Measuring the Global Burden of Generalized Anxiety Disorder (GAD)

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Abstract

**Background:** Generalized anxiety disorder (GAD) is a prevalent, disabling disorder resulting in a great burden to patients and society. **Methods:** To quantify the global burden of GAD, comprehensive literature searches focusing on the prevalence and burden of GAD were conducted in eight countries across North America, Europe, and Australia. **Results:** Lifetime prevalence rates across countries range from 0.8% to 6.6% in the general population and 3.8% to 11.9% in primary care settings. Across countries, rates of GAD are consistently higher in females. Individuals with GAD typically have at least one psychiatric comorbidity: 66% with current psychiatric co-morbidities and 90% with lifetime co-morbidities. Major depression is the most common psychiatric co-morbidity of GAD, occurring in 39%-80% of patients. Co-morbidities further complicate the burden due to increased healthcare utilization and disability and are associated with difficulties in diagnosis, poorer outcomes, lower remission rates, and increased disability. Direct costs of GAD are not available for most countries. However, of the total cost of outpatient care for GAD in Australia, general practitioner visits accounted for 35.5%, followed by pharmaceuticals (28.1%), and psychiatric consultation (22.6%). The societal burden of GAD is further compounded by high healthcare utilization incurred by GAD patients and decreased productivity and disability, with more than 53% of current GAD patients reporting at least 1 disability day per year. **Conclusions:** GAD is a common and disabling condition that often co-occurs with other psychiatric disorders and has a significant impact on healthcare utilization, productivity, and disability. Research efforts are needed to better appreciate the true impact of GAD worldwide and should focus on the economic burden of GAD in individual countries.
Introduction

• Generalized anxiety disorder (GAD) is a prevalent and disabling disorder that is highly comorbid with other psychiatric disorders, particularly major depressive disorder.

• GAD results in great suffering to individuals, including excessive anxiety and worry and places great burden on society and individuals.

• The essential features of GAD are excessive anxiety and worry on more days than not for a protracted period (at least 6 months). Additionally,
  – the anxiety is centered on a number of events or activities and greatly exceeds the actual likelihood or impact of the feared event;
  – GAD is accompanied by a number of additional symptoms, such as muscle tension, fatigability, poor concentration, insomnia, and irritability (American Psychiatric Association [APA], 1994); and
  – the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Methods

• To quantify the burden of GAD, comprehensive literature searches were conducted focusing on the prevalence and the humanistic, economic, and societal burden of GAD in eight countries across North America (the United States [US], Canada), Europe (France, Italy, Germany, and Spain), and Australia.

• Searches focused on articles published from 1998 to present found in various databases (e.g., MEDLINE, PsychInfo, EMBASE), and in information presented by professional organizations, such as the APA, Anxiety Disorder Association of America [ADAA], Anxiety Disorders Association of Canada [ADAC], Australian Psychological Society, British National Formulary, European Medicines Agency, and National Institute for Clinical Excellence.

• Key articles published prior to 1998 (e.g., landmark epidemiology studies) were also included in these searches.
Results: Prevalence of GAD

- GAD is a very common mental disorder. Lifetime prevalence rates across the countries of interest range from 0.8% to 6.6% in the general population (Table 1) and 3.8% to 11.9% in primary care settings (Maier et al., 2000). In fact, GAD is considered to be the most frequently occurring of all anxiety disorders in primary care (Wittchen & Hoyer, 2001; Wittchen et al., 2002).

- 1-year prevalence rates of GAD in the general population range from 1.0% to 4.4%, and rates found in the primary care population are approximately 8%.

- Where age data are available, rates are generally steady and/or increase until around age 65 years, when rates begin to decline (Table 1).

- Prevalence rates of GAD, like most anxiety disorders, are generally higher in women across age groups. However, prevalence rates for men are higher than women of the same age in the 16–19, 30–34, and 45–49-year-old groups in the UK (Singleton et al., 2001), and in the 45–54 and 65+ year-old groups in Australia (Hunt & Issakidis, 2002).

