Differentiating DSM-IV Anxiety and Depressive Disorders in the General Population: Comorbidity and Treatment Consequences

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Objective: *To attempt, for the first time, to apply a positive and differential diagnosis process in the general population during interviews using DSM-IV classification to ascertain the profile and occurrence of concomitant mental disorders.*

Method: *A representative sample of 1832 individuals aged 15 years or older living in the metropolitan area of Toronto were interviewed by means of telephone interviews. The participation rate was 72.8%.*

Results: *Overall, 13.2% (n = 242) of the sample had either a mood disorder (n = 127; 6.9%) or an anxiety disorder (n = 170; 9.3%) at the time of their interview. The prevalence was higher among women (16.5%) than among men (9.7%), with an odds ratio of 1.8. The comorbidity of mood and anxiety disorders was found in 3% (n = 55) of the sample. Less than one-third of respondents with a mood and/or anxiety disorder were being treated by a physician for a mental disorder. However, these individuals were greater consumers of health care services. Most of them consulted a physician an average of 5 times in the past year. Individuals on medication diagnosed with a mood and an anxiety disorder consulted a physician an average of 12 times in the past year. Only 13% of them were treated with antidepressants and under 9% with anxiolytics.*

Conclusions: *More than 70% of subjects with a mood disorder also complained of insomnia. With the differential process, 12% of the subjects manifesting a full-fledged anxiety disorder were diagnosed with only a mood disorder because the anxiety occurred only in the course of the mood disorder. About two-thirds of the subjects diagnosed in this study were undiagnosed and untreated by their physician.*

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Key Words: *anxiety disorders, DSM-IV, epidemiology, mood disorders, sleep complaint*

The comorbidity of psychiatric disorders can have a major bearing on therapeutic choice, quality of life, and course of illness (1–4). Yet our knowledge of the profile and occurrence of concomitant mental disorders remains limited, even though certain surveys assessing the prevalence of psychiatric disorders in the general population have revealed high rates of association between some types of psychiatric disorders. For example, in the Epidemiological Catchment Area (ECA) survey, 54% of subjects with a lifetime history of mental illness were found to have received multiple diagnoses (5). Similarly, the National Comorbidity Survey (NCS) reported a rate of 56% (6). In clinical studies, high rates of comorbidity were found between depressive and anxiety disorders. For example, Katerndahl and Realini reported a rate of 26.7% of social phobia in their outpatient sample of 243 individuals with depression (7). Pini and others reported that about one-third of the 87 studied patients with a bipolar or unipolar depression also had a panic disorder. Another one-third had concomitantly a generalized anxiety disorder, 20% of the bipolar and 14.2% of the patients with unipolar depression also had an obsessive–compulsive disorder (8). In a study using consecutive clinic attendees without known psychiatric disorder, Stein and others found a co-occurrence of anxiety and depressive disorders in 19.2% of the subjects (9). However, what was found in these clinical studies remains to be reproduced in the general population. This is most important because epidemiological studies in the general population are done with a large number of subjects not interviewed by clinicians. Rather, interviews are performed by interviewers using paper–pencil or computerized questionnaires as diagnostic tools.

Ideally, an epidemiological study of mental disorder comorbidity should utilize a diagnostic tool capable of positive and differential diagnosis that follows a reasoning process conforming as closely as as possible to that of a physician. To

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date, however, the tools employed have not afforded this possibility. Furthermore, the use of sophisticated computer algorithms, has been limited to positive diagnoses built after the end of the study. An important limitation in the use of *a posteriori* algorithms to reach a diagnosis is that key symptoms are not necessarily part of the disorder investigated. Consequently, crucial information is missed regarding the characteristics of individuals with comorbid conditions and how physicians deal with them. In the natural interview, the clinician explores a series of symptoms in a specific context. Even if a symptom is already described in another context, the possibility that it might be related to the disorder under investigation is not discarded, and the clinician is able to ask supplementary questions. Lay interviewers lack the necessary competence to do this. The risk of error would, in any event, probably be greater with lay interviewers than with the use of *a posteriori* algorithms. One of the advantages of using expert systems in epidemiological studies lies precisely in their ability to simulate the clinical interview even if conducted by a lay interviewer. Diagnostic decision trees built during the interview respect the positive and differential diagnosis process. The lay interviewer is blind to the process and simply reads out the questions to the interviewee. Accurate recognition of mental disorders is an important issue for the treatment and follow-up of patients. The comorbidity of anxiety and depressive disorders is a particularly glaring case in point: when anxiety symptomatology is present during depressive episodes, it can obscure the underlying depression and lead to ineffective treatment. The same problem occurs with sleep disorders, and distinguishing between primary and secondary sleep disorders may help to find the most appropriate treatment.

