

BRIEF ORIGINAL

PREVALENCE OF ADULT ATTENTION DEFICIT/HYPERACTIVITY
DISORDER (ADHD) ACCORDING TO PRIMARY CARE
COMPUTERISED CLINICAL RECORDS

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ABSTRACT

Background: ADHD in adults is not uncommon and, according to recent epidemiological data, has a population prevalence of 3-4%. However, there is major unawareness of this disorder among doctors, particularly in primary care. The aim of this study is to determine the prevalence of the diagnosis of ADHD recorded in adults and the proportion of patients with drug prescriptions for this disorder in primary care.

Methods: This is a cross-sectional study on databases of computerised primary care medical records. The target population is adults (18-44 years) assigned to primary care centres of the Catalan Health Institute (n = 2,452,107). We obtained the proportion of patients with ADHD (F90/ICD-10 code) registered as active problem, and the proportion of patients with a specific prescription for ADHD in adults: methylphenidate, methylphenidate extended release or atomoxetine.

Results: The prevalence of recorded ADHD is 0.04% (0.07% in men, 0.02% in women). The percentage of patients with a specific prescription for ADHD is 0.07% (0.08% in men, 0.05% in women). 32.05% of ADHD patients had specific prescription.

Conclusion: The diagnosis of ADHD in adults and specific treatment are extremely low in primary care. These results contrast with population data: registered ADHD is 1/85 of the population prevalence.

Keywords: Attention Deficit Hyperactivity Disorder. Prevalence. Medical records. Primary Health Care.

RESUMEN

Prevalencia del déficit de atención e hiperactividad en personas adultas según el registro de las historias clínicas informatizadas de atención primaria

Fundamento: El TDAH en adultos no es infrecuente y, según datos epidemiológicos recientes, tiene una prevalencia poblacional del 3-4%. Sin embargo, existe un gran desconocimiento sobre este trastorno entre los médicos, particularmente en atención primaria. El objetivo de este trabajo es determinar la prevalencia del diagnóstico registrado de TDAH en adultos y la proporción de pacientes con prescripción farmacológica para este trastorno en atención primaria.

Métodos: Se trata de un estudio transversal sobre las bases de datos de las historias clínicas electrónicas de atención primaria. La población diana son los adultos (18-44 años) adscritos a centros de salud del Instituto Catalán de la Salud (n=2.452.107). Hemos obtenido la proporción de pacientes con diagnóstico de TDAH (código F90/CIE-10) en la lista de problemas activos, y la proporción de pacientes con prescripción activa de un fármaco específico para el TDAH en adultos: metilfenidato, metilfenidato de liberación prolongada o atomoxetina.

Resultados: La prevalencia de TDAH registrado es del 0,04% (0,07% en hombres; 0,02% en mujeres). Los pacientes con prescripción para TDAH son el 0,07% (0,08% en hombres; 0,05% en mujeres). El 32,05% de los TDAH tenían prescripción específica.

Conclusión: El diagnóstico en adultos de TDAH y el tratamiento específico son extremadamente bajos en atención primaria. Estos resultados contrastan con los datos poblacionales: el TDAH registrado es 1/85 de la prevalencia poblacional.

Palabras clave: Trastorno por Déficit de Atención e Hiperactividad. Atención Primaria de salud. Prevalencia. Historias clínicas.

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INTRODUCTION

Patients with adult attention deficit/hyperactivity disorder (ADHD) show difficulties since early childhood to maintain attention and/or excessive impulsivity and hyperactivity. These symptoms are chronic and affect diverse situations (i.e. familiar, social, academic and employment situations)¹. However, symptoms and functional impact of ADHD do not always disappear in adulthood: this disorder can persist in more than 50% of cases^{2,3}. Recent international epidemiological studies show that ADHD prevalence in adults is rated around 3-4%^{4,5}. However, a great number of patients with ADHD in adult population are not detected due to different reasons⁶. Hence, they may remain excluded from the potential benefits of specific treatment^{7,8}. One of the reasons of infradiagnosis in adults is not only due to lack of knowledge of this disorder by the doctors, especially in primary health care⁹, but also there are doubts about validity of ADHD. This phenomenon is not foreign to scientific and media controversy that questions the “real” existence of ADHD as a pathological entity¹⁰⁻¹². Primary health care may play a key role to detect and attend main mental health problems of population¹³. Several authors consider that primary health care could be an appropriate place for a better ADHD detection and, consequently, management of adult patients with ADHD¹⁴⁻¹⁶.

The goal of this article is to determine ADHD prevalence registered in adults, and prevalence of pharmacological prescriptions for ADHD according to primary care computerised clinical records in Catalonia. In addition, it aims to explore associations of these variables with demographical and clinical treats of individuals.

MATERIAL AND METHODS

Type of study: Cross-sectional research of computerised data bases from primary care clinical records during October 2009.