### Table 1. Lifetime and 1-year Prevalence Estimates for GAD in Community Samples for GAD in Community Samples in the US, Canada, the UK, Australia, Germany, France, Italy, and Spain

<table>
<thead>
<tr>
<th>Country</th>
<th>Study Population</th>
<th>1-year Prevalence</th>
<th>Lifetime Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Epidemiologic Catchment Area (ECA) sample of household and institutionalized adults from 5 select states (n=21,041), aged 18 years and older using DSM-IV criteria</td>
<td>NC: 3.6% MO: 2.2% CA: N/A/CA: Total: 2.6%</td>
<td>NC: 6.6% MO: N/A CA: N/A Lifetime total: N/A</td>
</tr>
<tr>
<td>Canada</td>
<td>National Co-morbidity Survey (NCS) of a representative sample of the US population (n=206), aged 15-04 years using DSM-IV-R criteria</td>
<td>Total: 3.1% Men: 2.2% Women: 4.3%</td>
<td>Total: 5.1% Men: 3.6% Women: 6.6%</td>
</tr>
<tr>
<td>Canada</td>
<td>Mental Health Supplement to the Ontario Health Survey (MHSS-OHS) subsample of household residents in Ontario (n=362), aged 18-99 years using DSM-IV-R criteria</td>
<td>Total: 1.5% Men: 1.2% Women: 2.1%</td>
<td>Total: 1.5% Men: 1.4% Women: 2.4%</td>
</tr>
<tr>
<td>UK</td>
<td>Community sample of Ontarians (n=15,643), aged 15-64 years using DSM-IV-R criteria</td>
<td>Total: 2.1% Men: 1.1% Women: 1.2%</td>
<td>Lifetime total: N/A</td>
</tr>
<tr>
<td>UK</td>
<td>Survey of Psychiatric Morbidity sample of individuals living in private households in England, Wales, and Scotland (n=5,829), aged 16-74 years using ICD-10 criteria</td>
<td>Total: 1.5% Men: 1.4% Women: 2.6%</td>
<td>Lifetime total: N/A</td>
</tr>
<tr>
<td>Australia</td>
<td>National probability sample of Australian households (n=10,641), aged 18-69 years using DSM-IV criteria</td>
<td>Total: 2.4% Men: 2.6% Women: 3.0%</td>
<td>Lifetime total: N/A</td>
</tr>
<tr>
<td>France, Germany, Italy, Spain</td>
<td>ESEMeD Project data from community-dwelling adults in 6 European countries, aged 18 or older using DSM-IV criteria</td>
<td>Total: 1.0% Men: 0.9% Women: 1.2%</td>
<td>Total: 2.0% Men: 2.3% Women: 2.5%</td>
</tr>
<tr>
<td>Germany</td>
<td>National representative sample (n=4,181), aged 18-55 years using DSM-IV criteria</td>
<td>Total: 1.5% Men: 1.7% Women: 1.3%</td>
<td>Lifetime total: N/A</td>
</tr>
<tr>
<td>Germany</td>
<td>Residents of northern German communities (n=4,075), aged 18-64 years using DSM-IV criteria</td>
<td>Total: 0.2% Men: 0.1% Women: 0.3%</td>
<td>Total: 0.8% Men: 0.5% Women: 1.1%</td>
</tr>
</tbody>
</table>
Table 1 cont.

Results: Prevalence of Comorbidities

- The vast majority (17%–40%) of patients with GAD also have at least one other psychiatric diagnosis (Kessler et al., 1999).

- Lifetime rates of co-morbidities in GAD patients can reach as high as 90% (Wittchen et al., 1994).

- As seen in Table 2, major depressive disorder (MDD) is the most common co-morbidity associated with GAD, ranging in lifetime prevalence from 38.6% to 80% (e.g., Kessler et al., 1994; 1999; Kessler et al., 2002; Wittchen et al., 1994).

- Co-morbidities occurring less frequently include dysthymia, specific phobia, social anxiety disorder/social phobia, agoraphobia, panic disorder, and mania; and alcoholism and/or substance abuse disorders (Table 2).

