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Comorbidities with chronic physical conditions and gender profiles of illness in schizophrenia. Results from PREST, a new health dataset

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ABSTRACT

Objective: Using data from a large health dataset, the objectives are to describe the epidemiology of comorbidities with chronic physical conditions in schizophrenia, to identify gender profiles of illness and to discuss findings in the light of previous research.
Methods: The PREST health database was used which combines high quality and complementary data from numerous public health care resources in the Basque Country (Spain).
Results: A total number of 2,255,406 patients were included in this study and 7331 had a diagnosis of schizophrenia. 55.6% of them had one comorbid condition and 29.3% had 2 or more (e.g. multiple comorbidities). Hypertension (16.8%) was the most prevalent diagnosed comorbid condition in these patients. The risk of having neuropsychiatric disorders including Parkinson (OR up to 47.89), infectious diseases (OR up to 3.31) or diabetes (OR2.23) was increased, while the risk of having cancer (OR down to 0.76) or some cardiovascular conditions (OR down to 0.63) was reduced. Women (both with and without schizophrenia) showed higher percentages of comorbidities than men. A cluster of respiratory diseases was found only in women with schizophrenia (not in men).
Conclusions: Results confirm partially previous findings and call for a more proactive and comprehensive approach to the health care of patients with schizophrenia. Specific profiles of risks for concrete disorders were identified which could be explained by selective underdiagnoses or higher exposition to risk factors in this group of patients. Results also suggest the need of a more gender oriented approach to health care in schizophrenia.

1. Introduction

Schizophrenia is among the most severe mental disorders and affects 1% of the general population [1]. Many studies show that this illness is frequently associated with physical ill health, increased morbimorbidity and up to 20 years' premature death [2]. Many of these comorbid conditions are preventable and/or treatable but according to the literature they often remain underdiagnosed and/or treated in these patients [3], which represents a clear example of health inequalities. The concrete reasons for these adverse health outcomes are not well known and some possible explanations include unhealthy lifestyles which can be more frequent in schizophrenia, side-effects of psychopharmacological treatments or selective barriers of access to medical treatments resulting in underdiagnosis or undertreatment of those physical disorders [4–6].

A number of factors limit the understanding of this phenomenon and most of them are linked with the scarcity of good quality and large datasets allowing its precise characterization. Until recently one main source of information were hospital records, whose use was criticized because they do not reflect the most representative and prevalent mild or moderate cases. In the last years this situation has started to change with the publication of a number of studies based on large primary care records with good quality data which are providing a more solid evidence of the magnitude of the phenomenon [3,7–9]. However, the number of studies is still scarce and there is a need of replication of findings using new data from reliable sources. This information could also help to clarify some remaining knowledge gaps such as the role of some sociodemographic factors or the study of specific patterns of illnesses.

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The public health administration of the Basque Country (Spain) is in a unique position to study comorbidities in patients with schizophrenia and this is thanks to the existence of a specific database, the PREST database [10] which combines data from various high quality and complementary data sources and provides highly reliable information on diagnoses or therapeutic procedures, among others.

Comorbidities with chronic physical conditions in mental disorders are under studied conditions, relatively new for researchers and important knowledge gaps still remain. This study is intended to contribute to the general knowledge of these specific comorbidities in schizophrenia by analyzing data from a large, complete and reliable dataset. The concrete objectives of this paper are to describe the epidemiology of comorbidities with chronic physical conditions in schizophrenia, including its association with sociodemographic variables and the analysis of specific clusters of illness, and then to discuss findings in the light of previous research.

2. Methods

2.1. Setting and context

The Basque Country is one of the Spanish autonomous regions in Spain and has its own competencies in the management of health care provision. The Basque Health System (Osakidetza) is an organization publicly funded through general taxes. It provides universal coverage to the citizens in the Basque Country. At the point of delivery provision of care is free of charge, with the exception of pharmaceuticals, which can entail a co-payment. The percentage charged varies according to the type of illness, the level of income of the patient and his/her age.

In 2010 the Department of Health and Consumer Affairs of the Autonomous Region of the Basque Country launched its "Strategy for tackling the challenge of chronicity in the Basque Country" [11]. An important component of the strategy was to develop a tool for the risk stratification of citizens with the aim of classifying the entire population of the Basque Country in terms of their future healthcare needs. For this purpose, a large dataset (called PREST) was assembled combining information on individuals from several sources.

