Search Strategy

This review of the literature on Late Life Anxiety was undertaken to determine the extent of the problem, and the effectiveness of various psychosocial and pharmacological treatments. The term *effectiveness* is defined here as producing or capable of producing a desired effect in a controlled study. This review consists of systematic reviews, meta-analyses, other reviews of the literature, experimental and quasi-experimental designs, and case studies with older adults (65+) as participants, reported in English language peer-reviewed journals.

Keyword terms included: aged, aging, elderly, geri*, older adult, senior, anxiety, anxious, anxiety disorder, intervention, treatment, and randomized controlled trials. We conducted searches on the following databases: PubMed (1990-2013); PsycINFO (1972-2013); Ageline (1978-2013); Social Work Abstracts (1977-2013); and Social Sciences Abstracts (1983-2013). Relevant journals were hand searched to identify recent publications that would not have been cited or indexed. Unpublished literature was not included in the review.

Background and Significance

Epidemiological evidence suggests that anxiety is a common and major problem in later life, yet it has received less attention than depressive disorders. Anxiety disorders are often associated with common age-related medical and chronic conditions such as asthma, thyroid disease, coronary artery disease, dementia, and sensory loss (Diala & Muntaner, 2003). Anxiety in later life has been identified as a risk factor for greater disability among
older adults in general, and has also been associated with less successful recruitment into, and outcomes of, geriatric rehabilitation services (Bowling, Farquhar, & Grundy, 1996). Researchers and practitioners are beginning to recognize that aging and anxiety are not mutually exclusive; anxiety is as common in the old as in the young, although how and when it appears is distinctly different in older adults. Additionally, there is a need for more effectiveness research on evidence-based treatments for late life anxiety (Mitte, 2005).

Recognizing an anxiety disorder in an older person poses several challenges. Aging brings with it a higher prevalence of certain medical conditions, realistic concern about physical problems, and a higher use of prescription medications. As a result, separating a medical condition from physical symptoms of an anxiety disorder is more complicated in the older adult. Diagnosing anxiety in individuals with dementia can be difficult, too: agitation typical of dementia may be difficult to separate from anxiety, impaired memory may be interpreted as a sign of anxiety or dementia, and fears may be excessive or realistic depending on the person’s situation.

**Epidemiology: Anxiety Disorders**

Although anxiety disorders, like most psychiatric conditions, may be less common among older adults than among younger people, epidemiological evidence suggests that anxiety is a major problem in late life (Salzman & Lebowitz, 1991; U.S. Department of Health & Human Services, 1999). A recent review by Wolitzky-Taylor (2010) reported the prevalence estimates of anxiety disorders in older adults, ranging from 3.2% (Forsell et al., 1997) to 14.2% (Ritchie et al., 2004). For example, the National Comorbidity Survey-Replication (NCS-R) reported 7% of older adults 65 and above met the anxiety disorder criteria within the past one year (Gum et al., 2009). Meanwhile, another study found that 33.7% of its participants, who were 55-years-old and older and currently diagnosed with Generalized Anxiety Disorder (GAD), reported an onset of GAD symptoms prior to being 50 years old (Chou, 2009).

One study involving interviews with nearly 6,000 people nationwide reported lifetime prevalence rates of 15.3% for DSM-IV-diagnosed anxiety disorders in respondents over age 60 (Kessler, Berglund, Demler, Jin & Walters, 2005). Another study of approximately 500 community-dwelling triethnic elders reported prevalence rates of 11.3% in blacks, 12.4% in Hispanics, and 21.6% in non-Hispanic whites age 75 and older (Ostir & Goodwin, 2006). Myers et al. (1984) report a six month prevalence of anxiety disorders in late life ranging from 6.6% to 14.9% across three Epidemiologic Catchment Area (ECA) sites. Comparable data from the Netherlands indicate a prevalence of 10.2% (Beekman et al., 1998). Anxiety disorders overall appear to be the most common class of psychiatric disorders among older people, more prevalent than depression or severe cognitive impairment (Beekman et al., 1998; Kessler et al., 2005; Regier et al., 1988).