- The presence of co-morbidities with GAD is associated with decreased likelihood of accurate diagnosis, less favorable outcomes, worse prognosis, decreased likelihood of remission, and increased disability/impairment (Keller, 2002; Wittchen, 2002).
### Table 2. Prevalence of Co-morbidities Associated with GAD

<table>
<thead>
<tr>
<th>Co-morbidity</th>
<th>Prevalence (%)</th>
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<tbody>
<tr>
<td>Any depressive disorder</td>
<td>70.6%</td>
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<tr>
<td>MDD</td>
<td>38.6%-40%</td>
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<tr>
<td>Dysthymia</td>
<td>17.7%-39.5%</td>
</tr>
<tr>
<td>Any other anxiety disorder</td>
<td>55.9%</td>
</tr>
<tr>
<td>Phobia, not otherwise specified</td>
<td>10.6%</td>
</tr>
<tr>
<td>Specific (Single) phobia</td>
<td>24.5%-38.1%</td>
</tr>
<tr>
<td>Social phobia</td>
<td>21.2%-34.4%</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>8.2%-26.7%</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>13.9%-23.5%</td>
</tr>
<tr>
<td>PTSD</td>
<td>12.4%</td>
</tr>
<tr>
<td>Mania</td>
<td>7.9%-12.1%</td>
</tr>
<tr>
<td>OCD</td>
<td>6.8%-10.0%</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>33.1%</td>
</tr>
<tr>
<td>Alcohol use or dependence</td>
<td>6.4% (GER) - 37.6% (US)</td>
</tr>
<tr>
<td>Drug use or dependence</td>
<td>1.4% (GER) - 27.6% (US)</td>
</tr>
<tr>
<td>Nicotine dependence</td>
<td>14.0%</td>
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</tbody>
</table>

Sources: Carter et al., 2001; Hunt & Issakidis, 2002; Kessler et al., 1999, 2002; Wittchen et al., 1994

### Burden of Illness: Humanistic Costs/Quality of Life

- GAD can negatively impact various quality-of-life domains including educational, family, social, and occupational functioning (e.g., lost time at work, decreased productivity), and its effects are further compounded by the presence of comorbid disorders (e.g., Health Canada, 2002; Hunt & Issakidis, 2002; Singleton et al., 2001).

- GAD’s negative impact on quality of life is greater than that attributed to major depression or other chronic conditions (Kessler et al., 2001; Maier et al., 2000; Surtees & Wainwright, 2003).

- Because GAD rarely occurs in isolation, it is difficult to accurately assess the impact of GAD on quality of life independent of accompanying co-morbidities.
Burden of Illness: Healthcare Costs - 1

- Of the total costs of anxiety disorders, psychiatric treatment is estimated to account for 31% of the total costs; 10% of indirect costs (e.g., reduced productivity, absenteeism); 3% of mortality costs; and 2% of pharmaceutical costs (Lepine, 2002).

- Individuals with anxiety disorders are high healthcare consumers and are 3-5 times more likely to visit the doctor and 6 times more likely to be hospitalized for psychiatric disorders than non-patients (ADAA, 2003).

- The number of primary care visits GAD patients make is high (NICE, 2003; Maier et al., 2000; Weiller et al., 1998; Wittchen et al., 2002), with some estimates indicating that GAD patients present to general practitioners twice as frequently as expected in depressed patients (Wittchen et al., 1994 as cited in Montgomery, 2002; Wittchen et al., 2002).

Burden of Illness: Healthcare Costs - 2

- Comorbid depression increases this high utilization rate even further. Over two-thirds of German patients with pure GAD had four or more primary care visits within the past 12 months, compared to 69% of patients with pure MDE and 73.0% of those with comorbid GAD/MDE (Wittchen et al., 2002).

- Compared to patients with pure GAD, GAD patients with co-morbidity have higher healthcare utilization rates, especially in hospitalizations, emergency room visits, surgery, consultation with specialists, diagnostic and laboratory tests, and use of various medications (Souêtre et al., 1994).

