

Anxiety Disorders: Future Directions for Research and Treatment

A Discussion Paper

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Preface

Anxiety disorders are among the most common mental health problems experienced by Canadians. A number of effective treatments exist for these disorders. However, recent research suggests that health and mental health professionals may lack knowledge of appropriate treatments for anxiety disorders, and may use treatments which are not based on sound empirical evidence.

To contribute to the empirical knowledge base of effective treatment strategies for anxiety disorders, and to further discussions on these issues among stakeholders in the mental health field, a critical review of the evidence-based treatment literature was commissioned by the Health Promotion and Programs Branch of Health Canada. The report entitled, *Anxiety Disorders and their Treatment: A Critical Review of the Evidence-Based Literature* is available under separate cover. A discussion paper, the present report, was also prepared based on the findings of the review. Both reports were prepared by Martin Antony, Ph.D, and Richard Swinson, M.D., at the Clarke Institute of Psychiatry in Toronto, Ontario. The tireless efforts of the authors to ensure the successful completion of this project are much appreciated.

This discussion paper should be of interest to policy makers, administrators, professionals in the mental health and health care fields, researchers, non-governmental organizations, consumer and family groups, and anyone involved in the treatment of anxiety disorders.

Executive Summary

Anxiety disorders are among the most prevalent mental health problems experienced by Canadians. Although effective treatment approaches exist for these disorders, research suggests that mental health and health care professionals often lack appropriate knowledge about effective treatments, and may use treatments with little empirical support.

To contribute to the empirical knowledge base of effective treatment strategies, and to further discussions among stakeholders in the mental health and health care fields on this issue, Health Canada commissioned a critical review of the evidence-based treatment literature and a discussion paper.

The studies reviewed in the reports were selected according to several author-defined criteria, outlined in detail in the literature review report. Although these studies represent the existing “state of the art” in the anxiety treatment literature, the authors identify a number of methodological limitations. These include: possible inadequacy of treatment delivery in research studies (e.g., inconsistency of measurement of treatment compliance across studies); limited outcome measures (e.g., focus on symptom measurement to the exclusion of non-medical dimensions of the disorder); and use of different assessment instruments to determine the presence or absence of symptoms of anxiety disorders (making comparisons between studies difficult). The authors also note that the quality of research varies greatly across the anxiety disorders; studies of panic disorder are quite advanced, whereas studies of the other anxiety disorders suffer from a number of methodological flaws (e.g., small sample sizes) which limit their usefulness.

The authors focus on the six major types of anxiety disorders: *panic disorder with (PDA) and without (PD) agoraphobia, obsessive-compulsive disorder (OCD), social phobia, generalized anxiety disorder (GAD), specific phobia, and posttraumatic stress disorder (PTSD)*, and provide information on prevalence, risk factors, comorbidity patterns, health care utilization, and economic costs associated with these disorders. Acute stress disorder, a variant of PTSD with a briefer duration, agoraphobia without a history of panic disorder, and anxiety disorders induced by a general medical condition or a substance are not discussed, due to the lack of research on specific strategies for dealing with these conditions. Finally, anxiety disorders classified as “not otherwise specified” are not discussed in this review due to the heterogeneity of this category and the lack of studies describing individuals who receive this diagnosis.

Most of the anxiety disorders are more common among women than among men. A one-year *prevalence* rate of nine percent for men and 16 percent for women for anxiety disorders was reported in the Mental Health Supplement of the 1990 Ontario Mental Health Survey. Lifetime prevalence rates for experiencing any anxiety disorder (reported in North American epidemiological research), vary from 10.4% to 25.1%. Lifetime prevalence rates for specific anxiety disorders range from 3.5% for panic disorder to 13.3% for social phobia in recent epidemiological research (see Appendix 1).

A number of *risk factors* and socio-demographic variables have been identified for these disorders and include severe abuse, parental mental disorder, parental behaviour (e.g., a tendency to be overprotective), and family history of anxiety. On average, many of the anxiety disorders tend to first develop when individuals are in their twenties, although there is much variation across the anxiety disorders with respect to the range of ages at which the disorders begin. Risk factors for developing specific types of anxiety disorders have been identified. These include: perceived negative impact of stressful events, anticipation of a major life event, substance abuse, parental behaviour, and being under 65 years of age (for PDA and PD), childhood history of separation anxiety, infrequent dating, and parental behaviour (for social phobia), anxiety in childhood (for GAD and PDA), and being female (for specific phobia, PDA and GAD). Experiencing traumatic events has been identified as a risk factor for specific phobia, social phobia and PTSD. Not all individuals who experience these risk factors develop anxiety disorders. The role of mediating variables, such as social support or biological predispositions, is under investigation.

The authors report that most individuals with anxiety disorders have another (*comorbid*) mental health problem, such as another form of anxiety disorder, depressive mood disorder (i.e., major depression or dysthymia), alcohol or substance abuse, eating disorders, and personality disorders. Interestingly, social phobia has been found to predate mood disorders as well as other anxiety disorders. This finding suggests that comorbidity patterns could have preventive implications.

The direct and indirect *costs* of anxiety disorders to the Canadian economy remain to be investigated. American data, however, provide some information. One study found that persons with anxiety or depressive disorders cost an average of \$2390 (\$US) for a six-month baseline period, compared to \$1397 (\$US) for those without anxiety or depressive diagnoses. Other studies show that anxiety disorders are also associated with lost productivity in the workplace. Anxiety disorders are also associated with frequent use of the health care system. Research suggests that individuals with anxiety disorders have more frequent *contact with the health care system* than does the general population. These individuals tend to seek help from the general health care system, as opposed to the mental health care system.

Pharmacological approaches and cognitive-behavioural therapy (CBT; a form of psychotherapy) have been found to be effective in the treatment of anxiety disorders. *Pharmacological approaches*, including antidepressants and antianxiety medications, have been shown to be helpful in treating each of the anxiety disorders, excluding specific phobias. Selective serotonin reuptake inhibitor (SSRI) antidepressants have proven to be the pharmacological treatment of choice for OCD. Preliminary research also suggests that the SSRI's may be useful for most types of anxiety disorders. Tricyclic antidepressants (TCA's) appear to be effective for treating both PDA and PD, whereas MAOI (monoamine oxidase inhibitors) antidepressants appear to be the treatment of choice for social phobia. The benzodiazepines (antianxiety medications) appear to be useful for treating PDA, PD, social phobia, and GAD. Other anxiolytics, such as buspirone, have been shown to be helpful for treating GAD, but not for the other anxiety disorders.

Cognitive-behavioural therapy (CBT) appears to be an effective psychotherapeutic treatment for decreasing symptoms in each of the anxiety disorders. However, few properly controlled studies have been conducted to evaluate the effectiveness of CBT (and of most psychological treatments) for PTSD and (appropriately diagnosed) specific phobias. CBT is more effective for anxiety disorders than other psychological treatments and is at least as effective as pharmacological approaches. For a variety of disorders, CBT appears to have more lasting effects following termination of treatment than do medications. Interestingly, CBT has been shown to help patients discontinue their medications (e.g., benzodiazepines) without relapse.

CBT strategies shown to be helpful include cognitive restructuring (i.e., changing anxious thoughts, interpretations, and predictions into more rational and less anxious thoughts), exposure to feared objects and situations, and relaxation training. Existing evidence suggests that exposure-based treatments are effective for phobic disorders, PTSD and OCD. Applied tension has been shown to be helpful for specific phobias involving blood and injections (by increasing blood pressure in order to prevent the fainting that is often associated with such phobias). Interestingly, the role of family support in cognitive-behavioural treatments for PDA has been explored, with findings suggesting that participation of spouses in treatment is beneficial to treatment outcomes. New CBT strategies, such as eye movement desensitization and reprocessing and computer-administered CBT, are currently being tested.

Interventions with reduced therapist contact (e.g., self-help books and treatment by telephone) have proven effective with PD and PDA. Little is known about the usefulness of these interventions for the other types of anxiety disorders. In addition, there is a dearth of controlled research studies on the role of self-help groups and other forms of mutual aid in helping individuals with anxiety disorders cope with the impact of the illness. Anecdotal evidence suggests that some individuals find the support and assistance (both practical and emotional) available through participation in these groups to be helpful.

Debate exists among clinicians and researchers regarding the relative efficacy of pharmacological and psychotherapeutic approaches, as well as the relative importance of biological and psychological processes in the etiology of anxiety disorders. Based on their review of the literature, the authors indicate that there is little consistent evidence that combining CBT and medication is any more effective than using either treatment alone.

The authors raise two important considerations with regard to the treatment of anxiety disorders. First, they discuss the possible side effects of some antianxiety medications, particularly the benzodiazepines. Common side effects associated with the latter include sedation, fatigue, ataxia, slurred speech, and amnesia. Withdrawal symptoms and possibility of relapse and recurrence of symptoms have also been associated with discontinuation of the benzodiazepines.