The purpose of the present study was threefold: 1) to assess the prevalence of anxiety and mood disorders in the general population using an expert system that performs differential diagnosis in real time during interviews; 2) to estimate the prevalence of the comorbidity of mood, anxiety, and sleep disorders in terms of DSM-IV differential diagnoses; and 3) to investigate medical consultations and treatment prescribed by physicians.

Method

This epidemiological study was carried out from March 1996 to January 1997 in the Toronto Metropolitan Area. Toronto is the largest city in Canada, with approximately 3 138 415 inhabitants aged 15 years or over. A representative sample of this population was constituted using a 2-stage sampling design. First, a random sample of telephone numbers was drawn based on the population distribution of the Toronto Metropolitan Area, using the first 3 digits of the telephone numbers to identify the location of target households. Second, a controlled selection method was applied to limit the within-sampling-unit non-coverage error. Under the Kish method used (10), the household member to be interviewed is randomly selected according to 8 selection tables based on the age, sex, and number of residents in the household.

Interviewers explained the goals of the study to potential participants before soliciting their verbal consent to proceed. Excluded from the study were subjects who did not speak sufficient English or who suffered from a hearing or speech impairment or an illness which precluded an interview.

Individuals who refused to participate or who withdrew before completing at least one-half of the interview were classified as refusals. Phone numbers were dropped and replaced only after a minimum of 10 unsuccessful dial attempts made at different times and on different days, including weekends. An added-digit technique, wherein the last digit of a telephone number is increased by 1, was employed to control for unlisted telephone numbers (11). As a result, the final sample consisted of 13.8% unlisted numbers.

The participation rate (72.8%) was calculated by dividing the number of completed interviews (n = 1832) by the number of eligible telephone numbers, which comprised all residential numbers not meeting any of the exclusion criteria (N = 2516). Five percent of the final sample consisted of individuals who initially refused to participate in the study but agreed when contacted a second time.

Interviews were conducted by telephone using the Sleep-Eval Knowledge-Based System. They were performed by 30 university students who were inexperienced in psychiatric assessment but had received special training on the use of Sleep-Eval. The mean duration of interviews was 40.4 ± 20.0 minutes. Interviewers were monitored daily by 2 supervisors to ensure that questions were asked correctly and data entered properly.

Instrument

Sleep-Eval is an expert system specially designed to administer questionnaires and conduct epidemiological studies in the general population. It includes a nonmonotonic, level-2 inference engine endowed with a causal reasoning mode that attempts to simulate the reasoning process of a psychiatrist. The causal reasoning mode enables the Sleep-Eval system to formulate a series of diagnostic hypotheses based on the data provided by a respondent. The nonmonotonic, level-2 inference engine examines these hypotheses and confirms or rejects them through further questions and deductions.

The system formulates initial diagnostic hypotheses based on the responses to a standard set of questions put to all participants and allows concurrent diagnoses in accordance with the DSM-IV classification. The differential process is based on a series of key rules allowing or prohibiting the co-occurrence of 2 diagnoses. For example, if a respondent were to meet the full criteria for both generalized anxiety and major depressive disorder, additional questions would need to be asked to determine whether generalized anxiety occurred exclusively in the course of major depressive disorder. If so, only the diagnosis of major depressive disorder would be given. The

system terminates the interview once all diagnostic possibilities are exhausted. The design of the expert systems questionnaire ensures that any decision regarding the presence of a symptom is based on the interviewees' responses rather than on the interviewer's judgement. This approach has been proven to yield better agreement between lay interviewers and psychiatrists on the diagnosis of minor psychiatric disorders (12).

Questions are selected and phrased by the system. As they appear on a computer monitor, the interviewer simply reads them out and enters the responses. Examples and instructions on quoting the answers are provided. Questions can be closed-ended (for example, yes–no, present–absent–unknown, five-point scale) or open-ended (for example, name of illness, duration).