**Epidemiology: Phobias and Generalized Anxiety Disorder**

Prevalence estimates for Generalized Anxiety Disorder among older adults range from 1.2% (Gum et al., 2009) to 7.3% (Beekman et al., 1998). Few studies have reported the prevalence estimates of social phobia among older adults and those estimates were relatively low, ranging from 0.6% (Trollor et al., 2007) to 2.3% (Gum et al., 2009; Wolitzky-Taylor, 2010).
Phobias and GAD account for most anxiety disorders in late life (Beekman et al., 2000; Flint, 2005; Hybels & Blazer, 2003; LeRoux, Gatz & Wetherell, 2005; Wolitzky-Taylor & Castriotta, 2010). Reviews summarized the prevalence of specific anxiety disorders in older community-based epidemiological samples as follows: phobias, including agoraphobia and social phobia, 0.7-12.0%; GAD, 1.2-7.3%; obsessive-compulsive disorder, 0.1-1.5%; and panic disorder, 0.0-0.3% (Alwahhabi, 2003; Beekman et al., 1998; Beekman et al., 2000; Krasucki, Howard, & Mann, 1998). Prevalence of GAD in older adults was estimated at 1.9% in the ECA sample and 7.3% in the Dutch sample (Beekman et al., 1998; Beekman et al., 2000; Blazer, 1997). Among people 55 years of age and older, Douchet, LaDouceur, Freeston & Dugas (1998) found that 12.8% meet criteria for GAD. By comparison, ECA prevalence rates for older adults are 1.8% for major depression, 2.8% for dysthymia, and 4.9% for severe cognitive impairment (Blazer, 1997; Regier et al., 1988).

Epidemiology: Subthreshold Anxiety Symptoms

The prevalence of clinically significant anxiety, including symptoms that do not meet criteria for a specific disorder, is common among older adults and may be as high as 20-29% (Davis, Moye, & Karel, 2002; Lenze et al. 2005). Grenier et al. (2011)’s large study reported the sum of the syndromal and subthreshold anxiety estimates as 26.2%. This includes anxiety symptoms associated with common medical conditions such as asthma, thyroid disease, coronary artery disease, and dementia, as well as adjustment disorders following significant late life stressors such as bereavement or caregiving. There is also controversy over whether the prevalence of anxiety has been accurately determined in older adults, because DSM-IV criteria may not apply as well, anxiety symptoms may be expressed as somatic features or behavior changes (e.g., aggression, assaultive behaviors), and the clinical presentation of anxiety in late life may be more likely to include depressive symptoms (Beck, 2004; Diefenbach & Goethe, 2006; Fuentes & Cox, 1997; Kim, Braun, & Kunik, 2001; Palmer, Jeste, & Sheikh, 1997).

Risk Factors

Aging per se is not a risk factor for anxiety but rather a protective one (Acierno et al., 2006). However, several biological, psychological, and social risk factors for anxiety disorders have been identified for older adults. Biological risk factors include: chronic health conditions (Schoevers et al., 2003), poor self-perception of health (van Zelst et al., 2003), and functional limitation (Schoevers et al., 2003). Psychological risk factors include: external locus of control, poor coping strategies, neuroticism, and psychopathology (Schoevers et al., 2003; van Zelst et al., 2003). Social risk factors include: low frequency of contact (Forsell, 2000), smaller network (Beekman et al., 1998), lack of social support (Forsell, 2000; Beekman et al., 2000), loneliness (van Zelst et al., 2003), stressful life events (van Zelst et al., 2003), lower education level (Beekman et al., 1998), being female (Schoevers et al., 2003; van Zelst et al., 2003).