- The large percentage of patients presenting to general practitioners (GPs) with multiple vague, somatic symptoms increases the costs of GAD. Such vague complaints often receive diagnostic workups, expensive laboratory tests, and consultation with various specialists (British Columbia Provincial Strategy Advising Committee, 2002; Souêtre et al., 1994), which can further complicate the diagnostic process and increase costs unnecessarily.
Burden of Illness: Work Productivity and Disability

- Societal costs associated with GAD are influenced by the disability associated with GAD, contributing to high percentages of patients with GAD being unemployed or dependent on governmental assistance (Leon et al., 1995; Ninan, 2001).

- The number of work loss days per month for GAD is more than those attributed to depression (e.g., Kessler et al., 1999; Wittchen et al., 2000).

- Disability estimates do not exist in all countries of interest.
  - In an Australian community sample with 1-month GAD, 55.4% reported at least 1 disability day in the previous month that they attributed to anxiety (Hunt & Issakidis, 2002).
  - Lim and colleagues (2000) found that Australians workers lost an estimated mean of 1.8 work days, and 6 days were cutback per sufferer per month due to GAD.
  - German patients with pure GAD reported significant impairment: 10.9% lost 3 or more days in the past month; 50.5% were limited at least 3 days in the past month; and 34.3% reported total impairment of 6 or more days in the past month. Disability estimates increase for comorbid GAD/MDD (Wittchen et al., 2000).

- Occupational impairment in primary care patients with GAD may be even greater, with 66.7% of pure GAD and 81.1% of GAD patients with a major depressive episode (GAD/MDE) reporting occupational impairment, defined as an inability to work 1 day or more in the past month due to psychiatric problems (Wittchen et al., 2002).

Burden of Illness: Economic Costs

- The economic costs of anxiety disorders include psychiatric, non-psychiatric, and emergency care; prescription drugs; hospitalizations; decreased work productivity and increased absenteeism at work; and suicide (Lepine, 2002).

- There are few studies evaluating the direct costs of GAD found in published or “gray” literature for the countries of interest. Those that do present costs tend to lump together GAD and other anxiety disorders to summarize the economic burden associated with anxiety disorders. Despite the lack of cost information specific to GAD, the costs associated with anxiety disorders place a great burden on the healthcare systems.

- The annual national direct cost of GAD in Australia in 1997-1998 was estimated as A$112.3 million, higher than all other anxiety disorders, except for post-traumatic stress disorder (PTSD).
  - The total cost of outpatient care reported by GAD patients was estimated as A$74.3 million, with the majority of the costs associated with GP visits (A$26.4 million, 35.5% of the total outpatient cost), followed by pharmaceuticals (A$20.9 million, 28.1% of the total outpatient cost), and psychiatrist and psychologist consultations (A$16.8 million, 22.6% of outpatient costs).
  - Inpatient care provided to GAD patients for their mental health problems was estimated to cost A$37.9 million in Australia in 1997 (Issakidis et al., 2004).
Conclusions - 1

• GAD is a common and disabling condition that often co-occurs with other psychiatric disorders and is associated with quality-of-life impairments, higher healthcare utilization, decreased work productivity, and functional impairment in various areas.

• While evidence demonstrates that GAD patients do suffer impairment, additional research is needed to better understand the effect GAD has on quality-of-life and functional impairment. Research suggests that GAD rarely occurs in isolation; thus it may be difficult to accurately assess the impact of GAD independent of other comorbid conditions (www.healthandage.com).

Conclusions - 2

• While societal and economic costs associated with GAD are high, cost-effective treatments for most anxiety disorders do exist.

• Proper treatment can result in substantial reductions in direct and indirect costs, including lower
  – prevalence rates of secondary depression,
  – rates of suicidal ideation,
  – healthcare utilization, and
  – numbers of lost work days
  – (Gournay & Brooking 1995; Jacobi, 2002; Jacobi & Margraf, 2001; Jacobi et al., 2004a; Mynors Wallis et al., 1997; Russo et al., 2003).