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Burden of psychiatric disorders in the pediatric population

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Abstract
In order to estimate the burden of mental disorders in a representative Italian pediatric population, an epidemiological study was performed using three administrative databases: a drug prescription, a hospital discharge form, and an outpatient ambulatory visit database. The population target was 1,616,268 children and adolescents under 18 years living in the Lombardy Region, Italy. A youth was defined as a case if during 2008 he/she received at least one psychotropic drug prescription or was hospitalized for a psychiatric disorder (International Classification of Disease codes 290–319), or attended a child neuropsychiatric outpatient unit for a visit and/or a psychological intervention or rehabilitation at least once. Epileptic children were excluded.
In all, 63,550 youths (39.3 per 1000; 95%CI 39.1–39.7‰) were identified as users of health care resources for a putative mental disorder. The prevalence was higher in boys than in girls (47.0‰ versus 31.3‰) and the highest value was recorded in children 8 years old (60.2‰).
A total of 59,987 youths (37.1‰) attended a child and adolescent neuropsychiatry service at least once, 3605 (2.2‰) were admitted to hospital, and 2761 (1.7‰) received at least one psychotropic drug prescription, 57% of which did not attend a child neuropsychiatry service. In all, 14,741 youths (23.1% of users) had a disorder that required a high intensity of care (e.g. recurrent prescriptions for drugs and/or ambulatory care).
The proportion of youths who received care for mental disorders in the Lombardy Region seems lower than in other countries. However, the fact that many children were prescribed psychotropic drugs without the supervision of a child psychiatrist is a reason for concern.

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1. Introduction

An increase in the prevalence of mental disorders in children and adolescents has been observed in the last few decades. Several studies have been performed, providing different estimates, depending on the geographical setting, the age range, and the tools used for the diagnosis (Belfer, 2008; Costello et al., 2005).

According to these studies, 3–18% (median 12%) of children have a psychiatric disorder causing significant functional impairment (Costello et al., 2005).

In Europe neuropsychiatric disorders were the 4th disease group in order of Disease Adjusted Life Years (DALYs) in the 0–14 year old population and accounted for 7% of the total DALYs (World Health Organization Regional Office for Europe, 2005). However, in the most developed countries they represented the leading cause of disease burden, in particular in the Scandinavian countries (World Health Organization Regional Office for Europe, 2005).

A similar pattern was found in North America, where neuropsychiatric disorders accounted for 21% of DALYs in children 0–14 years old (World Health Organization, 2008).

Psychotropic drug use may become a relevant component of mental health intervention, and several drug utilization studies were performed with the aim to evaluate psychotropic drug prescriptions.

These studies found a greater prescription prevalence of antidepressants in the United States (10%), followed by Iceland (2.3%), while in other European countries the antidepressant prescription prevalence ranged from 0.2 to 0.6%. A similar pattern was observed for antipsychotics, with a prevalence ranging from 0.7 per 1000 in Italy to more than 1% in the United States and Iceland (Clavenna and Bonati, 2007; Olfson and Marcus, 2009; Sevilla-Dedieu and Kovess-Masfety, 2008; Tournier et al., 2010; Volkers et al., 2007; Zito et al., 2008; Zoega et al., 2011, 2009).

The prevalence of ADHD medication use ranged between 2 and 4% in the United States and Iceland, and between 1 and 2% in Australia, Canada, Israel, and the Netherlands (Mitchell et al., 2008; Preen et al., 2007; Vinker et al., 2006; Zoega et al., 2011; Zuvekas and Vitiello, 2012). A prevalence of around 1 per 1000 was reported in France (Acquaviva et al., 2009).

In Italy the neuropsychiatric disorders represented the second leading cause of disease burden in the pediatric population (14% of the total DALYs) (World Health Organization Regional Office for Europe, 2005). The Italian preadolescent mental health project (PrISMA) is the only Italian population study published, and it estimated that the prevalence of cases detected by the child behavior checklist (CBCL) in the population 10–14 years of age was 9.8% (confidence interval, CI 95%: 8.8–10.8%), while using DSM-IV criteria the estimate was 8.2% (4.2–12.3%) (Frigerio et al., 2009). The study focused only on psychiatric disorders and did not include developmental disabilities.

While epidemiological data on mental health needs appear relatively uniform globally, the same is not true for policy, resources for care and service organization. Health systems around the world face significant challenges in delivery of mental health care in children and adolescents, including scarce financial and human resources, iniquitous distributions (between and within countries), and inefficient allocation (Saxena et al., 2007; World Health Organization, 2005). Needs and access tend to vary inversely—children with highest needs have least access to care. Access to services happens only in 1 case every 4 in high income countries (Jensen et al., 2011), while in low and middle income countries it can be 20 times lower (Morris et al., 2011). Unmet mental health needs predict family burden independently of type of neuropsychiatric disorder.

Data collected in health administrative databases can be used to attempt to estimate the burden of diseases (Jutte et al., 2011).

Linking different administrative databases is a widely used method for trying to estimate the prevalence of diseases. Several examples are also available concerning the Italian adult population (Brocco et al., 2007; Giarrizzo et al., 2007; Monte et al., 2009; Poluzzi et al., 2011; Tessari et al., 2008).

In this regard, a study was performed for the first time in Italy with the aim to estimate the prevalence of use of health care resources for mental disorders in the pediatric age linking three different regional administrative databases.

2. Experimental procedures

2.1. The Italian national health service

Italian healthcare is provided free or at a nominal charge through a network of 148 local health units (LHUs), covering an average of 290,000 citizens. Every Italian resident is registered with a family pediatrician or a general practitioner.

Children are assigned to a family pediatrician until they are 6 years old; afterwards, the parents can choose to remain with that pediatrician until child is 14 years old or to register the child with a general practitioner. All adolescents over 14 years of age are assigned to a general practitioner.

Child and adolescent neuropsychiatry services (CANPS) are part of the LHU and provide care at the hospital and community level for children and adolescents with neurologic and/or psychiatric and neuropsychologic disorders (including developmental disabilities and mental retardation) and for their families (Nardocci, 2009; Alighieri et al., 2011). CANPS are multiprofessional comprehensive community services providing diagnosis, treatment and rehabilitation. They are separate from adult mental health services, and work mainly on outpatients basis, with low drug utilization and in tight connection with educational and social services. Beds for inpatient care exist, but nationwide in a very limited number (Calderoni et al., 2008). Italy has been the first country in passing a reform law that marked the phasing out of psychiatric hospitals and the gradual development of a community-based system of psychiatric care (Barbui and Tansella, 2008), and that inclusive mainstream education for students with disability is the rule since 1977, and more than 99.9% of all children in the state sector are educated in ordinary schools, regardless of severity of disability. Nonetheless, CANPS organization throughout the country is highly disomogeneous and fragmented, both in resources and practices (Nardocci, 2009). CANPS in northern regions are older and better staffed and organized than in center or south Italy. Regional and national data are particularly lacking in this field, and most regions do not have a specific CA mental health information system, making comparison between regions and with other countries particularly difficult.

A national formulary is available in which drugs are categorized into 2 classes: class A includes essential drugs that patients do not have to pay for and class C contains drugs not covered by the National Health Service (NHS). Antidepressants, antipsychotics and