Further details on the methodology and on the Sleep-Eval system can be found elsewhere (13,14). The system has been tested in various contexts: in clinical psychiatry, kappas between the diagnoses of 4 psychiatrists and those of the system ranged from 0.44 with 1 psychiatrist to 0.78 with 2 psychiatrists (n = 114 cases) (15,16). Another study involved 91 forensic patients. The kappa between diagnoses obtained by the system and those given by psychiatrists was 0.44 for specific psychotic disorders (mainly schizophrenia) (17). In a study performed in the general population (n = 150), the diagnoses obtained by 2 lay interviewers (inexperienced in sleep and psychiatric assessments) using Sleep-Eval were compared with those obtained by 2 clinician psychologists. A kappa of 0.85 was obtained in the recognition of sleep problems and of 0.70 for insomnia disorders. In another study performed in 2 sleep disorders centres (Stanford, USA; Regensburg, Germany) the diagnoses of the Sleep-Eval system were compared with that of the sleep specialist. Overall agreement on any sleep-breathing disorder was 96.9% (kappa 0.94). More than one-half of the patients were diagnosed with obstructive sleep apnea syndrome (OSAS); the agreement rate for this specific diagnosis was 96.7% (kappa 0.93) with no significant difference between the 2 sites (18).

Analyses

A weighting procedure was applied to correct for disparities in the geographical, age, and sex distribution between the sample and the Toronto area population as per the 1991 Canadian census. Results are based on weighted n-values. Percentages for target variables are given with 95% confidence intervals (95%CI). Bivariate analyses were performed using the chi-square test with Yates's correction or Fisher's exact test when n-values were less than 5. Reported differences were significant at the 0.05 level or less.

Results

After weighting, the sample comprised 48.3% men and 51.7% women, ranging in age from 15 to 90 years. Most of the respondents were white (73.7%). Black respondents made up 5.7% of the sample, and Asians 7.8%. One-half of the sample was married (49.9%) and one-third (35.5%) was single. One-half (53.1%) had 11 to 13 years, and one-fifth (20.7%) had fewer than 11 years of schooling.

Table 1. Prevalence of mood and anxiety disorders by sex

	Women		Men	
	n = 945	95% CI	N = 887	95% CI
Any disorder	16.5	14.1–18.9[a]	9.7	7.8–11.6
Mood disorders	9.0	7.2–10.8[a]	4.7	3.3–6.1
Bipolar disorder	3.5	2.3–4.7	2.1	1.2–3.0
Depressive disorder	5.6	4.1–7.1[b]	2.6	1.6–3.6
Anxiety disorders	11.7	9.7–13.7[a]	6.7	5.1–8.3
Panic disorders	4.1	2.8–5.4[c]	2.2	1.2–3.2
Agoraphobia	2.8	1.7–3.9[c]	1.4	0.6–2.2
Generalized anxiety disorder	2.1	1.2–3.0	1.7	0.8–2.6
Social phobia	0.6	0.1–1.1	0.7	0.2–1.2
Specific phobia	1.6	0.8–2.4	1.3	0.6–2.0
Obsessive–compulsive disorder	0.6	0.1–1.1	0.5	0.0–1.0
Posttraumatic stress disorder	2.7	1.7–3.7[b]	1.0	0.3–1.7

[a] $P < 0.001$; [b] $P < 0.01$; [c] $P < 0.05$.

Overall Results

Overall, 13.2% (n = 242) of the sample had either a mood disorder (n = 127; 6.9%) or an anxiety disorder (n = 170; 9.3%) at the time of interview. As Table 1 shows, the prevalence was higher among women (16.5%) than among men (9.7%), for an odds ratio of 1.8 ($P < 0.001$).

Similarly, the prevalence of depressive disorders (major depressive disorder, single episode or recurrent, and dysthymic disorder) was higher among women (9.0%) than among men (4.7%), as was the prevalence of anxiety disorders. Panic disorder, agoraphobia, and posttraumatic stress disorder accounted for the significant difference between sexes.

Rates for bipolar disorder (bipolar disorder type I or II and cyclothymic disorder) were comparable for men and women.

As indicated in Table 2, the highest rates of anxiety or depressive disorders were found in the youngest age group (15–24 years). However, only the oldest age group (65 years and over) posted a rate significantly lower than that for each of the other age groups.