2.2. Scope of the PREST dataset

Data from the present study are derived from the database set up by the Population Stratification Programme (PREST) of the Basque Health Service. This programme began in 2010 although the database contains information collected since 2007. It combines several different sources of information such as census data, electronic health records, hospital discharge reports (MBDS), outpatient care reports (including outpatient specialized care, emergency services, day hospital and home hospitalization), or pharmacy expenses. From these sources PREST provides good quality information on diagnoses (primary care, specialist care, and hospitalization), prescriptions, therapeutic procedures, healthcare costs, socioeconomic variables and also a categorization of individuals according to the Adjusted Clinical Groups case-mix system [ACG] [12]. A more detailed description of these variables is available in a previous publication [10]. Though there could be omissions or errors in doctors' notes in the medical records, the complementary use of different data sources enables health problems to be identified from diagnoses or prescriptions, and provides high-quality information. Notably, in a previous study, it was found the rates of chronic diseases estimated using data in administrative databases of the Basque Country are similar or (in many cases) higher than those obtained from population surveys [13].

2.3. Study population

The study population included every person who was covered by public health insurance in the Basque Country on 31st August 2011 and who had been covered for at least 6 months in the previous year, regardless of whether or not they had made any contact with or use of the Basque Health Service Hence, our dataset is not a representative sample of the inhabitants served by our health service, but it corresponds to almost the entire population in the Basque Country.

The Mental Health Registry was used to identify those patients registered in PREST who also had a diagnosis of schizophrenia (F20, ICD10) made by a mental health specialist in a public mental health resource. This registry includes clinical and sociodemographic information on those patients attending the Public Mental Health Network of the Basque Country, including at least one diagnosis of a mental disorder for each patient which is made by a mental health specialist. Both registers were crossed to allow for this identification. All the patients without a diagnosis of schizophrenia made by mental health specialists of the public mental health network were considered controls.

2.4. Definition of chronic conditions

With the aim of describing the prevalence of chronic diseases and comorbidities, we adopted a list of 47 pathologies, defined by consensus among the research team. This task was based on adapting two pre-existing lists, published by other authors: the diseases selected by Barnett el al. [9] and the conditions considered to be chronic in the ACG Technical Reference Guide [12].

In most cases it was considered that a person had a chronic disease because it had been ever assigned the corresponding diagnosis (for example, congestive heart failure). In other diseases the diagnosis or prescription of specific medications (e.g., or diabetes mellitus and Parkinson's) were considered. However, in order to avoid inactive and non-chronic conditions, more complex criteria were applied for some illnesses: repeated diagnosis over several years (low back pain); any history of the diagnosis together with prescription of specific drugs in the previous year (asthma and epilepsy); diagnosis in the previous year or repeated prescriptions over several months (depression and anxiety); or repeated prescriptions to treat the given health problem (treated dyspepsia). A more detailed description can be found in bibliography [14].

In this study, we considered *multiple comorbidities* the co-occurrence of two or more health problems in a person with schizophrenia.

2.5. Socio-demographic information

Demographic variables were used (age on the final day of the study period and sex), along with the geographical deprivation index and chronic diseases. The deprivation index based on census tract was used as the social indicator. A tract is the smallest geographical unit into which population census data can be broken down, and these are created according to population size, as well as geographical and urban criteria. While the number of inhabitants in each tract varies, the median is around 1200 per tract. As the tracts are so small, they tend to be quite homogenous with respect to the type of dwellings. The deprivation index provides a measure of the socio-economic characteristics of census tracts and is constructed from the following variables: percentage of manual workers, unemployment, temporary employment, and low educational attainment in the population (people who are illiterate or have not completed primary education), both overall and also specifically among young people (inhabitants between 16 and 29 years of age) [15]. Although this index is only based on a very limited number of socioeconomic variables, it provides a measure of the level of access to material and social resources in a community and has been shown to be correlated with general rates of morbidity and mortality. In this study, we categorized individuals into quintiles by the deprivation index score, where 1 corresponds to the least and 5 the most deprived.