Also addressed by the authors is the appropriateness of treatments offered to individuals with anxiety disorders. Research suggests that health care (e.g., general practitioners) and mental health care professionals (outside of specialized anxiety disorders clinics) often lack knowledge of appropriate treatments for anxiety disorders, and often do not use treatments with the most empirical support. The authors identify a number of implications flowing from their findings for possible future consideration by the appropriate stakeholders in the mental health and health care fields. In the area of *professional care*, the following are outlined: education of health and mental health professionals (including general practitioners, psychologists, psychiatrists, occupational therapists, social workers, psychiatric nurses, et cetera) on effective treatment of the anxiety disorders; evaluation of the most effective means of educating professionals; development and dissemination of practice guidelines and structured assessments to health and mental health professionals; increased communication and better linkages between general practitioners and mental health practitioners (including social workers, occupational therapists, psychiatric nurses, et cetera), and between formal institutional services and community and voluntary services regarding treatment of the anxiety disorders. The authors also suggest that efforts should be aimed at increasing public awareness of the anxiety disorders and their treatment. Possible avenues for doing so include: development of self-help or self-care handbooks, preparation of anxiety disorder fact sheets, and dissemination of information through national public education campaigns, such as Mental Illness Awareness Week (MIAW) (spearheaded by the Canadian Psychiatric Association).

The authors also highlight a number of issues in which further *research* is warranted. These include: risk (and protective) factors for developing anxiety disorders; the implications of comorbid conditions on the treatment of anxiety disorders, the relative and combined efficacy of CBT and medications for anxiety disorders over both the short- and long-term (other than for OCD, PD and PDA for which evidence already exists); and the sequencing of treatments when combined treatments are used. Other issues to be explored include the development of predictors of effective treatments for individuals, including those with one or more comorbid conditions; the effectiveness of treatment by non-mental health professionals (e.g., general practitioners); and the effectiveness of self-help approaches (e.g., self-help groups) and treatments involving minimal therapist contact. Methodologically-sound research on the effectiveness of other forms of psychotherapeutic approaches (e.g., psychodynamic and humanistic approaches) for the treatment of anxiety disorders is recommended. In addition, more research is needed on the effectiveness of newer treatments, such as the SSRI's and other antidepressant medication.

Inclusion of a broad range of outcome variables in treatment studies, and evaluation of measurement instruments used to assess the presence or absence of anxiety symptoms are also needed. Meta-analytic studies, other than for PDA and OCD where they have been used, are recommended to shed light on the treatment efficacy of various interventions for the anxiety disorders.

Some research recommendations specific to each type of anxiety disorder are identified. For *panic disorder with and without agoraphobia*, research is needed on the effects of various forms of treatment in specific populations, including the elderly, children, culturally diverse groups, and individuals with multiple psychological problems (e.g., anxiety disorders and substance abuse). For *OCD*, research on psychosocial interventions (e.g., exposure, response prevention, and cognitive therapy) is needed, and more needs to be learned regarding the process of therapeutic change. Many of the older uncontrolled studies should be repeated, using appropriate controls, adequate sample sizes, diagnoses using DSM-IV criteria (as measured by structured interviews), and adequate long-term follow-up. With respect to *social phobia*, further research is needed to confirm preliminary research findings that CBT is at least as effective as pharmacological approaches in the short-term and probably more effective than medications in the long-term. In addition, research on the role of self-help/mutual aid remains to be undertaken. *For GAD*, given that relatively few studies are based on recent criteria, it is important that psychological and pharmacological treatments be evaluated using properly diagnosed patients and a broad range of measures (including cognitive assessments). With respect to *specific phobia*, studies that explore the efficacy of behaviour therapy with a broader range of diagnosed phobias (e.g., heights, storms, flying, et cetera) are needed. In addition, the efficacy of using strategies (e.g., medications, interoceptive exposure) shown to be effective for treating panic disorder for different specific phobia types remains to be investigated.

Chapter 1

Introduction

Anxiety disorders are one of the most common mental health problems. According to the Mental Health Supplement of the 1990 Ontario Health Survey, 9% of men and 16% of women in Ontario (Canada) experienced anxiety in the twelve months preceding the survey (Ontario Ministry of Health, 1994). A study of psychiatric disorders in Edmonton (Canada) reported a lifetime prevalence of 11.2% for developing an anxiety/somatoform disorder (Bland et al., 1988).

These disorders are often associated with other mental health problems such as depression. There is little doubt that anxiety disorders impose an enormous burden on both individuals with the disorders (and their family members), as well as on society in general. Anxiety disorders are associated with, for example, reduced quality of life, functional impairment, frequent use of both the mental health and health care systems, and lost productivity in the workplace (Leon, Portera, and Weissman, 1995; Salvador-Carulla, Segui, Fernandez-Cano, and Canet, 1995; Siegel, Jones, and Wilson, 1990; Simon, Ormel, VonKorff, and Barlow, 1995; Swinson, Cox, and Woszczyna, 1992).

Effective, empirically validated pharmacological, psychotherapeutic, and behavioural interventions exist to treat the anxiety disorders. Recent evidence, however, suggests a lack of knowledge among health and mental health professionals of appropriate treatments for these disorders, and use of treatments often not based on sound empirical research.

To contribute to the empirical knowledge base of effective treatment strategies for the anxiety disorders, and to further discussions among key stakeholders in the mental health field on these issues, the Health Promotion and Programs Branch of Health Canada commissioned a critical review of the treatment literature and a discussion paper. Both reports were prepared by Martin Antony, Ph.D, and Richard Swinson, M.D., of the Clarke Institute of Psychiatry in Toronto (Ontario).

1. Target Audience

This discussion paper should be of interest to policy makers, administrators, professionals in the mental health and health care fields, researchers, non-governmental organizations, consumer and family groups, and anyone involved in the treatment of anxiety disorders.

2. Methodology

This document is based on the Health Canada report, “Anxiety Disorders and their Treatment: A Critical Review of the Evidence-Based Literature”, available under separate cover. For that review, computer literature searches of the Medline and PsychLit data bases were conducted for articles on the treatment of anxiety disorders published within the past 15 years (1981 to 1996). Key words used were combinations of each disorder name and the word “treatment” (e.g., treatment and panic disorder). In addition, a manual literature search was conducted by scanning the reference sections of recent review papers and treatment studies.

Studies were selected for review according to the following criteria: controlled research studies (involving control or comparison groups); minimum of ten participants per group; and use of diagnostic criteria from no earlier than DSM-III (Diagnostic and Statistical Manual of Mental Disorders, 3rd edition) (American Psychiatric Association, 1980). With the publication of DSM-III, the various anxiety disorders had clear diagnostic criteria that could be replicated across research and clinical sites. In addition, studies of mixed groups of patients (e.g., panic disorder and generalized anxiety disorder) were not included unless it was possible to separate out the effects of treatment on each disorder.

On the basis of these criteria, pharmacotherapeutic studies and studies employing cognitive and behavioural approaches were included for review. Meta-analytic studies were reviewed when available. Studies of self-help (self-instruction) treatments (e.g., self-help books) and treatments involving minimal therapist contact (e.g., treatment by telephone) were also included where available. However, studies of the effectiveness of (participation in) self-help groups did not meet the criteria and were not included. Studies of other forms of psychotherapeutic interventions (e.g., psychodynamic and humanistic approaches) were not included as they did not meet the above criteria. In total, over 200 treatment studies were excluded from the review.

3. Organization of the Report

Chapter 2 presents an overview of the anxiety disorders, including prevalence, comorbidity, risk factors, and health care utilization and economic costs associated with the anxiety disorders. Chapter 3 presents a discussion of pharmacological, psychological (cognitive-behavioural), and behavioural interventions, discusses important treatment considerations, including side effects of medications, and describes effective treatments for each of the anxiety disorders. Chapter 4 identifies gaps in the research literature, provides directions for potential future research, and identifies implications for professional care, and for professional and public education. Three appendices are included: Appendix 1 provides a table of lifetime prevalence rates for the anxiety disorders; Appendix 2 provides a glossary of medications used in the report, and a listing of relevant abbreviations and definitions of technical terms; Appendix 3 contains a listing of useful references on anxiety assessment instruments.