Of the 127 respondents with a mood disorder, 55 (43%) were also diagnosed with an anxiety disorder, 23 (18%) other subjects had an anxiety disorder occurring only during the course of their mood disorder. This represents 3% of the entire sample. The most common co-occurring anxiety disorders were panic disorder and posttraumatic stress disorder (Table 3). The comorbidity of anxiety and mood disorders was higher among women (4.2%) than among men (1.7%; $P < 0.001$), for an odds ratio of 2.6. Differences across age groups were not significant.

Table 2. Prevalence of mood and anxiety disorders by age group

	Age group in years					
	15–24 (n = 325) [95% CI]	25–34 (n = 444) [95% CI]	35–44 (n = 374) [95% CI]	45–54 (n = 253) [95% CI]	55–64 (n = 201) [95% CI]	65 (n = 235) [95% CI]
Any disorder	16.5 [12.5–20.5]	15.0 [11.7–18.3]	14.6 [11.0–18.2]	12.0 [8.0–16.0]	12.4 [7.8–17.0]	4.9 [2.1–7.7][a]
Mood disorders	9.7 [6.5–12.9]	8.3 [5.7–10.9]	7.1 [4.5–9.7]	5.9 [3.0–8.8]	5.1 [2.1–8.1]	3.0 [0.8–5.2][b]
Bipolar disorder	6.1 [3.5–8.7]	3.1 [1.5–4.7]	2.4 [0.8–4.0]	1.8 [0.2–3.4]	1.5 [0.0–3.2]	0.4 [0.0–1.2][c]
Depressive disorder	3.6 [1.6–5.6]	5.1 [3.1–7.1]	4.9 [2.7–7.1]	4.1 [1.7–6.5]	3.5 [1.0–6.0]	2.6 [0.6–4.6]
Anxiety disorders	11.4 [7.9–14.9]	10.2 [7.4–13.0]	9.9 [6.9–12.9]	8.5 [5.1–11.9]	10.4 [6.2–14.6]	3.6 [1.2–6.0][a]
Panic disorders	2.0 [0.5–3.5]	3.9 [2.1–5.7]	3.8 [1.9–5.7]	3.8 [1.4–6.2]	3.3 [0.8–5.8]	1.9 [0.2–3.6]
Agoraphobia	3.6 [1.6–5.6]	1.2 [0.2–2.2]	2.7 [1.1–4.3]	1.0 [0.0–2.2]	3.3 [0.8–5.8]	1.3 [0.0–2.7]
Generalized anxiety disorder	2.3 [0.7–3.9]	2.5 [1.0–4.0]	1.8 [0.5–3.1]	1.7 [0.1–3.3]	2.0 [0.1–3.9]	0.4 [0.0–1.2]
Social phobia	0.3 [0.0–0.9]	1.0 [0.1–1.9]	0.9 [0.0–1.9]	—	1.5 [0.0–3.2]	—
Specific phobia	1.7 [0.3–3.1]	1.2 [0.2–2.2]	1.7 [0.4–3.0]	1.7 [0.1–3.3]	2.2 [0.0–4.2]	—
Obsessive–compulsive disorder	0.7 [0.0–1.6]	0.7 [0.0–1.5]	0.2 [0.0–0.7]	0.3 [0.0–1.0]	1.5 [0.0–3.2]	—
Posttraumatic stress disorder	1.4 [0.1–2.7]	2.9 [1.3–4.5]	2.9 [1.2–4.6]	1.3 [0.0–2.7]	0.9 [0.0–2.2]	0.4 [0.0–1.2]

[a] $P < 0.001$; [b] $P < 0.05$; [c] $P < 0.01$.

Table 3. Cooccurrence of anxiety disorders in respondents with mood disorders

	Mood disorders	
	Bipolar disorder (n = 51) % (n)	Depressive disorder (n = 76) % (n)
Anxiety disorders		
Panic disorders	18.6 (10)	14.0 (11)
Agoraphobia	7.4 (4)	9.1 (7)
Generalized anxiety disorder	7.8 (4)	12.8 (10)
Social phobia	—	1.2 (1)
Specific phobia	9.9 (5)	4.5 (3)
Obsessive–compulsive disorder	—	5.3 (4)
Posttraumatic stress disorder	14.1 (7)	13.8 (11)

Insomnia symptoms are often observed in individuals with mood or anxiety disorders. In our sample, 2 symptoms differentiated respondents with both an anxiety and a mood disorder from those with a mood disorder alone and those with an anxiety disorder alone:

1. Disrupted sleep (occurring at least 3 nights per week with difficulty resuming sleep) was reported by 54.9% of respondents with both types of disorders, compared with 40.4% of those with only a mood disorder, 30.8% of those with only an anxiety disorder, and 15.1% of the rest of the sample ($P < 0.0001$).