Subjects and settings: All subjects between 18 to 44 years old, registered in Primary Health Care Centres of the Institut Català de la Salut (Catalan Health Care Institute). The Catalan Health Care Institute is the main health institution of Catalunya, although it might not be the only one. It provides public health services to 81.6% of the population¹⁷ and the totality of clinical histories are computerised at the Primary Health Care Centres. In this study, the range of age has been limited to contrast “detected” prevalence results with epidemiological studies data that establish an age limit to avoid memory limitations in elder individuals when evaluating retrospectively ADHD disorder from childhood.

Statistical analysis and measurements: A proportion of patients who were diagnosed with ADHD (code F90/CIE-10) has been obtained in the list of active problems of their clinical records. Detection of ADHD through lack of registration of ADHD diagnostics in clinical records at the Primary Health Care level cannot be assured if this disorder is treated exclusively at a specialized psychiatric level. In order to evade this inconvenience, prescription data for specific ADHD treatment as a proxy variable diagnostic has been examined and proportion of patients under ADHD active prescription in adults (methylphenidate, methylphenidate of extended release or atomoxetine)¹⁸ has been determined. Proportions have been presented in a global form, by sex, age groups and according to psychiatric comorbidity presence; affective disorders (codes F30-39 / CIE-10), anxiety disorders (codes F40-49 / CIE-10) and disorders caused by substances consumption with exception of nicotine (codes F10-19,

except F17 /CIE-10). The Chi-square test has been applied to evaluate the association of main variables with these demographical and clinical characteristics of patients.

RESULTS

Data of 2,452,107 subjects were evaluated. 48 % of them were female. 16% were between 18 and 24 years old, 42% were between 25 and 35 years old and 42% were between 35 and 44 years old. 77% were from the province of Barcelona, 9% were from Tarragona, 8% were from Gerona and 6% were from Lleida.

Global prevalence of ADHD registered was 0.04% (0.02% in women and 0.07 in men; Chi-square: 332.6, d.f.:1; $p<0.0001$). Presence of ADHD diagnosis was 0.07% in patients with affective disorders (Chi-square: 27.5; df:1; $p<0.0001$), 0.09% in patients with anxiety disorders (Chi-square: 25.4; df:1; $p<0.0001$) and 0.17% in patients with drug consumption disorders (except nicotine) (Chi-square: 113.7; d.f.:1 $p<0.0001$). Patients with specific prescription for ADHD treatment were 0.07% (0.05% in women and 0.08% in men; Chi-square: 83.3; d.f.:1; $p<0.0001$). 32.05% of diagnosed individuals were under specific treatment for ADHD.

Figure 1
Prevalence of Adult Attention Deficit/Hyperactivity Disorder (ADHD) registered in primary health care clinical records according to age and gender

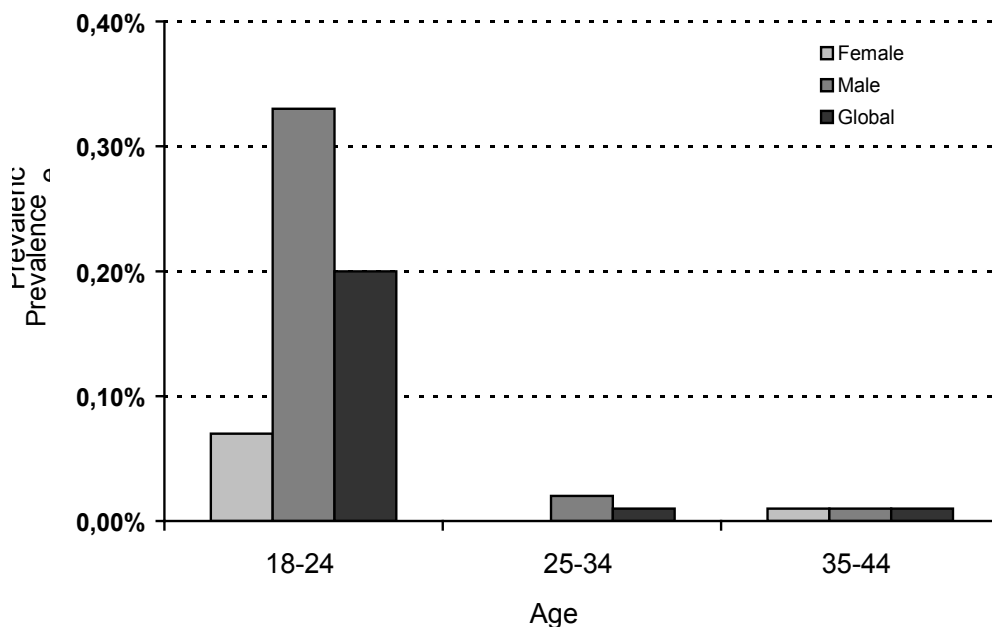
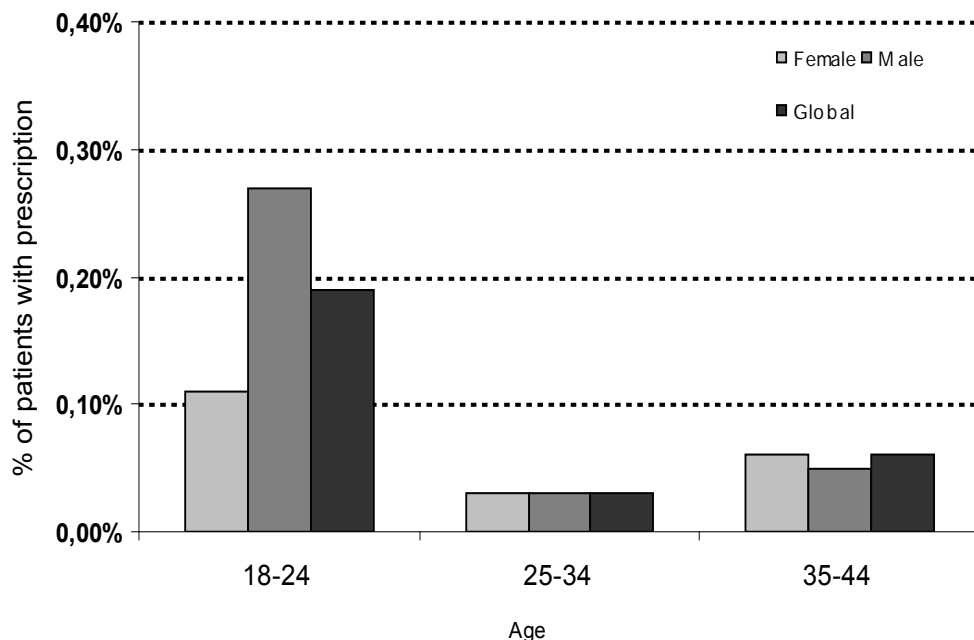


