

The first study did not find an association between socioeconomic variables or sex and participation in early detection programmes in people with a family history of colon cancer.

The influence of different socioeconomic variables on the use of Pap smear tests in the early detection of cervical cancer was studied in five papers; one was a countrywide study whereas the remainder were at smaller territorial levels. All of them coincided in finding an association between higher socioeconomic or educational level and the use of Pap smears as a preventive test.
The six papers with the main aim of analysing the relationship between several socioeconomic variables and screening mammography were conducted in different settings (Spain, Catalonia, various cities). The only paper conducted countrywide found an association between breast cancer screening and the autonomous region of residence (the existence or otherwise of a population screening programme was found to be significant), as well as other variables related to the knowledge and attitude of the women. On the other hand, the other five papers did coincide in illustrating the relationship between socioeconomic variables and screening mammograms: women from more disadvantaged social classes, lower educational levels, housewives, the unemployed, and the retired less frequently used preventive services.

Three further studies must be added to the six already mentioned. Two of these explored the influence of sociodemographic variables on the lack of participation in breast cancer screening programmes. The third evaluated the recruitment methods of this type of programme as well as the influence of educational level on the efficacy of such methods.

**Diagnosis and treatment of cancer**

Of the four studies in this group, one investigated differences between men and women with bladder cancer in the diagnostic tests and treatment received. No differences were found with regards to delay in diagnosis between men and women nor concerning the type of diagnostic tests employed. However, transurethral resections were more frequently performed on women than men, especially in early stages.

The main objective of the remaining three papers was to analyse the association between sex, different socioeconomic variables and delay in receiving attention. Two of these papers particularly studied digestive cancer. Findings with regards to differences between men and women varied in these papers although it should be taken into account that different types of delay were studied. Whereas one study found a greater total diagnosis delay in women (although not reaching statistical significance), another found early diagnosis delay was higher in men. The third paper, on the other hand, found delay in treatment to be higher in women. Other socioeconomic variables related to a greater delay in receiving attention were living in rural areas, being unemployed, and belonging to a middle-low social class.

**Attention to terminally ill patients**

Two of the four papers in this group correspond to the same study conducted in Majorca. This study found that patients from urban areas more frequently died in a hospital while patients from rural areas more frequently died at home. However, no significant differences were found in the place of death.
and the educational level. Furthermore, amongst patients who died at home, the factor that was most clearly related to the care received by the primary care doctor was the area of residence, with patients living in rural areas receiving the most visits. A second study, conducted in a different geographical area, also analysed factors related to the place of death in patients who died due to gastric cancer. As in the Majorca study, it was found that a higher percentage of patients from rural areas died at home than patients from urban areas.

Finally, in a study conducted in Navarra, people without family experience of cancer in the general population were interviewed in order to investigate their desire for information to be given to a relative in the hypothetical situation of a diagnosis of an advanced cancer being made. A clear correlation between the level of education and a positive attitude towards information being given was found.

**Other papers**

In addition to the papers referred to so far, three further papers were included that studied a range of themes: differences by sex and educational level of cancer patients in hospital readmissions, influence of educational level on knowledge about cancer in women in the general population, and differences in the quality of life of cancer patients depending on socioeconomic variables.

**Conclusions**

1) Research addressed at identifying cancer inequalities in Spain can be considered scarce, at least insofar as it is published as papers in scientific journals. The exception is for the area of the use of services to prevent female-specific cancers (breast and cervical cancers). The methodological quality of the studies conducted in recent years (2000-2007) can be considered as satisfactory.

2) Most associations between socioeconomic variables and incidence of cancer are, with certain exceptions, compatible with higher incidence in more disadvantaged population groups. However, associations between this type of variables and mortality due to cancer do not always lead to the conclusion that an inequality has been identified.

3) Studies investigating the existence of inequalities in the use of women cancer screening (breast and cervical cancer) generally coincide in finding that there are socioeconomic inequalities in the use of screening. The scarcity of studies into inequalities in the use of other types of health services, such as diagnosis, treatment and palliative care, makes it impossible to draw firm conclusions in this respect.

4) Studies into the place of death of cancer patients coincide in finding that patients living in rural areas more frequently die at home whereas those living in urban areas more frequently die in a hospital.