Comorbidity Issues

Medical Comorbidity
The high comorbidity of anxiety with medical illness is multidimensional. Anxiety is complex and may be a reaction to a medical illness, may be expressed as somatic symptoms, or may be a side effect of medications. Studies have found an association between anxiety and medical illnesses such as diabetes (Blazer, 2003), dementia (Wrag & Jeste, 1989), coronary heart disease (Artero, Astruc, Courtet, & Ritchie, 2006; Kuzbansky, Cole, Kawachi, Vokonas, & Sparrow, 2006; Todaro et al., 2007), cancer (Deimling et al., 2006; Goodwin, Zhang, & Ostir, 2004; Ostir & Goodwin, 2006) chronic obstructive pulmonary disease (Karaig, Rifkin, Doddi, & Kolli, 1990; Vogele & von Leupoldt, 2008), postural disturbance & vestibular disease (Gagnon et al., 2008), chronic pain (El-Gabalawy et al., 2011), and Parkinson’s disease (Stein, Heuser, Juncos, & Uhde, 1990; Pontone et al., 2009). For example, several studies have found that 18% (Yohannes et al., 2000) to 50% (Dowson et al., 2001) of older adult patients with chronic obstructive pulmonary disease reported significant anxiety symptoms. Todaro et al. (2007) reported that 36% of study cardiac patients (Mean Age: 60) were currently diagnosed with an anxiety disorder and 45.3% in their lifetime. Another study noted that anxiety symptoms were found to be associated with future development of coronary heart disease (Caminero et al., 2005). In several studies of Parkinson’s disease patients, approximately 40-43% reported significant anxiety symptoms (Menza et al., 1993; Pontone et al., 2009). Comorbid anxiety and medical illness is associated with increased mortality. For example, anxiety is associated with greater risk for mortality for patients after heart surgery (Tully et al., 2008) while panic attacks are associated with increases in risk for cardiovascular mortality (Smoller et al., 2007). At least one tri-ethnic study found that anxiety was associated with increased risk for death from all causes in persons 75 years and older (Ostir & Goodwin, 2006).

Psychiatric Comorbidity

**Depression.** As with young adults, anxiety in older adults has been found to often co-occur with depression (Beck, 2004; Beekman et al., 1998; Blazer, 1997; Byers et al., 2010; Heck et al., 2011; King-Kallimanis et al., 2009; Schoevers et al., 2003; Steffens et al., 2005;). Furthermore, anxiety symptoms have been found to lead to depressive symptoms (Wetherell, Gatz, & Pederson, 2001). In fact, community survey research has revealed that the comorbidity of anxiety and depression has been found to be as high as nearly 50% among older adults (Beekman et al., 2000). In the community study, 25% of older adults with anxiety also had major depression. Related to this, up to 50% of older adults with major depression had a comorbid anxiety disorder (Beekman et al., 2000; Blazer, 2003; Jeste, Hays & Steffens, 2006). Large community-based studies have shown a positive association between the comorbid GAD and depression, and its chronicity (Schoevers et al., 2005) and severity (Hopko et al., 2000) compared to GAD or depression alone. Depressed older adults with GAD symptoms have shown greater suicidality (Lenze et al., 2000; Bartels et al., 2002), treatment non-responsiveness (Mulsant & Wright, 1996), and a likelihood of treatment dropout (Flint & Rifat, 1997) when compared to those without anxiety.

**Mood & Personality Disorders.** Older adults with GAD often also suffer from other psychiatric disorders. The majority of GAD patients have mood disorders (Flint, 2005; Lenze et al., 2005). For example, bipolar disorder has been found to often co-occur with anxiety for older adults (Sajatovic et al., 2006). Approximately 20% of older adults with bipolar disorder report lifetime rates of generalized anxiety disorder (Goldstein, Hermann
In addition, personality disorders often co-occur with GAD (Mackenzie et al., 2011). When compared to those without anxiety, older adults with anxiety have reported a greater prevalence of personality disorders such as avoidant and dependent personality disorders (Coolidge et al., 2000).