Chapter 2

Overview of the Anxiety Disorders

1. What are the Anxiety Disorders?

The anxiety disorders are a group of psychological problems whose key features include excessive anxiety, fear, worry, avoidance, and compulsive rituals. The most prevalent anxiety disorders listed in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994) include panic disorder with and without agoraphobia (PDA and PD, respectively), social phobia, specific phobia, obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), and posttraumatic stress disorder (PTSD). These disorders are the subject of this review. Other relevant disorders not discussed here include acute stress disorder (similar to PTSD, except with a shorter duration), anxiety disorder due to a general medical condition, substance-induced anxiety disorder, agoraphobia without a history of panic disorder, and anxiety disorder not otherwise specified. Very little research is available with respect to these disorders.

a. Panic Disorder with (PDA) and without (PD) Agoraphobia

The main features of PD and PDA are recurrent unexpected panic attacks (i.e., panic attacks occurring out of the blue, without any obvious situational trigger), concern about having additional attacks, worry about the consequences of the attacks, and/or a significant change in behaviour as a result of the attacks. When the symptoms of PD lead to avoidance of situations in which escape might be difficult or help might be unavailable in the event of a panic attack, the individual is said to have agoraphobia, which may include avoidance of such situations as driving, using public transportation, travelling, being alone, being in crowds, and shopping.

b. Obsessive-Compulsive Disorder (OCD)

OCD is defined by the presence of obsessions (i.e., recurrent and intrusive thoughts, images, or urges that cause marked anxiety) and/or compulsions (i.e., repetitive behaviours or mental acts that are performed to reduce the anxiety generated by one's obsessions). Typical obsessions concern contamination, doubting, and disturbing sexual or religious thoughts. Typical compulsions include washing, checking, ordering things, and counting. To meet criteria for OCD, the obsessions or compulsions must be time-consuming or distressing.

c. Social Phobia

Social phobia is an excessive or unrealistic fear of social or performance situations. Typical situations feared or avoided by individuals with social phobia include parties, meetings, eating in front of others, writing in front of others, public speaking, conversations, meeting new people, and other related situations. In social phobia, the anxiety is not exclusively

related to having the symptoms of another medical or psychiatric condition noticed by others (e.g., a patient with Parkinson's disease who is anxious about others noticing a tremor would not be considered to have social phobia). In addition, the fear must interfere with the individual's life or be associated with significant distress.

d. Generalized Anxiety Disorder (GAD)

The main feature of GAD is excessive worry occurring more days than not about a number of different domains or activities (e.g., work, finances, family, health). The worry must be experienced as difficult to control and must be associated with at least three of six symptoms which include restlessness, fatigue, impaired concentration, irritability, muscle tension, and impaired sleep. To meet criteria for GAD, the worry must not be exclusively focused on the features of another disorder (e.g., worrying about having a panic attack, if the individual has PD) and must lead to significant distress or functional impairment.

e. Specific Phobia

A specific phobia is an excessive or unreasonable fear of an object or situation, usually associated with avoidance of the feared object or situation. Examples include phobias of flying, heights, animals, injections, and blood. The fear must not be related to another disorder (e.g., an individual with agoraphobia who avoids flying due to the possibility of having a panic attack), and must be associated with significant distress or functional impairment.

f. Posttraumatic Stress Disorder (PTSD)

PTSD is a disorder in which an individual experiences a traumatic event involving actual or threatened death or serious injury to oneself or others and responds to the event with intense fear, helplessness, or horror. The fear is associated with symptoms from three categories: (1) re-experiencing the event (e.g., nightmares, flashbacks, and intrusive memories); (2) avoidance and emotional numbing (e.g., avoiding talking or thinking about the trauma); and (3) symptoms of increased arousal (e.g., sleeplessness, and hypervigilance). PTSD is associated with a duration of at least one month and symptoms must cause significant distress or functional impairment to be diagnosed.

2. Prevalence of the Anxiety Disorders

Anxiety disorders are among the most prevalent psychological problems. Lifetime prevalence rates for experiencing any anxiety disorder, reported in epidemiological research, vary from 10.4% to 25.1% (Bourdon et al., 1988); to 11.2% (Bland et al., 1988), to 24.9% (Kessler et al., 1994). The lifetime prevalence rates for specific anxiety disorders range from 3.5% for panic disorder to 13.3% for social phobia in recent epidemiological research (Kessler et al., 1994). Appendix 1 contains additional data from population health surveys, as well as an explanatory note on factors that could account for the variations in prevalence rates.

According to the Ontario Mental Health Supplement, women are more likely than men to experience anxiety disorders. The Supplement reported that the one-year prevalence rate for anxiety disorders was 9% for men and 16% for women (Ontario Ministry of Health, 1994) in the twelve months preceding the survey.

3. Comorbidity

Most individuals with anxiety disorders have another mental health problem. In a 1990 study, Sanderson, Di Nardo, Rapee and Barlow found that 70% of individuals with a principal anxiety disorder diagnosis met criteria for an additional Axis I disorder, often another anxiety disorder. Specific and social phobias were the most common additional diagnoses, affecting about a third of the sample. A third of individuals with principal anxiety disorder diagnoses met criteria for depressive mood disorder (i.e., major depression or dysthymic disorder). The frequency of additional diagnoses differed across the anxiety disorders. Percentages of individuals who met criteria for one or more additional disorders were 69% for panic disorder with and without agoraphobia (PDA and PD, respectively), 58% for social phobia, 81% for generalized anxiety disorder (GAD), 53% for specific phobias, and 83% for obsessive-compulsive disorder (OCD).

Several studies have shown that alcohol and substance abuse are associated with anxiety disorders, particularly for individuals with social phobia and PDA (Cox, Norton, Swinson, and Endler, 1990; Kushner, Sher, and Beitman, 1990). Anxiety disorders, particularly social phobia and GAD, are often also associated with personality disorders (Sanderson, Beck, and Betz, 1991; Stein, Hollander, and Skodol, 1993). A recent study, based on findings from the 1984 Epidemiologic Catchment Area Survey, suggests that bipolar disorder may be associated with anxiety disorders (Chen and Dilsaver, 1995).

A number of studies have examined the impact of treatment for one disorder on comorbid conditions. Fava, Zielezny, Luria, and Canestrari (1988) found that behavioural treatment of agoraphobia led to changes in comorbid obsessive-compulsive symptoms. Similarly, Brown, Antony, and Barlow (1995) found that patients with PD who underwent CBT experienced a decrease in comorbid conditions. Comorbidity at pre-treatment was not predictive of treatment outcome. Comorbidity patterns could have possible preventive implications. For example, van Ameringen, Mancini, Styan and Donison (1991) found that social phobia predated mood disorders in 81.7% of cases and predated other anxiety disorders in 62.7% of cases among individuals with social phobia and a comorbid condition.

4. Risk Factors¹

According to the Mental Health Supplement of the Ontario Health Survey (Ontario Ministry of Health, 1994), risk factors and socio-demographic variables associated with anxiety disorders include surviving severe abuse, parental mental disorder, low income, and being on public assistance. These were also risk factors for other mental disorders listed in the report, including mood disorders, substance abuse, and antisocial behaviour. The Supplement did not examine risk factors for particular anxiety disorders.

Family history of anxiety places individuals at risk for developing an anxiety disorder. A number of studies have shown that each of the anxiety disorders tends to run in families, and there is evidence that the relationship among anxiety disorders in different family members may be genetically mediated to some extent (Fyer, Mannuzza, Chapman, Martin, and Klein, 1995; Kendler, Neale, Kessler, Heath, and Eaves, 1992; MacDonald and Murray, 1994; Pauls, Alsobrook, Goodman, Rasmussen, and Leckman, 1995). Parental behaviour (e.g., a tendency to be overprotective, less affectionate, and more controlling) appears to be associated with the development of anxiety disorders, particularly panic disorder without agoraphobia (Gerlsma, Emmelkamp and Arrindell, 1990; Silove, Parker, Hadzi-Pavlovic, Manicavasagar, and Blazczynski, 1991). This latter finding could have implications for preventive interventions.

Risk factors have been identified for some of the individual anxiety disorders as follows:

- ★ *Panic disorder with and without agoraphobia*: stressful life events, perceived negative impact of stressful events, anticipation of a major life event, substance use, anxiety in childhood, parental behaviour (e.g. a tendency to be overprotective) age (with the disorder being more common in those under 65 years of age), and being female (Faravelli and Pallanti, 1989; Roy-Byrne, Geraci and, Uhde, 1986; Pollard, Pollard, and Corn, 1989; Kushner et al., 1990; Roy-Byrne and Uhde, 1988; Aronson and Craig, 1986; Keyl and Eaton, 1990; Angst and Vollrath, 1991);
- ★ *Social phobia*: childhood history of separation, shyness in childhood, infrequent dating, parental behaviour (e.g., discouragement of socializing), and traumatic events (Bruch and Heimberg, 1994; Bruch, 1989; Antony and Barlow, in press);
- ★ *Generalized anxiety disorder*: anxiety in childhood and being female (Angst and Vollrath, 1991; Aronson and Logue, 1987);

¹ Although this report does not focus on anxiety disorders induced by a general medical condition or by a substance, it is recognized that individuals may experience anxiety as a result of a physical illness (e.g., hyperthyroidism) or drug use (illicit, prescription, or over-the-counter medications).

