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Original article

Depression treatment during outpatient visits by U.S. children and adolescents

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Abstract

Purpose: Depression affects approximately 2–8% of all children and adolescents, and treatment of depression in children and adolescents has been the center of recent serious debates. We examined national trends in depression visits and treatment among outpatients aged 7 to 17 years.

Methods: We analyzed visit-based data between 1995 and 2002 in two national ambulatory care surveys.

Results: The number of visits by children and adolescents during which depression was reported more than doubled from 1995–1996 (1.44 million) to 2001–2002 (3.22 million). The proportion of these visits during which antidepressants were prescribed rose slightly from 47% in 1995–1996 to 52% in 2001–2002, whereas the proportion during which psychotherapy or mental health counseling was provided declined from 83% to 68%. Selective serotonin reuptake inhibitors (SSRI) represented 76% of all antidepressants prescribed in 1995–1996 and 81% in 2001–2002. In absolute terms, SSRIs were reported in 1.35 million visits in 2001–2002, reflecting a 2.6-fold increase from 1995–1996. Fluoxetine was prescribed in 207,914 visits in 1995–1996 and increased 100% to 415,580 visits in 2001–2002. The use of sertraline increased by 62% to 345,576 visits and paroxetine by 269% to 279,275 visits.

Conclusions: We observed a declining trend in the provision of psychotherapy/mental health counseling during outpatient visits by children and adolescents diagnosed with depression. Although the likelihood of receiving antidepressants remained essentially unchanged, the number of children and adolescents whose visits involved prescription of antidepressants, particularly SSRIs, has increased markedly through 2002. Although fluoxetine remained the most commonly prescribed, other SSRIs were increasingly prescribed through 2002. These trends raise concerns regarding the widespread off-label use of antidepressants lacking reliable evidence of safety and efficacy for use in children and adolescents.

Keywords: Depression; Psychotherapy; Antidepressants; Children; Adolescents; NAMCS; NHAMCS

Depression is a major risk factor for suicide, which ranks third as a cause of death among teenagers in the United States, and is often accompanied by other psychiatric disorders, poor social functioning, and a high risk of substance abuse [1]. The prevalence of major depressive disorder, the most serious form of all depression diagnoses, is estimated to be approximately 2% in primary school-aged children and 4% to 8% in adolescents [2,3]. Under-diagnosis and under-treatment of depression in children and adolescents has been a national and historical problem [4]. The treatment of children and adolescents with depression has been the center of serious debates in the past two years, particularly because of a suspected increased risk of suicidality associated with selective serotonin reuptake inhibitors (SSRIs), a dominant class of antidepressants [5]. In the meantime, epidemiological and ecological data suggest a positive relationship between increased prescribing of SSRIs and decreased adolescent suicide in the last decade [3].

It is the position of the American Academy of Child and Adolescent Psychiatry that psychotherapy is appropriate

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treatment for all depressed children and adolescents whereas antidepressant medications are indicated for those with severe, psychotherapy-resistant symptoms [3,6]. In practice, however, antidepressants became the second most commonly used psychotropic medications after stimulants by 1996, due in large part to increases in SSRI prescriptions [7]. Since their market entry, SSRIs have quickly emerged as the leading antidepressants prescribed to children and adolescents because of their relatively favorable adverse-effect profile, low lethality after overdose, and simplified dosing [8]. Studies have found that during the mid-1990s, SSRIs comprised 43% to 50% of all antidepressants prescribed to children and adolescents [3,7]. The marked increased use of SSRIs by prescription in children and adolescents occurred in the absence of evidence of safety and efficacy for all but one SSRI (i.e., fluoxetine).

In 1997, a randomized controlled trial first showed the efficacy of fluoxetine in the treatment of depression in children and adolescents [9]. Six years later, the Food and Drug Administration (FDA) approved fluoxetine for use by 7- to 17-year-olds [10]. To date, fluoxetine is the only antidepressant approved by the FDA for use in patients younger than 18 years of age; the prescription of any other antidepressants or SSRI constitutes off-label use. In June 2003, regulatory agencies in the United States and the United Kingdom issued safety warnings concerning the use of paroxetine in children and adolescents [5]. In October 2004, the FDA directed manufacturers of all antidepressants to print a "black-box" warning label alerting health care providers about the increased risk of suicidality in children and adolescents treated with these agents and the need for close patient monitoring [11]. These recent regulatory actions are expected to have a dampening effect on the usage of SSRIs and possibly other antidepressants in children and adolescents, although it is contended that it would be imprudent to indiscriminately withhold pharmacological treatment for pediatric depression [4]. Data describing historical trends of antidepressant use in children and adolescents are needed to gauge the impact of recent regulatory actions through comparisons between current and future prescribing practices.

The current literature tracks national trends of antidepressant use in U.S. children and adolescents only through the mid-1990s. Zito et al [7] found that antidepressant prevalence for youths age 20 and younger increased from 2% in 1987 to 10% in 1991 to 21% in 1996, with the highest prevalence for 15- to 19-year-olds in 1996. Nearly 60% of children and adolescents who received a prescription for antidepressants in 1992–1996 were between the ages of 7 and 17 and 54% were female [12]. Similar trends were found in other countries. For example, in England, antidepressant prescriptions increased by 1.7-fold from 1992 to 2001, with SSRI prevalence increasing 10 times from .5 to 4.6 per 1000 persons $\leq$ 18 years [13].

Our study aims to document national trends of antidepressant usage, as well as provision of psychotherapy and mental health counseling services, among depressed children and adolescents seeking ambulatory care from 1995 through 2002. We also examine patient and physician factors that are significantly associated with the use of pharmacotherapy and psychotherapy/mental health counseling in the treatment of depressed children and adolescents.

Methods

Data sources

Annual data from1995 through 2002 were obtained from the National Ambulatory Medical Care Survey (NAMCS) and the Outpatient Department (OPD) component of the National Hospital Ambulatory Medical Care Survey (NHAMCS). At the time of the study, 2002 data were the latest release from NAMCS and NHAMCS. The National Center for Health Statistics (NCHS) provides complete descriptions of both surveys and yearly data at http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm. These surveys, particularly NAMCS, have been validated against other data sources [14,15] and have also been utilized in past research examining depression treatment for adults [16].

In brief, NAMCS captured health care services provided by private office-based physicians, whereas NHAMCS captured services offered at hospital outpatient departments. The sampling universe for NAMCS was office-based, patient-care physicians in 15 specialty strata from the master files maintained by the American Medical Association and American Osteopathic Association. The sampling frame for NHAMCS included short-stay ($<$ 30 days) hospitals or hospitals whose specialty was general (medical or surgical) or children's general. Both surveys utilized multistage probability sampling procedures, which enable researchers to generate nationally representative estimates. Between 1995 and 2002, annual participation rates among physicians selected for NAMCS averaged 68% (ranging from 63% in 1999 to 73% in 1995), resulting in the number of participating physicians being between 1087 and 1883 per annum. For NHAMCS, the participation rate of a fixed panel of 600 hospitals per year ranged from 94% in 1995 to 98% in 1998.

Physicians and/or staff completed standard encounter forms for a systematic random sample of patient visits during randomly assigned reporting periods. Yearly encounter forms varied slightly between NAMCS and NHAMCS and both the NAMCS and NHAMCS forms were revised every two years. This study relied on variables common to NAMCS and NHAMCS over time, including patient demographics, visit characteristics, reasons for visit (up to three), diagnoses (up to three), new and continuing medications (up to six), and specific medical services (e.g., psychotherapy and mental health counseling) provided at the visit. Item nonresponse rates were mostly 5% or less in both surveys for all years.