**Cognitive Impairment.** Older adults with anxiety often also suffer from cognitive impairment and dementia (Beaudreau et al., 2008; Forsell et al., 2003; Potvin et al., 2011; Seignourel et al., 2008; Sinoff & Werner, 2003; Wilson et al., 2011). Approximately 5% to 21% of older adult dementia patients have anxiety disorders (Feretti et al., 2001; Skoog, 1993). These prevalence estimates are greater when compared with those for cognitively intact persons (Hwang, Masterman, Ortiz, Fairbanks, & Cummings, 2004; Lyketsos et al., 2002; Tatsch et al., 2006). Individuals with anxiety symptoms have done poorly on assessments of cognitive functioning (Schultz, Moser, Bishop, & Ellingrod, 2005; Sinoff & Werner, 2003). Also, when compared to those without psychiatric disorders, those with GAD have shown poorer short-term memory (Mantella et al., 2007). Studies using community samples have found Alzheimer’s disease to be positively associated with anxiety symptoms (Geda et al., 2004; Hwang et al., 2004).

It is possible that the prevalence of anxiety is higher in primary care settings than in the community at large. Krasucki et al. (1999) found that, in primary care settings, 30% of older adults present with generalized anxiety symptoms. Distressed older adults seeking help typically present to their primary care physician (Smyer & Gatz, 1995). Prevalence estimates of anxiety symptoms among older adult patients range from 15% in the geriatric hospital (Ames et al., 1994) to 56% in the general hospital (Ames & Tuckwell, 1994). Meanwhile, prevalence estimates of anxiety disorders range from 1% in the general hospital (Ames & Tuckwell, 1994) to 24% in primary care (Tolin et al., 2005). Older adults with anxiety disorders are less likely than older adults with depression, dementia, or any other mental disorder to receive treatment from a mental health specialist (Ettner & Hermann, 1997).

In an analysis of data from the 1997 National Ambulatory Medical Care Survey, a national probability sample survey of physician office visits, anxiety disorder diagnoses were assigned for 1.3% of visits by older patients, with anxiety disorder not otherwise specified as the most frequent diagnosis (Stanley, Roberts, Bourland, & Novy, 2001). Because evidence suggests that only approximately one-third of such cases are detected in primary care (e.g., Kessler, Lloyd, Lewis, & Gray, 1999), these data likely represent a substantial underestimate of the prevalence of anxiety in that setting. Furthermore, Levy, Conway, Brommelhoff, & Merikangas (2003) found that, compared to younger adults, older adults tend to minimize and underreport their anxiety symptoms. Thus the prevalence rate of older adults who experience anxiety may be underestimated (Levy et al., 2003).

There is a dearth of research on anxiety and anxiety disorders in older adults with hearing or visual impairment, with previous studies in this population focusing primarily on depression and functional impairment. However, one recent study by Brenes et al. (2005) found significantly higher levels of anxiety in a national sample of 1,002 older disabled women who reported experiencing visual problems. Overall, it appears that anxiety symptoms and syndromes are quite common in old age, and may be detectible at even higher levels in older adults with visual deficits.
Consequences of Anxiety Disorders

The consequences of anxiety in late life are potentially serious. In a prospective investigation, anxiety did not generally remit spontaneously over two to three years (Livingston, Watkin, Milne, Manela, & Katona, 1997). Hypertension, hypoglycemia, and coronary heart disease can be worsened through chronic stress and anxiety (Hersen & Van Hasselt, 1992). Compared with men reporting no symptoms of anxiety, men in the Normative Aging Study reporting two or more anxiety symptoms had elevated risk of fatal coronary heart disease (Kawachi, Sparrow, Vokonas, & Weiss, 1994). Higher levels of anxiety have been associated with greater use of pain-relieving medications and more postoperative disability days for surgical patients (Taenzer, Melzack, & Jeans, 1986). Anxiety was also related to pain in a sample of nursing home residents (Casten, Parmelee, Kleban, Lawton, & Katz, 1995).

