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Review

ANXIETY DISORDERS IN OLDER ADULTS: A COMPREHENSIVE REVIEW

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This review aims to address issues unique to older adults with anxiety disorders in order to inform potential changes in the DSM-V. Prevalence and symptom expression of anxiety disorders in late life, as well as risk factors, comorbidity, cognitive decline, age of onset, and treatment efficacy for older adults are reviewed. Overall, the current literature suggests: (a) anxiety disorders are common among older age individuals, but less common than in younger adults; (b) overlap exists between anxiety symptoms of younger and older adults, although there are some differences as well as limitations to the assessment of symptoms among older adults; (c) anxiety disorders are highly comorbid with depression in older adults; (d) anxiety disorders are highly comorbid with a number of medical illnesses; (e) associations between cognitive decline and anxiety have been observed; (f) late age of onset is infrequent; and (g) both pharmacotherapy and CBT have demonstrated efficacy for older adults with anxiety. The implications of these findings are discussed and recommendations for the DSM-V are provided, including extending the text section on age-specific features of anxiety disorders in late life and providing information about the complexities of diagnosing anxiety disorders in older adults. Depression and Anxiety 27:190–211, 2010.

Key words: *late-life anxiety; DSM; generalized anxiety; prevalence; course*

INTRODUCTION

The purpose of this review is to evaluate the effects of advancing age on the clinical expression of anxiety disorders, including prevalence, age of onset, course, comorbidity, functional impairment, and treatment. The conclusions of this review will be used to inform whether changes should be proposed for DSM-V to better reflect the expression of anxiety disorders in late life. The review was guided by questions posed by the DSM-V Life Span Study Group, and was commissioned by the DSM-V Anxiety, Obsessive–Compulsive Spectrum, Posttraumatic, and Dissociative Disorders Work Group. It represents the work of the authors for consideration by the work group. Recommendations provided in this article should be considered preliminary at this time; they do not necessarily reflect the final

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recommendations or decisions for DSM-V, as the DSM-V development process is still ongoing.

STATEMENT OF THE ISSUES

The influence of advancing age upon the clinical expression of anxiety disorders was provided relatively minimal coverage in earlier DSM nosologies. Therefore, there is a need to address the degree to which anxiety disorder symptom expression differs in older compared to younger adults. If symptom expression does vary with age, then further consideration is needed about how this might be best reflected in DSM-V. The DSM-V Life Span Study Group has proposed three approaches to age-related modifications to diagnosis: revisions to the text section on "Age-Specific Features" (e.g., interactions between advancing age and comorbid illness); provision of age-related manifestations alongside the diagnostic criteria and in the text (e.g., age-sensitive examples of functional impairment); and age-related subtypes, for cases in which criteria differ across distinct age groups for the same "condition" (e.g., irritability for childhood depression versus somatic symptoms for late-life depression) or for when criteria are identical across age groups but key features indicate that the disorders are distinct (e.g., early versus late-onset schizophrenia). Data reviewed herein will inform decisions as to whether one or more of these age-related modifications are indicated for diagnostic criteria for anxiety disorders in late life.

SIGNIFICANCE OF THE ISSUES

Anxiety disorders are common and costly in older adults. With shifts in demographics of the population at large, anxiety disorders in late life will become a source of increasing personal and societal cost. However, the detection and diagnosis of anxiety disorders in late life is complicated by medical comorbidity, cognitive decline, and changes in life circumstances that do not face younger age groups. Furthermore, the expression and report of anxiety symptoms may differ with age. For these reasons, anxiety disorders in late life may be even more likely to be underdiagnosed than in younger age groups. Without appropriate detection, appropriate treatments may not be provided to older adults with anxiety disorders. Thus, it behooves the DSM-V process to optimize diagnostic criteria and/or descriptive features to improve the detection and thereby treatment of anxiety disorders in late life.

METHOD OF REVIEW

A PsycINFO search was conducted using the keywords anxiety disorders, PTSD, social phobia, OCD, generalized anxiety disorder, panic disorder, and specific phobia, coupled with the key words: late life, mid life, geriatric, life span, older age, elderly, and aging. This produced a list of 270 articles. The articles from these searches were subsequently sorted and 51 were chosen based on relevance to the presenting questions. Next, a Pubmed search with each of the specific anxiety disorders coupled with the "older age" keywords was conducted, yielding an additional 22 relevant studies. This review was supplemented by an inspection of reference sections of all these articles, yielding 82 additional articles for review. Next, 18 additional studies were obtained after searching the terms "aged" (PsycINFO) and "80+" (Medline) along with relevant keywords, and six of these studies were included in the final review after closer inspection of these articles. Additional PsycINFO and Pubmed searches were then conducted using key words for relevant topic areas, (e.g., "anxiety disorders and medical condition," "anxiety disorders and dementia," "anxiety disorder and comorbidity"). Nine additional articles were reviewed and reference sections of those studies were then reviewed as well. All searches were refined by restriction to articles written or translated into English, and the search was limited to those disorders that were classified as anxiety disorders in DSM-IV.