- ★ *Specific phobia*: being female, and experiencing traumatic events (Antony and Barlow, in press); and
- ★ *Posttraumatic stress disorder* (PTSD): (according to the definition of PTSD) experiencing a traumatic event.

It should be noted that not all individuals who experience these risk factors develop anxiety disorders. For example, many individuals experience traumatic events and do not develop PTSD or phobic disorders. Researchers are investigating whether mediating variables, such as social support following the event or biological predispositions, may play a role.

5. Health Care Utilization and Economic Costs

Data on the direct and indirect costs of anxiety disorders to the Canadian economy remain to be investigated. American data, however, provide some information. Simon et al. (1995) investigated health care costs associated with anxiety disorders and depressive disorders among persons attending three primary care clinics in a health maintenance organization in Seattle (Washington). Patients with a DSM-III-R anxiety or depressive disorder were compared to patients without significant mood or anxiety symptoms. Those with anxiety or depressive disorders cost an average of \$2390 (\$US) for a six-month baseline period, compared to \$1397 (\$US) for those without anxiety or depressive diagnoses. Other studies show that anxiety disorders are also associated with lost productivity in the workplace (Salvador-Carulla et al., 1995).

Evidence suggests that persons with anxiety disorders have more frequent contact with the health care system than does the general population (Siegel et al., 1990; Leon et al., 1995; Swinson et al., 1992). These persons tend to seek help from the general health care system, as opposed to the mental health care system (Pollard, Henderson, Frank, and Margolis, 1989; Leon et al., 1995). Swinson et al. (1992) indicate that outside of specialized anxiety disorders clinics, appropriate diagnosis and empirically validated treatments may not be provided to patients in either the health and mental health care systems. This is discussed in the following chapter.

Chapter 3

Treatment of Anxiety Disorders

1. Types of Interventions

Clinicians may treat anxiety disorders from a range of perspectives (e.g., insight-oriented therapy and hypnosis). However, the treatments with well-recognized empirical support include two main approaches: (1) pharmacotherapy (drug therapy) and (2) cognitive-behavioural therapy (CBT), a form of psychotherapy. Although a few studies have compared these approaches to other treatments (e.g., analytic psychotherapy), these alternative approaches have generally not been especially effective compared to CBT and medication.

Pharmacological approaches, including antidepressants (e.g., monoamine oxidase inhibitors) and anti-anxiety medications (e.g., benzodiazepines), have been shown to be helpful in treating each of the anxiety disorders, except specific phobias. *Cognitive-behavioural therapy (CBT)* appears to be an effective psychological treatment for each anxiety disorder, although few properly controlled studies have been conducted to evaluate its effectiveness with PTSD and appropriately diagnosed specific phobias. CBT strategies shown to be helpful include cognitive restructuring (i.e., changing anxious thoughts, interpretations, and predictions into more rational and less anxious thoughts), exposure to feared objects and situations, and relaxation training.

Specific techniques have been developed and tested for particular anxiety disorders. For individuals with panic disorder, systematic exposure to feared sensations using exercises such as hyperventilation and spinning (i.e., interoceptive exposure) as well as breathing retraining (i.e., learning to breathe in a slow and relaxed manner) appear to be helpful. For specific phobias involving blood and injections, applied tension has been shown to be a helpful method of increasing blood pressure in order to prevent the fainting that is often associated with such phobias.

A variety of newer treatments have begun to be tested in uncontrolled research studies. Among medications, the SSRI (selective serotonin reuptake inhibitor) antidepressants (e.g., paroxetine) have been the subject of much research activity. New cognitive and behavioural strategies are currently being tested as well. These include a technique called eye movement desensitization and reprocessing, as well as computer-administered CBT. It remains to be shown whether these newer treatments will be as effective or even more effective than established treatments.

2. Pharmacological vs. Psychological Treatments

Despite a large literature supporting the use of medications and CBT, there remains debate among clinicians and researchers regarding the relative efficacy of both approaches, as well as the relative importance of biological and psychological processes in the etiology of anxiety disorders.

As reviewed by Antony, Brown, and Barlow (1992), biological theorists tend to minimize the importance of psychological variables, citing research demonstrating differences between those with and without anxiety disorders on a variety of biological variables (e.g., brain imaging, hormone levels, biological challenges, neurochemical levels, and genetics). Cognitive and behavioural theorists explain these findings as biological manifestations of a primarily cognitive or behavioural phenomenon, and often cite studies demonstrating that these biological findings can be influenced by psychological variables. In addition, cognitive and behavioural theorists point to data showing fear-relevant biases of attention and memory and anxious beliefs regarding fear-relevant objects and situations among individuals with anxiety disorders. For biological theorists, these findings tend to be explained as cognitive manifestations of a primarily biological process.

Antony et al. (1992) state that biological and psychological findings can generally be explained from either perspective and there is little reason to accept only one of these views. A more parsimonious approach is one that integrates biological and psychological findings. Recent models of anxiety disorders (e.g., Antony and Barlow, 1996; Barlow, 1988) have attempted to account for the ways in which both biological and psychological factors influence the development of anxiety disorders. Nevertheless, investigators from biological and psychological perspectives rarely collaborate on treatment studies and rarely read one another's work, except to criticize it. Biological and psychological treatment studies tend to be conducted at different sites, use different measures, and get published in different journals. Over time, more investigators and clinicians have been willing to consider multidimensional approaches to understanding and treating anxiety disorders, but there is still much work to be done to educate practitioners and researchers about the nature of anxiety and its disorders.

3. Treatment Considerations

a. Possible Side Effects of Medications

Concern has been expressed over possible side effects of some of the medications used to treat anxiety disorders, particularly the benzodiazepines. Common side effects associated with these medications, which may decrease over the course of treatment, include sedation, fatigue, ataxia, slurred speech, and amnesia (Noyes et al., 1988).

The side effects associated with discontinuation of benzodiazepines have also been explored. Pecknold, Swinson, Kuch, and Lewis, (1988) reported that 35% of patients treated with alprazolam experienced a withdrawal syndrome during discontinuation of the drug. Withdrawal symptoms included confusion, disorientation in time, place or person,

heightened sensory perception, dysosmia (abnormality in taste or smell), paresthesias (sensation of numbing or tingling), muscle twitch, blurred vision, diarrhea, decreased appetite, weight loss, and muscle cramps. These were not incapacitating or life-threatening in any of the cases.

Discontinuation of benzodiazepines may also be associated with relapse and recurrence of symptoms. In a 1991 study, Noyes, Garvey, Cook, and Suelzer found that between 63% to 84% of patients who were taking alprazolam or diazepam for panic disorder experienced a relapse. Variations in the rate of relapse were related to use of different outcome criteria. Because of the difficulty that most patients with panic disorder have discontinuing treatment with benzodiazepines, attention has turned to the development of specific programs to help patients stop taking anxiolytics (Klein, Colin, Stolk, and Lenox, 1994).

Research suggests that the beneficial effects of some forms of medications may be dependent on continuing use of the drug. For example, although clomipramine is effective in treating obsessive-compulsive disorder, one study (Thorén, Åsberg, Cronholm, Jörnstedt, and Träskman, 1980) found that the therapeutic effects of five weeks of treatment with clomipramine were not maintained after discontinuation. Further research in this area is warranted.

b. Appropriateness of Treatment

There is some evidence that many individuals with anxiety disorders are not offered appropriate treatments. Health care professionals outside of specialized anxiety disorders clinics are less likely to use empirically validated treatments. For example, Swinson et al. (1992) found that although the majority of patients with panic disorder and social phobia had tried psychotropic medications (89% and 75%, respectively), most had never received the treatments with the most empirical support. Among patients with PD, only 15% had received imipramine, 13% had received alprazolam, and 11% had received cognitive-behavioural therapy. Only 4% of patients with social phobia had received monoamine oxidase inhibitors and 4% had received cognitive-behavioural therapy. Swinson et al. (1992) suggest that education regarding early recognition and intervention is needed for general and emergency department physicians. Educational activities should also be targeted to other health and mental health care professionals, including psychologists, psychiatrists, occupational therapists, social workers, psychiatric nurses, et cetera. Seminars on the different types of anxiety disorders and corresponding treatments, and standardized methods of assessment could be effective methods for disseminating information within the health and mental health fields.

A survey of psychiatrists and psychiatric residents (McCarley, Steinberg, Spears, and Essock-Vitale, 1987) showed that medical professionals are more likely to favour biological approaches over behavioural approaches in their training and practice. In addition, psychoanalytic and psychodynamic approaches were favoured over CBT despite the lack of empirical support for these treatments. A recent survey of family practice physicians (Hecker, Fink, and Fritzler, 1993) was somewhat more optimistic in its findings. Participants tended to rate CBT as a more acceptable treatment for PD than client-centered therapy, with pharmacological approaches falling somewhere between the two psychological approaches in terms of acceptability.