Anxiety symptoms and disorders are associated with increased fatigue, greater levels of chronic physical illness, increased disability (de Beurs et al., 1999), lower levels of well-being, worse life satisfaction, activity and functional limitations (Goncalves et al., 2010), social restriction (Norton et al., 2013), and inappropriate use of medical services among older adults (Martin, Bishop, Poon & Johnson, 2006; Brenes et al., 2005; de Beurs, Beekman, van Balkom, Deeg, van Dyck, & van Tilburg, 1999; Gentil et al., 2012; Hunt, Issakidis, & Andrews, 2002; Jones, Ames, Jeffries, Scarinci, & Brantley, 2001; Wetherell, Thorp, Patterson, Golshan, Jeste, & Gatz, 2004; Porensky et al., 2009; Wittchen, Carter, Pfister, Montgomery, & Kessler, 2000;). Studies have found a strong association between comorbid mood and anxiety disorders and severe insomnia (Brenes et al., 2009) that is associated with significant functional impairments (Soehner & Harvey, 2012). Substance use disorder often co-occurs with GAD (Magidson et al., 2011); specifically, social phobia has been found to be associated with alcohol use and dependence (Chou, 2009). Furthermore, a sample of older adults with GAD reported impairments on quality of life measures that were worse than impairments reported by comparable individuals who had serious medical conditions such as myocardial infarction or type II diabetes (Wetherell et al., 2004). It was also found that the reported quality of life impairments for the individuals diagnosed with GAD were comparable to the reported impairments by people with major depression. In cases of comorbid anxiety and depressive disorders, the likelihood of poor outcomes increases. Comorbid anxiety in late-life depression is associated with poorer treatment response and increased likelihood of dropout (Lenze et al., 2003). Also, older people with anxious depression report increased suicidality and reduced psychosocial support (Jeste et al., 2006).

In addition to direct relationships with poorer health care outcomes, anxiety and depression have been associated with markedly higher health care costs among primary care patients, even after adjustment for medical comorbidity (Simon, Ormel, VonKoff, & Barlow, 1995). Older adults with anxiety spend 50% more time with their primary care physician during office visits than older adults with no psychiatric diagnosis (Stanley et al., 2001). Taken altogether, these findings support the importance of treatment of anxiety in late life.

Treatments

Pharmacological Treatments
In part because of the tendency for older adults to present to primary care physicians, anxiolytic medications, including benzodiazepines, are the most common treatment for late life anxiety (Lenze, Pollock, Shear, Mulsant, Bharucha, & Reynolds, 2003). ECA data suggest that benzodiazepine use among the elderly is approximately 14%, higher than the rates for younger adults (Swartz, Landerman, George, Melville, & Blazer, 1991). A community survey of older adults in southern California showed that 20% had used benzodiazepines at least twice in the previous 12 months; these individuals were more than twice as likely as nonusers to take 10 or more drugs (Mayer-Oakes et al., 1993).

Benzodiazepine users are also more likely than nonusers to experience accidents requiring medical attention, due to increased risk of falls, hip fractures, and automobile accidents (Tamblyn, Abrahamowicz, du Berger, McLeod, & Bartlett, 2005). Older patients taking benzodiazepines are also more likely to develop disabilities in both mobility and activities of daily living (Gray et al., 2006). Benzodiazepines can impair memory and other cognitive functions (Benitez et al., 2008; Wengel, Burke, Ranno, & Roccaforte, 1993; Wetherell et al., 2005). These medications can also cause tolerance and withdrawal, interactions with other drugs, and toxicity (Krasucki, Howard, & Mann, 1999; Salzman & Lebowitz, 1991).

Although safer medications, particularly selective serotonin reuptake inhibitors (SSRIs), are often used to treat geriatric anxiety (National Institute for Health and Clinical Excellence, 2011), they can cause unpleasant side effects, and some older people prefer not to take them. Furthermore, SSRIs have not completely replaced benzodiazepines as a treatment for anxiety in older people (Keene, Eaddy, Nelson, & Warnes, 2005). Safe and effective alternative treatments for anxiety, appealing to an older population, are clearly needed.

**Psychosocial Treatments**

The efficacy of evidence-based psychosocial interventions have been tested using randomized trials for geriatric anxiety and reviewed with emerging evidence of support for their use (Ayers et al., 2007) (Level A).