2. Early morning awakenings were reported by 46.3% of respondents with both disorders, compared with 34.4% of those with only a mood disorder, 27.4% of those with only an anxiety disorder, and 10.4% of the rest of the sample ($P < 0.0001$).

Difficulty initiating sleep was reported by one-half of the respondents with both disorders (50.6%), compared with 41.1% of those with a mood disorder alone, 23.2% of those with only an anxiety disorder, and 9.7% of the rest of the sample ($P < 0.0001$).

Rates for nonrestorative sleep were comparable for respondents with both disorders (46.4%) and those with only a mood disorder (48.2%), but were much lower for those with only an anxiety disorder (25.5%) and those without these 2 disorders (10.3%; $P < 0.0001$).

As a result, more than one-half of the respondents (56.7%) with both a mood disorder and an anxiety disorder reported being moderately or severely sleepy during the day. This was the case for 37.6% of those with only a mood disorder and 19.8% of those with only an anxiety disorder ($P < 0.0001$).

Medical Consultations

Respondents were asked whether they had consulted a physician in the past year and whether they had consulted a physician for a psychological or nervous problem in the past year and in their lifetime.

Overall, 79.0% of the sample had consulted a physician at least once in the past year. Respondents with an anxiety or a mood disorder reported slightly more frequent consultations (83.8%) than did the rest of the sample (78.2%; $P < 0.05$). About 5% of respondents with both disorders or a mood disorder alone had consulted a psychiatrist, compared with 1.4% of respondents with an anxiety disorder alone and 0.6% of the rest of the sample ($P < 0.005$). Among respondents who consulted a physician at least once in the past year, those with both disorders did so significantly more frequently than all the other groups, averaging 8.7 consultations compared with 5 for those with a mood disorder alone, 5 for those with an anxiety disorder alone, and 3.7 for the rest of the sample ($F[3, 1337] = 12.292$; $P < 0.0001$).

Medical consultations in the past year for a psychological or nervous problem were reported by 5.7% of the sample. The highest rate for this type of consultation was found among respondents with both an anxiety and a mood disorder (49.4%),

followed by those with a mood disorder alone (36.4%), and those with an anxiety disorder alone (13.6%; $P < 0.0001$).

Lifetime consultations for a psychological or nervous problem were reported by 10.5% of the sample. Rates were comparable for respondents with both an anxiety and a mood disorder (48.1%) and those with a mood disorder alone (50.4%), but lower for those with an anxiety disorder alone (27.9%; $P < 0.0001$).

Medication

Use of antidepressants was more prevalent among respondents with both an anxiety and a mood disorder and among those with a mood disorder alone (13.8% and 18.2%, respectively). The rate was 4.3% among respondents with an anxiety disorder alone and 1.8% in the rest of the sample ($P < 0.0001$). The most commonly used antidepressants were fluoxetine (36.4%), amitriptyline (20%), and sertraline (14.5%).

Anxiolytics were more likely consumed by respondents with both an anxiety and a mood disorder (9.8%) than by those with a mood disorder alone (4.2%), those with an anxiety disorder alone (3.0%) or the rest of the sample (1.3%; $P < 0.0001$). About one-half (51.5%) of the anxiolytic consumers used lorazepam and 24.2% used diazepam.

Use of hypnotics was highest among respondents with both an anxiety and a mood disorder and among those with a mood disorder alone (5.6% and 4.3%, respectively). The rate was 1.9% among respondents with an anxiety disorder alone and 0.8% in the rest of the sample ($P < 0.0001$). The most common hypnotics were temazepam and zopiclone, each accounting for 25% of the consumption.