Results were more promising in specialized anxiety disorders clinics. Swinson, Cox, Kerr, Kuch, and Fergus (1992) sought to investigate the availability and appropriateness of services for anxiety disorders in Canada. They sent a questionnaire to 240 hospitals across the country, of which 117 responded. Of the responding hospitals, only 18 had an anxiety disorders clinic. Clinics saw an average of 208 patients per year. The most common diagnoses seen were PDA (25.4%), GAD (22.1%), PD (15.2%), social phobia (13.5%), agoraphobia without panic (9.9%), OCD (8.9%), and PTSD (8.8%). Despite the high prevalence of specific phobias in the general population, these individuals tended not to present to anxiety disorders clinics. Most of the clinics reported having an orientation consistent with CBT, pharmacotherapy, or combinations of these approaches.

4. Research Findings: Effective Treatments for the Anxiety Disorders

In reviewing the findings below, it should be kept in mind that symptom reduction is increasingly being viewed as only one of the factors to be considered when comparing the effectiveness of various treatment approaches. Other aspects to be considered include the acceptability of the treatment to the patient and family members, the impact on the patient's quality of life, including functional impairment, the time needed to show results, the cost of treatment, and the ease with which the treatment can be taught to professionals and made available to the public.

a. Panic Disorder with (PDA) and without Agoraphobia (PD)

Among the anxiety disorders, PD and PDA are the most extensively researched. Numerous outcome studies have demonstrated the effectiveness of pharmacological, psychological, and combined treatments. In addition, compared to the other anxiety disorders, studies of PD and PDA have typically been more sophisticated in their designs and measures, including assessments of panic frequency, generalized anxiety, depression, agoraphobic avoidance and other domains of functioning.

In pharmacological trials, a variety of medications have been demonstrated to be more effective than placebo for treating PD and PDA. These include a range of antidepressants as well as antianxiety medications (e.g., benzodiazepines). Although alprazolam (e.g., Ballenger et al., 1988) and imipramine (e.g., Mavissakalian and Perel, 1995) have been the most frequently researched medications, other drugs that have been shown to be effective include clonazepam (Beauclair, Fontaine, Annable, Holobow, and Chouinard, 1994), adinazolam (e.g., Carter et al., 1995), clomipramine (e.g., Johnston, Troyer, and Whitsett, 1988), lorazepam (e.g., Schweizer et al., 1990), fluvoxamine (de Beurs, van Balkom, Lange, Koele, and van Dyck, 1995), and several other medications. Furthermore, there appear to be few differences in effectiveness among these medications (e.g., Cross National Collaborative Panic Study, Second Phase Investigators, 1992). However, benzodiazepines (e.g., alprazolam) tend to be associated with earlier improvements (Cross National Collaborative Panic Study, Second Phase Investigators, 1992) and greater rates of relapse following discontinuation (Rickels, Schweizer, Weiss, and Zavodnick, 1993), relative to

antidepressants such as imipramine. Interestingly, CBT has been shown to help patients discontinue their medications without relapse (Otto et al., 1993).

Predictors of outcome for pharmacological treatment for PD and PDA have been identified by Basoglu, Marks, Kiliç, Brewin, and Swinson, (1994). In their study, patients who attributed their improvement to medication (regardless of whether they were taking alprazolam or placebo) were more likely to experience withdrawal symptoms and loss of gains than were patients who attributed their improvements to their own efforts. Pre-treatment predictors of poor outcome at post-treatment included first time psychotropic medication use, more severe agoraphobia, and longer duration of illness. Predictors of poorer long-term outcome included more severe agoraphobic symptoms, older age, past history of depression, and longer duration of illness.

Numerous studies have demonstrated the effectiveness of CBT relative to no treatment and to alternative psychological treatments such as supportive psychotherapy (See Clum, Clum, and Surls, 1993 for a review). Although there appears to be few consistent differences across studies in the effectiveness of various cognitive-behavioural strategies (e.g., cognitive restructuring, exposure, applied relaxation), some studies have shown that relaxation is somewhat less effective than other techniques (e.g., Marks et al., 1993).

Studies have also explored the role of family support in cognitive-behavioural treatment of PDA. One study reported that patients whose spouses were included in treatment sessions showed significantly more improvement on measures of agoraphobia than patients treated without spouses (Barlow, O'Brien, and Last, 1984). A two-year follow-up study (Cerny, Barlow, Craske, and Himadi, 1987) revealed that patients treated with their spouses continued to make gains, whereas those who were treated alone did not show continued improvement, especially in the first year. The "spouse-treated" group also showed less functional impairment during the first year.

Several studies have shown CBT to be more effective than pharmacological approaches for PD and PDA, particularly over the long-term (e.g., Clark et al., 1994; Marks et al., 1993). Other studies (e.g., de Beurs et al., 1995) have found few differences between drug treatments and psychological interventions. With few exceptions (e.g., Telch, Agras, Taylor, Roth, and Gellen, 1985), combined medication and CBT appear to be no more effective than either alone, although there is some evidence that patients who believe that their improvements are due to the medications are at a greater risk for relapse than individuals who attribute their improvement to psychological interventions (Basoglu et al., 1994).

A variety of studies have shown that patients with PD and PDA can benefit from self-help treatments and interventions with reduced therapist contact, such as self-help books (Gould, Clum, and Shapiro, 1993) and treatment by telephone (Swinson, Fergus, Cox, and Wickwire, 1995).

b. Obsessive-Compulsive Disorder (OCD)

Overall, there is evidence that OCD can be effectively treated with a variety of medications, especially serotonin specific agonists such as clomipramine (Clomipramine Collaborative Study Group, 1991), sertraline (Chouinard et al., 1990), fluvoxamine (Perse, Greist, Jefferson, Rosenfeld, and Dar, 1987), and fluoxetine (Tollefson et al., 1994).

Controlled studies of CBT have consistently shown that behavioural techniques are effective for OCD (e.g., Fals-Stewart, Marks, and Shafer, 1993; Foa and Goldstein, 1978). Strategies typically used in CBT to decrease anxiety include exposure to feared situations and thoughts, as well as prevention of rituals. In addition, some studies have incorporated cognitive restructuring into the treatment of OCD.

In comparative outcome studies, no consistent differences in effectiveness have been found for CBT, medications, and their combination (e.g., Cottraux et al., 1990; Marks et al., 1988). This conclusion has been confirmed in meta-analytic reviews of treatments for OCD (e.g., Cox, Swinson, Morrison, and Lee, 1993; van Balkom, van Oppen, Vermeulen, and van Dyck, 1994).

c. Social Phobia

Although few controlled pharmacological trials exist for social phobia, preliminary evidence suggests that a variety of drugs may be effective, including clonazepam (Davidson et al., 1993), phenelzine (Liebowitz et al., 1992), sertraline (Katzelnick et al., 1995), and brofaromine (Fahlen, Nilsson, Borg, Humble, and Pauli, 1995).

In addition, there are numerous studies supporting the use of CBT for individuals with social phobia. Strategies that have been found to be effective for social phobia include exposure to feared situations, role playing, cognitive therapy, and social skills training. Overall, CBT appears to be more effective than supportive psychotherapy (e.g., Heimberg, Dodge, Kennedy, and Zollo, 1990), and no treatment at all (Newman, Hofmann, Trabert, Roth, and Taylor (1994).

Studies comparing various cognitive and behavioural approaches have led to inconsistent findings. A recent meta-analysis comparing cognitive-behavioral packages and pure exposure-based treatments for social phobia (Feske and Chambless, 1995) found no differences overall. In other words, adding cognitive strategies to exposure-based therapies did not seem to affect outcome. Length of treatment was similarly unrelated to outcome, although a larger number of exposure sessions was associated with better results.

Preliminary evidence suggests that CBT is at least as effective as pharmacological approaches and probably more effective than medications in the long-term (Gelernter et al., 1991; Heimberg et al., 1994). Much more research is required before such a conclusion can be drawn with confidence. In addition, there are no published studies examining the efficacy of combined psychological and pharmacological treatments for social phobia.

d. Generalized Anxiety Disorder (GAD)

There appears to be effective pharmacological and psychological treatments for GAD. Although most medication studies are based on old criteria for GAD (which have since been substantially revised), there is evidence that a range of pharmacological interventions may be helpful for generalized anxiety, including buspirone, imipramine, and a variety of benzodiazepines such as diazepam, alprazolam, and lorazepam, among others. With a few exceptions, most studies have found these medications to be more effective than placebo, but few differences have been reported among medications (e.g., Hoehn-Saric, McLeod, and Zimmerli, 1988; Rickels et al., 1982; Rickels et al., 1993; Sacchetti, Zerbini, Banfi, and Tansella, 1994). One difference among medications that has been shown in some studies is

the finding that benzodiazepines often work more quickly than other medications (e.g., Rickels et al, 1993).