PREVALENCE OF ANXIETY DISORDERS AMONG OLDER ADULTS

An understanding of the prevalence of each anxiety disorder in older adults will clarify the magnitude of these problems in this population. Although epidemiological research has begun to converge with respect to estimating the prevalence of anxiety disorders in late life, discrepancies still exist. These discrepancies can be attributed to a number of methodological differences across existing literature, including: (a) different sampling procedures, with some studies using nationally representative samples and others using convenience samples; (b) differences in the operationalization of anxiety, in part due to differences in assessment tools and nosologies (DSM or ICD) used for diagnosis and differences in the decision to include NOS diagnoses; (c) the use of a hierarchical approach to diagnosis in only some studies, which would yield lower prevalence estimates for anxiety disorders by excluding individuals from meeting criteria for one disorder if they also met criteria for another disorder higher in the hierarchy; (d) differences in the anxiety disorders included in the assessment, with some epidemiological studies excluding certain anxiety disorders, such as PTSD; (e) varying degrees of reliance upon clinician judgment to make diagnostic decisions; (f) differences in the age cutoffs for the definition of "elderly" or "older age"; and (g) differences in the definitions of and/or ability of interviewers to detect whether anxiety is due to a general medical condition, which would thereby exclude an individual from being diagnosed with an anxiety disorder.

Despite these limitations to the existing epidemiological literature on anxiety disorders in late age, a review was conducted. Studies that assessed for the presence of anxiety disorders (as opposed to anxiety symptoms only) among the elderly and that explicitly used DSM or ICD criteria to determine the presence or absence of a diagnosis were reviewed. When possible, current, 1-month, 6-month, or 12-month diagnoses are reported instead of lifetime diagnoses, as lifetime diagnosis provides less information about the current status of the elderly population and captures earlier diagnoses that may not have continued into late age. Table 1 shows the prevalence estimates of anxiety disorders in those studies identified in this review.

Prevalence estimates of anxiety disorders in late age range from 3.2[1] to 14.2%.[2] Only a few studies have examined the prevalence of anxiety disorders in older age using nationally representative samples from the United States. The Epidemiological Catchment Area (ECA) survey found a 1-month prevalence of 5.5% for all DSM-III anxiety disorders in older adults.[3] However, this report did not include generalized anxiety disorder (GAD) and thus may be a drastic underestimate. An earlier study using a national sample of older aged adults did include GAD and found a 10.2% 12-month prevalence of anxiety disorders among those 65 years of age or older.[4] More recently, from the National Comorbidity Survey-Replication (NCS-R), 7.0% of older adults aged 65 and older in a nationally representative sample met criteria for an anxiety disorder in the past 12 months.[5] Given that this study used the most current version of the DSM and used a nationally representative sample, it may reflect the most apt prevalence of anxiety disorders among the elderly in the United States.

In addition to samples examined in the United States, a number of other countries have examined the prevalence of anxiety disorders in late life. Data from the Longitudinal Aging Study Amsterdam (LASA) reported 10.2% 6-month prevalence for any anxiety disorder. However, this study defined "older age" as 55 and older, highlighting barriers to combining results across studies that use different operational definitions. A recent study, using a French community sample, found a 14.2% prevalence for current anxiety disorder among those aged 65 and older.[2] Additional studies can be found in Table 1.

One important issue is whether it is appropriate to collapse all potential subgroups of older adults into one category. Several studies have attempted to address the prevalence of anxiety disorders across separate older age groups. One study using a representative community sample, in Germany, found a 4.3% prevalence estimate for current anxiety disorders in those aged 70–84 years old compared to a 2.3% prevalence for current anxiety disorders in those aged 85–103.[6] Similarly, Gum et al.[5] used the NCS-R data to report that 8.0% of those 65–74 years old had an anxiety disorder in the past 12 months compared to 5.6% of those 75 years of age and older. Interestingly, a similar pattern was observed when comparing 6-month prevalence of anxiety disorders among those aged 65–74 (13.9%) to those aged 75–85 (10.4%), but a lower prevalence estimate was observed for those aged 55–64 (6.9%), suggesting that there may be important subgroups to consider within the category of "older adults."