Overall, about one-third of the respondents (34.5%) with both an anxiety and a mood disorder received some form of treatment from their physicians. About 30% of those with a mood disorder alone and 11.7% of those with an anxiety disorder alone also received some treatment. Nonpharmacological treatment accounted for less than 10% of physician prescriptions.

Discussion

This epidemiological study confirms the high prevalence of anxiety and mood disorders in the general population. The comorbidity of mood and anxiety disorders was found in 3% of the entire sample. This means that 43.7% of subjects with a mood disorder also have an anxiety disorder. This is close to figures reported by the ECA and the NCS studies (5,6). The point prevalence is also comparable to that of recent epidemiological surveys in North America. The ECA survey set the one-year prevalence rate of major depressive episode at 3.7% (19). The NCS found the past-month prevalence of major depressive episode, as per DSM-III-R criteria, to be 3.8% for men and 5.9% for women (20). Using the same diagnostic tool as in the NCS, the Ontario Health Supplement survey reported a one-year prevalence rate of major depressive episode of 4.1% (21).

Although other studies have investigated psychiatric comorbidity, none have applied the DSM-IV differential diagnosis process during the interview, most likely due to the need for skilled interviewers with training in psychiatry. Needless to say, such large-scale epidemiological surveys would cost an exorbitant amount. Consequently, interviewers are usually lay persons trained to use a specific tool. Surveys conducted to date have been limited in 2 respects: first, as a result of *a posteriori* differential diagnosis, and second, as a result of the diagnostic classification method applied. Consequently, prevalence rates for specific disorders and the comorbidity rates for certain disorders seen thus far tend to be inflated.

The use of *a posteriori* diagnostic algorithms allows a thorough investigation of the disorders under study, but the results have been shown to differ considerably from the clinical practice where only the most significant diagnosis is considered with all other manifestations treated as just a part of the diagnosed disorder. This is a traditional approach with paper–pencil or computerized questionnaires. In the latter, predetermined diagnostic trees can be implemented in the software, but the apparent reasoning is just an artifice. These computerized questionnaires do not have the capacity to adjust their reasoning and to explore other diagnostic paths. In expert systems, the decision trees are built during the interview, seeking the optimal way to achieve a diagnosis with respect to positive and differential diagnostic indications provided by the referent classification.

The prevalence rates of anxiety disorders in our survey were found to be lower for social phobia, generalized anxiety disorder, specific phobia and obsessive–compulsive disorder than those reported in the ECA study (19) and in other studies using DSM-III or DSM-III-R diagnostic criteria. This is most likely due to changes that have occurred in the definitions of these disorders over time. For example, the DSM-III-R and the DSM-IV have an additional criterion not present in the DSM-III stipulating that specific or social phobia has to interfere with the daily life of the individual or provoke marked distress. In our study, this criterion decreased the prevalence of these disorders by nearly 50%. The definition of generalized anxiety disorder has also changed considerably in DSM-III-R compared with DSM-III (that is, the duration criterion was increased from 1 to 6 months) and even more so in the DSM-IV (that is, additional symptoms were changed from the presence of at least 6 of 18 symptoms to the presence of 3 of 6 symptoms). The other possible explanation for these lower rates lies in the tool we used. Often, respondents met all the diagnostic conditions for a disorder except the differential diagnosis criteria (for example, the disorder did not occur exclusively in the course of a major depressive episode). In the case of social phobia, 16% of the sample initially reported a fear of social situations, but only 1.4% of the sample experienced distress or impaired functioning. Three subjects

avoided social situations because they feared a panic attack, while 11 others feared them only during the occurrence of another mental disorder. Consequently, only 0.9% of the sample had a diagnosis of social phobia.

The risk of a concomitant diagnosis of anxiety disorder is 5 to 15 times as high for individuals with a mood disorder, with the risk being highest for the combination of depressive disorder and posttraumatic stress disorder. Other epidemiological studies have reported a similarly high risk. A few years ago, Akiskal suggested the existence of a new type of disorder where individuals alternate between panic disorder and depressive disorder (22). In the present study, 14% of respondents with depressive disorder presented with a phasic disorder of this sort.