In general, studies using CBT to treat individuals with GAD have been based on a larger number of measures and more recent diagnostic criteria, compared to medication studies. A variety of approaches appear to be helpful for patients with GAD, including cognitive strategies (e.g., cognitive restructuring) and behavioural strategies (e.g., relaxation training). CBT appears to be more effective than alternative treatments including diazepam, analytic psychotherapy, non-directive psychotherapy and placebo (e.g., Durham et al., 1994; Power, Simpson, Swanson, and Wallace, 1990). Although some studies have shown differences in the effectiveness of different cognitive and behavioural treatments, most studies have found few differences in the effectiveness of these approaches (e.g., Barlow, Rapee, and Brown, 1992; Borkovec et al., 1987; Borkovec and Costello, 1993).

e. Specific Phobia

No controlled studies have been conducted with medications for individuals meeting diagnostic criteria for specific phobias.

Numerous studies have demonstrated that behaviour therapy is an effective method of decreasing fears of a variety of objects and situations including heights (Bourque and Ladoucer, 1980), dental treatment (Jerremalm, Jansson, and Öst, 1986), enclosed places (Öst, Johansson, and Jerremalm, 1982), animals (Öst, 1989), and blood (Öst, Lindahl, Sterner, and Jerremalm (1984). In general, the principal component of any effective treatment for specific phobias is exposure to the feared situation. Typically, exposure is conducted in vivo (i.e., actual confrontation of the feared situation), although exposure in imagination is also used at times. Some studies have compared exposure to applied relaxation (an approach that integrates relaxation training and exposure to feared situations) and both appear to be effective. In addition, applied tension (i.e., tensing muscles in order to increase blood pressure) has been shown to be an effective treatment for blood phobias, which are often associated with fainting upon exposure to blood.

Almost all of the studies evaluating exposure-based treatments for specific fears have involved volunteers with heightened fears who may or may not have met full criteria for specific phobias (i.e., including significant distress or impairment). In fact, in only four studies were participants carefully diagnosed using recent diagnostic criteria. In these studies (based on individuals with animal or blood phobias), behaviour therapy was shown to be very effective for almost all individuals who were treated (e.g., Öst, Fellenius, and Sterner, 1991; Öst, Salkovskis, and Hellström, 1991).

Preliminary studies with specific phobias suggest that self-instruction methods (e.g., self-help books) may be less effective, compared to studies of PD and PDA.

f. Posttraumatic Stress Disorder (PTSD)

Very little is known about the effectiveness of treatments for PTSD. With respect to medications, few controlled studies have been conducted, and the few studies that have been published have yielded conflicting results. Some studies have shown antidepressants (e.g., amitriptyline, desipramine, phenelzine) to be more effective than placebo (e.g., Kosten, Frank, Dan, McDougle, and Giller, 1991); others have failed to show differences (e.g., Davidson et al., 1990). Medication studies completed to date suffer from a variety of limitations including small sample sizes and a duration of treatment that may be too brief to be helpful.

Studies of CBT have yielded more promising findings (e.g., Foa, Hearst-Ikeda, and Perry, 1995; Keane, Fairbank, Caddell, and Zimering, 1989), although there are still too few studies to conclude that CBT is an effective treatment. Furthermore, no one cognitive-behavioural strategy appears to be more effective than other strategies.

Chapter 4

Potential Directions for Future Research, Professional Care, and Professional and Public Education

The previous chapter provided a summary of the main research findings from a companion report, entitled *Anxiety Disorders and Their Treatment: A Critical Review of the Evidence-Based Literature*. This chapter provides a discussion of the gaps in the research literature, including methodological limitations, as well as of implications flowing from the research findings for professional care and professional and public education. It is hoped that the information presented in this chapter will provide a basis for discussions on effective treatment approaches for the anxiety disorders among the appropriate stakeholders in the health and mental health fields.

1. Gaps in the Research Literature

The quality of treatment research varies greatly across studies. One factor that may contribute to differences is the way in which different types of research are funded. Medication studies are often funded by pharmaceutical companies which allows for larger studies with more participants and greater resources. In contrast, studies of psychosocial treatments (including self-help treatments) are more frequently funded by public agencies or are conducted without external funding. In short, there are fewer resources available to researchers interested in cognitive and behavioural treatments, despite much evidence supporting their importance.

A number of gaps in the anxiety treatment research literature are discussed below. Methodological limitations in treatment studies for specific anxiety disorders are also highlighted.

i. Adequacy of Treatment Delivery

When reviewing the studies, it was not always clear whether investigators delivered treatments as reported. For example, it was possible that cognitive-behavioural therapists had different levels of skill. It is also possible that participants in the studies of pharmacological and psychological treatments were not compliant with treatment instructions. Additionally, most of the studies were not consistent in their measurement of treatment compliance and treatment integrity.

ii. Outcome and Other Measurement Issues

A limitation of nearly all treatment studies that were reviewed was their tendency to focus on symptom measurement only, at the expense of measuring functional impairment, quality of life, and other dimensions related to the impact of the disorder on the individual and family

members. In addition, for some disorders (e.g., obsessive-compulsive disorder) the measures used in medication studies tended to be more sophisticated than those used in CBT studies, whereas for other disorders (e.g., generalized anxiety disorders), CBT researchers tended to use a broader range of measures than did pharmacotherapy researchers. For example, a study of the relative and combined effects of various cognitive and behavioural strategies for social phobia used “seeking additional treatment” as an indicator of treatment outcomes (Butler, Cullington, Munby, Amies, and Gelder, 1984).

In general, research studies of panic disorder with and without agoraphobia are associated with more sophisticated outcome measures than some other disorders (e.g., generalized anxiety disorders). PDA and PD studies have typically been more sophisticated in their designs and measures, including assessments of panic frequency, generalized anxiety, depression, agoraphobic avoidance and other domains of functioning.

Empirical evidence suggests that assessment of the complete impact of various treatment approaches should involve long-term follow-up. This was evident in a study comparing imipramine plus therapist-assisted exposure, imipramine plus therapist-assisted relaxation training, placebo plus therapist-assisted exposure, and placebo plus therapist-assisted relaxation for PDA. There were no differences between imipramine and placebo during treatment and through the one-year follow-up period (possibly due to the relatively low dosage of medication used). Therapist-assisted exposure led to significantly more improvement than relaxation, although differences were small (Marks et al., 1983). At two-year (Cohen, Monteiro, and Marks, 1984) and five-year follow-up (Lelliott, Marks, Monteiro, Tsakiris, and Noshirvani, 1987), participants continued to improve, although there were no longer differences among any of the groups.

iii. Assessment Instruments

Assessment instruments are used in both clinical and research settings to determine the presence or absence of symptoms of (in this case) anxiety disorders or to aid in clinical diagnosis (Health Canada, 1994). Many different instruments exist for each of the anxiety disorders, and agreement as to which ones are the “gold standards” for each specific disorder remains elusive. In addition, many of the instruments tap different domains; for example, some may measure psychological domains, whereas others may measure biological dimensions. The instruments may also vary in length, complexity (Health Canada, 1994) and psychometric properties (e.g., instrument reliability and validity) (Health Canada, 1996). As a result, comparisons between studies, even those that focus on the same anxiety disorder, are often difficult.

A related issue refers to whether the instruments are designed for use by (clinical) assessors or by patients. Patient assessments may result in different results than clinician assessments, as patients may assign more weight to certain domains being measured than clinicians. For example, a meta-analysis of antidepressants, behaviour therapy and cognitive therapy to treat obsessive-compulsive behaviour revealed that all forms of these treatments were more effective than placebo when based on assessor ratings. However, when comparisons were based on patient ratings, behaviour therapy and combined treatment tended to be more effective than antidepressants (van Balkom et al. 1994). Issues such as these need to be considered when conducting or reviewing treatment studies. (A list of useful references on assessment of anxiety disorders is included in Appendix 3 for the information of readers).

2. Methodological Limitations of Treatment Studies of Specific Anxiety Disorders

i. Obsessive-Compulsive Disorder

In the case of OCD, many of the studies demonstrating the effectiveness of CBT have often been based on very small samples and have failed to use adequate controls. Although pharmacological studies of OCD have been better in this regard, they seldom use structured interviews to diagnose patients.

ii. Specific Phobia

Almost all studies of specific phobias have failed to use proper diagnostic criteria for identifying patients. In addition, although there are several studies examining treatments for animal and blood phobias, more controlled studies are needed for other phobia types (e.g., heights, claustrophobia, storms, flying, etc.). Finally, almost all behavioural studies for specific phobias have been based exclusively on exposure therapy.

iii. Generalized Anxiety Disorder

One difficulty with the GAD literature in particular is the fact that diagnostic criteria have changed quite dramatically over the years and most studies have relied on an outdated definition of GAD. When GAD was first introduced in DSM-III (American Psychiatric Association, 1987), it was conceptualized as a residual category for individuals with heightened anxiety lasting at least one month, who were not phobic, who did not meet criteria for panic disorder, and who were not depressed. With the publication of DSM-III-R (American Psychiatric Association, 1987), GAD was defined as a disorder in which the hallmark was excessive or unrealistic worry about two or more life spheres (e.g., work and family), lasting at least six months and accompanied by six of 18 associated symptoms. In DSM-IV (American Psychiatric Association, 1994), GAD is still a disorder of excessive worry lasting six months or more; however, the criteria have been revised, so that the worry must be difficult to control, be focused on a variety of topics (rather than two or more life spheres), and be associated with three out of six symptoms.