Clearly, anxiety disorders are prevalent among the elderly. However, an important question is whether and how these prevalence estimates differ from those of younger adults. In the ECA study, recall that 5.5% of the older age group met diagnostic criteria for an anxiety disorder; in contrast, 7.3% of younger adults (18–64) in this study met criteria for an anxiety disorder. Similarly, another report from the NCS-R indicated a lifetime prevalence of any anxiety disorder in individuals aged 60 and above 15.3% compared to 35.1% in 30–44 year olds and 30.2% in 18–29 year olds.[7] These findings suggest that, overall, anxiety disorders are more prevalent among younger adults than older adults.

Although a general examination of the overall prevalence of anxiety disorders in the elderly is important, it may be more important to examine the prevalence of each specific anxiety disorder in this population. Specific phobia (SP) and GAD appear to have the largest prevalence estimates, with SP estimates ranging from 3.1% (6-month[4] and 12-month[8]) to 10.2%[2] (current diagnosis). However, the latter study included agoraphobia (AG) with SP, thereby confounding the comparison. The NCS-R *lifetime* prevalence for SP of 7.5% in late age[7] may be due to the inclusion of diagnoses that have remitted. Despite the high prevalence of SP among the elderly, it remains less prevalent than in younger age groups, with a 12-month prevalence estimate of 8.7% for SP among adults over the age of 18 found in the NCS-R.

Prevalence estimates for GAD among older adults range from 1.2[5] to 7.3%.[8] As noted earlier, the use of different diagnostic criteria across studies (e.g., DSM-III versus DSM-IV) significantly limits our ability to draw firm conclusions. Interestingly, lifetime prevalence of GAD among the elderly has been reported as 3.6%,[7] indicating that GAD may be chronic and stable over time. However, studies comparing different age groups generally find a decrease in prevalence with age. For example, a study comparing GAD prevalence across the lifespan found a 2.8% 12-month prevalence for 18–44 year olds, a 3.2% prevalence for 45–64 year olds, 1.4% prevalence for 65–74 year olds, and 1.0% prevalence for those aged 75 and older.[5] In addition, a study comparing the 12-month prevalence of GAD in middle-aged (45–64 years) and older age (65 and older) adults revealed a decline in prevalence with an increase in age, with a 4.2% prevalence among the middle-aged and 2.3% prevalence in the older age group.[9] Interestingly, when examining GAD prevalence among different older age groups, this pattern becomes more complex. More specifically, a study dividing older

TABLE 1. Prevalence of anxiety disorders in older age: data from random community samples and nationally representative samples

Study	Sample size	Sampling method (location of sample)	Age range	DSM or ICD version	Assess. Tool	Prevalence of anxiety disorder (period)	Prevalence of GAD	Prevalence of spec phob	Prevalence of soc phob	Prevalence of PD	Prevalence of OCD	Prevalence of PTSD
Gum[5] (NCS-R)	1,461	Nationally representative sample (US)	65+	DSM-IV	CIDI	7.0 (12-month)	1.2	4.7	2.3	0.7	–	0.4
Karlsson[165] (2009)	914	Representative community sample; non-demented (Sweden)	70+	DSM-IV	MINI	–	–	–	1.9 (1-month)	–	–	–
Chou[34] (NESARC)	8,205	Nationally representative (US)	65+	DSM-IV	AUDADIS-IV	–	–	4.5 (current)	–	–	–	–
Chou[93] (NESARC)	13,420	Nationally representative (US)	55+	DSM-IV	AUDADIS-IV	–	–	–	1.8 (current)			
Ven der Weele et al. (2009)	201	Population-based cohort	90	DSM-IV	ASQ	4.0 (8.5 subthresh) (current)	–	–	–	–	–	–
Trollor[9] (NMHWS)	1,792	National probability sample (Australia)	65+	ICD-10	CIDI	4.4 (12- month)	2.3	–	0.6	0.8	0.1	1.0
Cairney[22] (CCHS)	12,792[e]	Nationally representative (Canada)	55+	DSM-IV	CIDI	–	–	–	1.3 (12-month)			
Corna[33] (CCHS)	12,792[e]	Nationally representative (Canada)	55+	DSM-IV	CIDI	–	–	–	–	0.8 (12-month)		
Streiner[166] (2006) (CCHS)	12,792[e]	Nationally representative (Canada)	65+	DSM-IV	CIDI	Divided old age into subgroups: 1.0–3.2 for men, 1.5–4.1 for women (12-month)	–	–	–	–	–	–
Kessler[7]	*d*	Nationally representative (US)	65+	DSM-IV	CIDI	15.3 (lifetime)	3.6	7.5	6.6	2.0	0.7	2.5
Ritchie[2]	1,873	Random community sample (France)	65+	ICD-10	MINI	14.2 (current)	4.6	10.1[a]	1.2	0.3	0.5	–
Schnurr[167] (2002)	436	Male Veterans	59–92	DSM-IV	CAPS	–	–	–	–	–	–	0.5 (current)
Schaub and Linden[6]	516	Representative community sample (Berlin)	70–103	DSM-III-R	GMS-A/HAS	4.5 (current)	*c*					
Beekman[8] (LASA)	3,107	Community random sample (Netherlands)	55–85	DSM-III	DIS	10.2 (6-month)	7.3	3.1[b]		1.0	0.6	–
Bland[10] (Edmonton Study)	358 at home; 199 in nursing homes	Convenience sample (Canada)	65+	DSM-III	DIS	3.5 in home, 5.0 in nursing homes (6-month)		3.0 (house) 1.0 (nursing homes)		0.3 (house) 1.0 (nursing homes)	1.5 (house) 3.5 (nursing)	
Forsell and Winblad[1]	786 (non-demented)	Random community sample (Sweden)	65+	DSM-IV	CPRS	3.2 (current)	–	–	–	–	–	–
Regier[3] (ECA)	5,702	Nationally representative sample (US)	65+	DSM-III	DIS	5.5 (1-month)	–	4.8[b]	–	0.1	0.8	–
Uhlenhuth[4] (National Survey of Psychotherapeutic Drug Use)	442	Nationally representative (US)	65+	DSM-III	Hopkins Symptom Checklist	10.2						
(12 months)	7.1	3.1[b]	–	–	–	–						