The increased prevalence of sleep disturbances in the comorbid group adds significant new findings to previous epidemiological reports and highlights the importance of exploring all facets of initiation, maintenance and termination of sleep. In this study, we found that 86.6% of the comorbid group had at least 1 insomnia complaint. This was 75.5% in the group of mood disorder alone and 49.2% in the group of anxiety disorder alone. High occurrences of insomnia in depressive disorders have also been reported by other studies (23), but few of them have attempted to elucidate the relationship between insomnia and mood and anxiety disorders or to apply differential diagnosis process to select the final diagnosis (24,25).

This study also revealed that less than one-third of respondents with a mood and/or anxiety disorder were being treated for a mental disorder by a physician. However, these same individuals were greater consumers of health care services. Most consulted a physician on average 5 times in the past year. On the other hand, individuals on medication diagnosed with a mood and an anxiety disorder consulted a physician 12 times on average in the past year. This suggests that these individuals are at least being closely monitored. Unfortunately, only 13% of them were treated with antidepressants, and under 9% with anxiolytics, suggesting that only the anxiety component was recognized and treated.

More alarming is the fact that about 60% of cases are neither recognized nor treated. This situation is not specific to Toronto. It has been identified also in Montreal, in Edmonton, and in Europe (26–29). Given the large number of individuals with mental disorders who consult a general practitioner at least once a year, several educational programs have been launched around the world to help physicians recognize and treat mental disorders (30,31). Unfortunately, many of these campaigns have met with limited success, mainly because such efforts must be continuous in order to provide physicians with information on the constellation of symptoms that characterize mental disorders.

In conclusion, this is the first attempt to apply the DSM-IV differential diagnosis process during the course of the interview in a general population survey. Results confirm the importance of differentiating among mood, anxiety, and sleep disorders and of identifying the pathological context in which they occur. The prominence of one disorder over the other was assessed, and this assessment revealed the importance of studying their interaction and co-occurrence carefully to ensure more accurate treatments and follow-up care by physicians.

Clinical Implications

Co-occurrence of mood and anxiety disorders involves insomnia complaints in nearly 90% of the cases.

Insomnia is mainly secondary to a mood or anxiety disorder.

About 60% of mental disorders remain unrecognized and untreated.

Limitations

The study is a cross-sectional survey. Therefore, the course of the disorders could not be investigated.

Data are based on questionnaires.

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Résumé

Objectif : *Cette étude a tenté pour la première fois d'appliquer un processus diagnostique positif et différentiel à la population générale durant des interviews utilisant les classifications du Manuel diagnostique et statistique des troubles mentaux (DSM-IV) pour découvrir le profil et l'occurence des troubles mentaux concomitants.*

Méthode : *Un échantillon représentatif de 1 832 personnes âgées de 15 ans et plus vivant dans la région métropolitaine de Toronto (Ontario) ont été interviewées par téléphone. Le taux de participation était de 72,8 %.*

Résultats : *Globalement, 13,2 % (n = 242) de l'échantillon présentait soit un trouble de l'humeur (n = 127 ; 6,9 %) soit un trouble d'anxiété (n = 170 ; 9,3 %) au moment de l'interview. La prévalence était plus élevée chez les femmes (16,5 %) que chez les hommes (9,7 %), le rapport de cotes étant de 1,8. La comorbidité des troubles de l'humeur et d'anxiété a été observée chez 3 % de l'échantillon. Moins du tiers des répondants souffrant d'un trouble de l'humeur ou d'anxiété étaient traités par un médecin pour un trouble mental. Toutefois, ces mêmes personnes recouraient souvent aux services de santé. La vaste majorité d'entre elles avaient consulté un médecin en moyenne 5 fois au cours de l'année précédente. Les personnes qui prenaient des médicaments et avaient reçu un diagnostic de trouble de l'humeur ou d'anxiété avaient pour leur part consulté un médecin en moyenne 12 fois au cours de l'année précédente. Seulement 13 % d'entre elles étaient traitées aux antidépresseurs, et moins de 9 %, aux anxiolytiques.*

Conclusions : *Plus de 70 % des sujets presentant un trouble de l'humeur souffraient également d'insomnie. En appliquant un processus diagnostique positif et differentiel, 12 % des sujets ayant une manifestation complète d'un trouble anxieux ont reçu uniquement un diagnostic de trouble de l'humeur car l'anxiété ne survenait que pendant les périodes où le trouble de l'humeur était actif. Environ deux tiers des sujets diagnostiqués demeurent non diagnostiqués et non traités par leur médecin.*