To date, most studies of GAD have been based on DSM-III criteria. Because of the revised criteria, it is likely that these older studies are no longer relevant to individuals meeting the current criteria for GAD. Therefore, the efficacy of pharmacological and psychological treatments for GAD, as the disorder is currently defined, has yet to be determined. Finally, outcome measures used in pharmacological studies of GAD have tended to be less sophisticated than those used in studies of psychological treatments.

iv. Social Phobia

For social phobia, studies have typically failed to differentiate between patients with generalized and discrete social phobias. Because of evidence that these two types of social phobias differ on a variety of dimensions, treatment studies should pay more attention to subtypes in social phobia research. For example, despite evidence that beta blockers (e.g., atenolol) are not helpful for generalized social phobia, they are often used in clinical practice

to treat discrete social phobias (e.g., public speaking phobia). However, other than a few studies showing that beta blockers reduce anxiety in normal populations with heightened performance anxiety (e.g., musicians), there are no studies demonstrating their effectiveness in properly diagnosed patient populations. The use of beta blockers for performance anxiety should be investigated in patients diagnosed with discrete social phobias.

v. Posttraumatic Stress Disorder

For PTSD, very few treatment studies have been published and the few that are available have yielded inconsistent findings. Much work needs to be done in the area of developing and evaluating treatments for PTSD.

3. Potential Directions for Future Research

- ★ Longitudinal research, using multidimensional approaches, is needed regarding risk factors for developing anxiety disorders. This is especially the case for disorders other than PD and PDA. In addition, there are virtually no studies that have examined the role of protective factors that might decrease the tendency to develop anxiety disorders among those considered to be at risk.
- ★ Further research on comorbid conditions among persons with anxiety disorders is needed, particularly in light of the possible preventive implications of these conditions (e.g., social phobia).
- ★ More controlled research, including meta-analytic studies, is needed on the relative and combined short- and long-term efficacy of pharmacological and psychological treatments for PTSD, specific phobias, social phobia and GAD.
- ★ Methodologically-sound research on the effectiveness of other forms of psychotherapeutic approaches (e.g., psychodynamic and humanistic approaches) for the treatment of anxiety disorders is needed.
- ★ Studies exploring treatment sequencing (i.e., the order in which different treatment components should be introduced) are needed in cases where combined treatments approaches are used.
- ★ Long-term follow-up treatment studies are needed to explore possible differences in treatment efficacy over time (e.g., initial differences between treatments may wash out over time).
- ★ More controlled research is needed to evaluate the effectiveness of newer SSRI's and other antidepressant medications in the treatment of the anxiety disorders.
- ★ Treatment studies should include a broader range of outcome variables such as impact of anxiety disorders on quality of life, future health care utilization costs, lost wages, reduced productivity at work, and impact of treatment on families (including children).

- ★ More data are needed on predictors of treatment response, as well as mechanisms by which treatments work, for all of the anxiety disorders. Once the efficacy of these treatments is established for different groups of patients, it will be important to find ways of predicting which treatments are likely to be effective for particular individuals, including those with one or more comorbid conditions, and to disseminate this information to clinicians and to the public.
- ★ Virtually nothing is known about the effectiveness of treatment for the anxiety disorders by non-mental health professionals (e.g., family doctors). A variety of treatment manuals and training workshops have become available in the past few years, and it would be useful to assess the extent to which general practitioners can be trained to administer medications and CBT for anxiety disorders.
- ★ Given the effectiveness of self-help (self-instruction) treatments and treatments involving minimal therapist contact for PD and PDA, it seems worthwhile to conduct more research on these approaches for other anxiety disorders.
- ★ Controlled research studies as to the role and effectiveness of self-help/mutual aid approaches (e.g., participation in self-help groups) in helping individuals to cope with anxiety disorders should be undertaken. Preliminary research and anecdotal evidence suggest that many individuals (and their families) find participation in self-help groups beneficial.
- ★ Although a critical review of measurement tools for the anxiety disorders was beyond the scope of this review, evaluation of these instruments is an important area for future research. A compendium and critical review of these instruments could be a useful first step to addressing this issue.

Because the state of the research varies for each of the anxiety disorders, some research recommendations may be identified which are specific to each type of disorder. These include:

PD and PDA:

- ★ More research is needed on the effects of various forms of treatment in specific populations, including the elderly, children, culturally diverse groups, and individuals with multiple psychological problems (e.g., anxiety disorders and substance abuse).

OCD:

- ★ Research on psychosocial interventions (e.g., exposure, response prevention, and cognitive therapy) is needed. More needs to be learned regarding the process of therapeutic change.
- ★ Many of the older, uncontrolled studies should be repeated, using appropriate controls, adequate sample sizes, diagnosis using DSM-IV criteria (as measured by structured interviews), and adequate long-term follow-up.

Social phobia:

- ★ Further research is needed to confirm preliminary research findings that CBT is at least as effective as pharmacological approaches in the short-term and probably more effective than medications in the long-term.
- ★ The role of self-help approaches in social phobia remains to be studied.

GAD:

- ★ Since relatively few studies are based on recent criteria, it is important for psychological and pharmacological treatments to be evaluated using properly diagnosed patients and a broad range of measures (including cognitive assessments).

Specific phobia:

- ★ Studies that explore the efficacy of behaviour therapy with a broader range of diagnosed phobias (e.g., heights, storms, flying, et cetera) are needed.
- ★ The efficacy of using strategies (e.g., medications, interoceptive exposure) shown to be effective for treating panic disorder for different specific phobia types remains to be investigated.

4. Other Implications flowing from the Review of the Evidence-Based Anxiety Treatment Literature

- ★ More education regarding the treatment of anxiety is needed for general health care professionals as well as for mental health care practitioners, including occupational therapists, social workers, psychiatric nurses and other clinicians. Unfortunately very little research has been conducted on training practitioners to treat anxiety. An exception is a study by Welkowitz et al. (1991) which showed that pharmacologically- oriented clinicians could be taught to deliver CBT to patients with PD.
- ★ Research is needed on the most effective means of educating professionals about empirically validated anxiety treatment strategies. Incorporation of components on anxiety disorders and their treatment in training programs for psychiatric residents, family physicians, psychologists, occupational therapists, social workers, and other clinicians could be useful. However, a review of the effectiveness of educational programs in training professionals to deliver treatments for anxiety disorders should be undertaken as a first step.

- ★ The development and dissemination of practice guidelines and structured assessments could help to facilitate the continuing education of health care professionals. In addition, incentives could be provided for professionals who treat anxiety disorders to seek additional training in CBT and other empirically validated approaches. Also, finding ways to make clinicians more accountable for the types of treatment they are using (e.g., periodic case reviews, making reimbursement contingent on using appropriate treatments) might encourage professionals to be better acquainted with current methods of treating anxiety disorders and other problems.
- ★ Increased communication and linkages between general practitioners and mental health practitioners is needed. It has been suggested that specialized anxiety disorders clinics could be established to ensure that patients are offered the most up-to-date treatments for their problems. These clinics could also take a leadership role in training community-based health care practitioners to treat anxiety disorders. Other possibilities include the collaboration of community-based therapists with family physicians in the provision of psychological treatments in the community. Issues of cost-effectiveness and appropriateness of location of service delivery need to be explored.
- ★ Improved communication between health/mental health practitioners and the self-help community and support group networks could contribute to enhanced knowledge and treatment of anxiety disorders. Funding experts to speak at support group meetings and funding training programs for individuals who lead support groups might improve the quality of self-help and support group programs available to individuals with anxiety disorders.
- ★ More attention should be paid to educating the public about empirically validated treatments for anxiety disorders. Although there are several small organizations that hold support groups for individuals with anxiety disorders, little funding has been available to teach the public about anxiety disorders and where to get services in Canada. In contrast, the United States has a large national organization called the Anxiety Disorders Association of America (ADAA), whose membership includes patients and professionals with an interest in anxiety. This organization distributes a newsletter to members, provides referral information, and holds an annual conference to share new research findings with patients and professionals. A similar organization in Canada might help to educate the public about anxiety disorders and their treatment.
- ★ Self-help (self-instruction) treatments are becoming increasingly viable options for individuals with anxiety disorders. Self-help manuals based on empirically validated treatments have now been published for PD and PDA, social phobia, OCD, generalized anxiety disorder, and specific phobia (Antony, Craske, and Barlow, 1995). In a time of shrinking health care resources, educating the public about empirically validated methods of self-help is an important objective.