Figure 2
Proportion of patients with specific pharmacological prescription for Attention Deficit/Hyperactivity Disorder, according to age and gender



Presence of registered diagnostic of ADHD and presence of active prescription of an ADHD specific drug have been associated significantly with age (respectively Chi-square: 2947.6; d.f.:2; $p < 0.0001$ and Chi-square: 1083.3; d.f.:2; $p < 0.0001$). In figures 1 and 2, prevalence and prescription results by age and sex groups are shown.

DISCUSSION

0.04% of adult patients with ADHD diagnostic in their clinical records are not closed to reported numbers by epidemiological studies in population with the same range of age. In the United States, Kessler

et al.⁴ reported a 4.4% of prevalence; and in 10 countries of America, Europe, and Middle East, Fayyad et al.⁵ reported a 3.4% of prevalence, although in the Spanish study a lesser prevalence of 1.2% can be found. Evidence can be found by contrasting these data with the present study: ADHD prevalence registration found is 1/85 of the average of population prevalence reported by Fayyad et al. or 1/30 of the prevalence reported for the Spanish sample. Although it is difficult to compare epidemiological data of population and data obtained by clinical records, it can be assumed that with an “adequate” ADHD detection and diagnostic in adults, prevalence of registered diagnostics should be close to population pre-

valence. An exaggerated discordance between both figures may suggest a high infradiagnostic.

Although there are a low number of published articles, the lack of presence of ADHD diagnostic in adult clinical records is not unusual. In a medical administrative data analysis in Nordbaden (Germany), Schlander et al.¹⁹ found ADHD prevalence of 0.04%. This figure is situated in a similar level as our data and, also, it is very discordant from the estimations of population prevalence.

Epidemiological studies in general population show a quite uniform distribution in the different age groups but in our results, the majority of cases are concentrated in the group range of 18 to 24 years old. Schlander et al. reported a greater prevalence in groups under 24 years old than in elder ages. These results are expected due to the diagnostic of ADHD in early stages of age in most of the cases. This disorder is better diagnosed in early ages; hence records have persisted in adulthood. It has been detected a greater prevalence in male and patients with psychiatric disorders, especially disorders caused by consumption of substances, which coincides with available epidemiological data^{4,5,19}. The examination of data for ADHD specific treatment prescription as a proxy variable of diagnostic is justified due to, in the Spanish health system, the administration and maintenance of chronic prescriptions originated in other health care levels are performed in primary care. Therefore, diagnosed cases that are handled on the psychiatric level and are not registered in primary health can be detected through prescription. This approach has got two limitations; some adult patients with ADHD could not be treated with drugs; or they might be treated with other unspecific drugs (i.e. antidepressants). Moreover, some studied drugs might be prescribed for "off-label" indications (i.e. methylphenidate in episodes of refractory depression). Results show that on one hand

prescribed treatment rate is higher to the proportion of subjects with ADHD diagnosis; on the other hand only a third part of ADHD diagnosis were under specific treatment. However, the proportion of treated subjects is situated under a low level not distant from a low registration of ADHD prevalence; but it is quite distant from estimated population prevalence^{4, 5}.

In conclusion, ADHD in adults is a disorder detected and registered very rarely in Primary Health Care in Catalonia. However this conclusion generates new questions that should be answered in future and necessary research studies: which is the true ADHD prevalence in adult patients in Primary Health Care? Which symptoms and what impact suffer patients with undetected ADHD? How the psychological discomfort of this great proportion of patients with undetected ADHD is handled and under which diagnostic labels is classified? Can or should Primary Health Care have a role in detection and treatment of this disorder?

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