Several studies have provided some support for the use of relaxation training and cognitive behavior therapy (CBT) for treatment of anxiety (Ayers et al., 2007; Barrowclough et al., 2001; Gorenstein, Kleber, Mohlman, de Jesus, Gorman, & Papp, 2005; Hendriks et al., 2008; Hendriks et al., 2010; Mohlman, Gorenstein, Kleber, de Jesus, Gorman, & Papp, 2003; Stanley, Beck, et al., 2003; Stanley et al., 2009; Stanley, Hopko, et al., 2003; Wetherell, Gatz, & Craske, 2003) (Level A). In recent years, CBT has been shown to be superior to waitlist conditions, medication management-only conditions, supportive control conditions (e.g., supportive counseling, minimal contact, discussion group) and usual care (Barrowclough et al., 2001; Bradford, 2011; Gorenstein et al., 2005; Mohlman et al., 2003; Stanley, Beck, et al., 2003; Stanley, Hopko, et al., 2003; Wetherell et al., 2003) (Level A). Meta-analyses (Hendriks et al., 2008; Gould et al., 2012) have found CBT to be statistically and significantly more effective in treating older adults with anxiety (mainly GAD) than being on waitlist and other interventions (e.g. supportive counseling, discussion group).

In a study by Gorenstein and colleagues (2005), greater reductions in anxiety were not seen until a 6-month follow-up. In some of the other studies, compared to waitlist or
supportive control conditions, CBT also provided greater reductions in comorbid
depression, as well as improvements in quality of life (Barrowclough et al., 2001; Stanley,
Beck, et al., 2003; Stanley, Hopko, et al., 2003; Wetherell et al., 2003). In a recent study
comparing CBT plus medication management with medication management alone, the
combined approach was not found to be superior in reducing anxiety, worry, and total
distress (Gorenstein et al., 2005). While these studies suggest that CBT is promising for the
treatment of anxiety, Stanley, Beck, & Glassco (1996) found no differences between CBT
and supportive psychotherapy on anxiety and depression reductions. Finally, in another
review by Wetherell, Sorell, Thorp, & Patterson (2005), the authors assert that progressive
muscle relaxation, CBT, and even supportive therapy have empirical support for their use
in treating geriatric anxiety (Level B). However, the authors report that, when compared to
waitlist and supportive control conditions, the psychological treatments with the greatest
effect sizes (.20 or greater) are relaxation training (for anxiety symptoms) and CBT (for
anxiety disorders).

Summary: Take Home Points for Teaching

- Anxiety is a common problem in late life.
- Anxiety is more prevalent than depressive disorders in later life.
- Generalized Anxiety Disorder (GAD) is the most common (prevalence rate 1.2%-7.3%).
- Subthreshold anxiety symptomology is higher than GAD (prevalence rate 20%-29%).
- Prevalence of anxiety symptoms is likely higher in primary care settings (~30%)
  than in the community at large or any other setting.
- Less common are phobias, Obsessive-Compulsive Disorder, and panic disorders.
- Comorbidity with depression is high (nearly 50%).
- It is difficult to disentangle anxiety from depression during assessment.
- Risk factors for anxiety include chronic health conditions, poor health self-
  perception, poor coping strategies, lack of social support, and lower level of
  education.
- Comorbidity with medical illnesses is high.
- Negative outcomes of anxiety include poor health outcomes, poor life satisfaction,
  significant functional impairment, increased Emergency Room and primary care
  visits, and higher medical costs.

- Pharmacological Treatments
  - Benzodiazepines are the most common medication treatment for late life
    anxiety; SSRIs are safely used but have unpleasant side effects.

- Psychosocial Treatments
  - Evidence has been found for Cognitive Behavioral Therapy (CBT) (Level A),
    Relaxation Training (Level A), and to a lesser extent Supportive Therapy (Level
    C).
  - CBT has the strongest evidence-to-date for treatment of Generalized Anxiety
    Disorder in comparison to control groups.
- CBT is better tolerated than pharmacotherapy.
- Relaxation training is viewed as a low-cost, effective intervention.
- CBT protocols can include problem-solving skills training, behavioral activation, sleep hygiene, life review, and memory aids.
- CBT can be conducted in individual and group formats.
- CBT has been found to be more effective than Supportive Therapy or Attention Placebo conditions.
- CBT combined with medication management has been found to be no better than CBT alone.
Bibliography