- ★ A number of other suggestions for improving public awareness include the development of a self-help or self-care handbook for Canadians with anxiety disorders, including coping strategies and resources available to Canadians. In addition, preparing fact sheets on each of the anxiety disorders might be an efficient way of disseminating information to general practitioners and to the general public.
- ★ Finally, focusing on anxiety disorders as part of Mental Illness Awareness Week (an event co-sponsored by the Canadian Psychiatric Association) would help to increase awareness of the anxiety disorders and their treatment.

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Appendix 1

Lifetime Prevalence of the Anxiety Disorders (%)

Disorder	ECA Study*	NCS Study	Edmonton Study
Panic Disorder	0.9	3.5	1.2
Agoraphobia	4.2	5.3	2.9
OCD	—	—	3.0
Social Phobia	2.8	13.3	1.7
GAD	—	5.1	—
Specific Phobia	11.2	11.3	7.2
PTSD	—	7.8	—
Any AD	10.4-25.1*	24.9	11.2

* based on three of the five ECA sites

OCD: obsessive-compulsive disorder; GAD: generalized anxiety disorder; PTSD: post-traumatic stress disorder; ECA Study: Epidemiological Catchment Area Study (Bourdon et al., 1988; Robins et al., 1984); NCS: National Comorbidity Survey (Kessler et al., 1994); Edmonton Study: refers to the prevalence study conducted by Bland et al., 1988.

Explanatory note:

These discrepancies have been attributed to (in the ECA and Edmonton surveys) standardization of prevalence rates to the census population of each site instead of to an identical population (Bland et al., 1988), and to variation in survey questions and interviewer instructions (Robins et al., 1984). Kessler et al. (1994) indicate that the higher prevalence rates in the NCS than in the other two surveys can, in part, be attributed to a number of methodological factors including: use of a national sample, focus on a younger age range (15-54 years), use of a correction weight to adjust for nonresponse bias, and use of DSM-III-R (Diagnostic and Statistical Manual of Mental Disorders, 3rd Revised Edition)(as opposed to DSM-III) criteria. Although the instrument used in the NCS (the Composite International Diagnostic Interview or CIDI; Robins, Wing, Wittchen, and Helzer, 1988) is similar to the instrument used in the ECA study (the Diagnostic Interview Schedule or DIS; Robins, Helzer, Croughan, and Ratcliff, 1981), Kessler et al. suggest that differences in wording and depth of probing in the NCS could have contributed to higher prevalence estimates.

Appendix 2

Glossary of Medications

Generic Name	Brand Name	Type of Medication
Adinazolam	Deracyn	Benzodiazepine* ²
Alprazolam	Xanax	Benzodiazepine
Amitriptyline	Elavil	Tricyclic Antidepressant
Atenolol	Tenormin	Beta Blocker
Brofaromine	Experimental	Reversible MAOI (Type A)*
Buspirone	Buspar	Azospirodecanedione
Clomipramine	Anafranil	SSRI Antidepressant
Clonazepam	Rivotril	Benzodiazepine
Desipramine	Pertofran or Norpramin	Tricyclic Antidepressant
Diazepam	Valium	Benzodiazepine
Fluoxetine	Prozac	SSRI Antidepressant
Fluvoxamine	Luvox	SSRI Antidepressant
Imipramine	Tofranil	Tricyclic Antidepressant
Lorazepam	Ativan	Benzodiazepine
Moclobemide	Manerix	Reversible MAOI (Type A)
Paroxetine	Paxil	SSRI Antidepressant
Phenelzine	Nardil	MAO Inhibitor
Sertraline	Zoloft	SSRI Antidepressant

2 * denotes unavailability of medication in Canada.

Glossary of Abbreviations

CBT	Cognitive-Behavioural Therapy
DSM-III	Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, rev.
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
EMDR	Eye Movement Desensitization and Reprocessing
GAD	Generalized Anxiety Disorder
MAOI	Monoamine Oxidase Inhibitor Antidepressant
OCD	Obsessive-Compulsive Disorder
PD	Panic Disorder
PDA	Panic Disorder with Agoraphobia
PTSD	Posttraumatic Stress Disorder
SSRI	Selective Serotonin Re-Uptake Inhibitor

Glossary of Technical Terms

Analytic Psychotherapy	A form of psychotherapy based on the methods described by Freud and others. Psychological problems are assumed to stem from deep rooted intrapsychic conflicts. Therapy helps the patient to develop insight into possible original causes of his or her problem, which presumably leads to improvement in symptoms.
Applied Relaxation Training	A form of relaxation training in which muscle relaxation is taught in the context of in vivo exposure therapy. Individuals are taught to relax their muscles while being exposed to increasingly frightening situations.
Applied Tension	A method of treating individuals with blood or injection phobias who tend to faint in the feared situation. Individuals are taught to tense the muscles of their body in order to raise their blood pressure and thereby prevent fainting in the presence of blood or injections. These skills are integrated with exposure to feared cues as they are practiced while confronting increasingly difficult situations.
Breathing Retraining	A form of behavioural treatment used primarily in patients with panic disorder. Patients are taught to breathe from their diaphragm, slow down their breathing, and use meditation strategies to relax when anxious.
Cognitive-Behavioural Therapy	A form of psychological treatment that attempts to change the thoughts or behaviours that help to maintain a psychological disorder. Examples of cognitive therapy techniques include cognitive restructuring, hypothesis testing, and coping self-statements. Behavioural strategies include exposure therapy, relaxation training, and a variety of other techniques.
Cognitive Restructuring	A component of cognitive therapy in which individuals are taught to identify and change their anxious or depressive thoughts, beliefs, predictions, and interpretations. Rather than assuming their beliefs are true, individuals are taught to consider alternative beliefs and to evaluate the evidence in a systematic and realistic way.
Exposure and Response Prevention	A behavioural method used to treat obsessive-compulsive disorder. Individuals are exposed to feared stimuli (e.g., contaminated objects) and are prevented from engaging in compulsive rituals (e.g., washing).
Exposure Therapy	A form of behaviour therapy in which individuals are required to confront the object or situation that they fear. Typically, exposure is conducted in a structured and predictable manner and is repeated frequently.
Eye Movement Desensitization and Reprocessing	A new form of exposure therapy that has been a source of controversy in the behaviour therapy literature. While visualizing a feared image, individuals track the rapid movements of a therapist's finger back and forth across the image. Proponents of this approach believe that this is a unique therapeutic modality. Critics argue that the effects of this technique are attributable entirely to the exposure component.
Imaginal Exposure	A form of exposure therapy in which individuals confront feared objects and situations in imagination only.
Interoceptive Exposure	A component of behavioural treatment for panic disorder in which individuals conduct specific exercises designed to induce feared sensations (e.g., racing heart, dizziness, breathlessness, etc.) until the sensations are no longer feared. Typical exercises include hyperventilation, spinning, aerobic exercise, breathing through a straw, and others.

<i>In Vivo Exposure</i>	See Flooding.
<i>Meta-Analysis</i>	A statistical procedure in which the effects of particular treatments are estimated and pooled across a range of different studies.
<i>Non-Directive Psychotherapy</i>	A form of psychotherapy in which specific behavioural instructions are not given to patients. Typically, non-directive therapies do not include homework assignments and are focused on helping the individual to gain insight into his/her problem, rather than changing specific behaviours.
<i>Progressive Muscle Relaxation</i>	A method of decreasing anxiety (especially in generalized anxiety disorder) by learning to tense and relax various muscle groups.
<i>Self-Help</i>	Self-help is a form of mutual aid in which groups of individuals with common problems or experiences seek to help each other through offering emotional support and practical assistance (Romedor, 1993). Self-help can be an important supplement to professional care and is a natural extension or replacement of the support often available to individuals from close friends, family members, or members of the clergy.
<i>Self-Help Groups</i>	Voluntary self-help groups are run by and for group members. These groups provide, free of charge, educational seminars, one-to-one exchanges, informal meetings, and sharing of personal experiences.
<i>Social Skills Training</i>	A group of techniques for teaching individuals (e.g., with social phobia) to improve social skills (e.g., communication, assertiveness, eye contact, body language, etc.)
<i>Structured Diagnostic Interview</i>	An interview which asks specific questions about each symptom included in the diagnostic criteria for particular disorders. Unlike open-ended clinical interviews, the interviewer is required to read the questions verbatim.
<i>Supportive Counseling</i>	A form of psychotherapy in which the therapist does not provide specific behavioural instructions, but rather offers support and encouragement. Client-centered therapy is considered by some to be an example.
<i>Supportive Psychotherapy</i>	See Supportive Counseling.

Appendix 3

Useful References Relating to the Assessment of Anxiety Disorders

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