[a]Includes agoraphobia.
[b]This study collapsed all phobic disorders together and prevalence is reported here.
[c]Although data for several anxiety disorders was collected, this study did not provide prevalence data for the overall sample.
[d]Data taken from study with larger age group and N is not provided for 65+ subsample.
[e]Data reported in different papers but taken from same epidemiological study; period of time (e.g., 1-month prevalence) is same for specific anxiety disorders as overall anxiety disorders for each study unless otherwise noted; NCS-R, National Comorbidity Survey-Replication; ECA, Epidemiological Catchment Area study; NESARC, National Epidemiological Study on Alcohol and Related Conditions; CCHS, Canadian Community Health Survey; NMHWS, Australian National Mental Health and Well-being Survey; LASA, Longitudinal Aging Study Amsterdam; GAD, generalized anxiety disorder; spec phob, specific phobia; soc phob, social phobia; PD, panic disorder; OCD, obsessive compulsive disorder; PTSD, posttraumatic stress disorder.

adults into three categories (55–64 year olds, 65–74 year olds, and 75–85 year olds) found that 6-month prevalence of GAD was 4.0%, 11.5%, and 6.9%, respectively,[8] pointing to the need for more fine-grained analyses of the potential subgroups within the "older age" grouping.

Although few epidemiological studies reported prevalence data for social phobia, the existing literature suggests that the prevalence of the past 12-month diagnoses of social phobia (SOP) are relatively low, ranging from 0.6[9] to 2.3%.[5] As with SP, the prevalence of SOP appears to be lower among older adults compared to younger adults, with a 2.6% 12-month prevalence of SOP among middle-aged adults (45–64 years) and 0.3% 12-month prevalence among those 65 and older.[9] Similarly, 12-month prevalence estimates of SOP for those 18–44 and 45–64 years old have been reported as 8.6 and 6.1%, respectively, compared to the 2.3% prevalence estimate for those aged 65 and older observed from the same nationally representative sample.[5]

The prevalence estimates for OCD, panic disorder (PD), and PTSD among the elderly appear to be the lowest, a pattern that is somewhat similar to what is seen among younger adults. Prevalence estimates for OCD among the elderly in the available literature range from 0.1[9] (1-month) to 0.8% (12-month).[3] One study using a convenience sample in Canada reported a 1.5% 6-month prevalence estimate among the elderly at home and 3.5% among the elderly in nursing homes.[10] However, prevalence estimates using convenience samples may not be generalizable and should be interpreted with caution. Few studies have directly compared the prevalence of OCD between older and younger adults. One such study did report the 12-month prevalence of OCD among the middle aged (45–64 years) to be 0.4% and the elderly (65 and older) to be 0.1%.[9] However, these differences were nonsignificant, presumably due to low base rates.

Prevalence estimates for PD among older adults range from 0.1[8] (6-month) to 1.0% (1-month).[11] Comparisons of older and younger adults demonstrate that, although the prevalence of PD is relatively low compared to other anxiety disorders among all adults (overall lifetime prevalence for adults 4.7%[7] and 12-month prevalence 2.7%),[5] these estimates are lower for older adults in particular. Gum et al.[5] reported a 0.7% 12-month prevalence estimate for older adults compared to 3.2% for 18–44 year olds and 2.8% for 45–64 year olds. Likewise, Trollor et al.[9] reported a 2.6% 12-month prevalence estimate for PD among the middle aged compared to 0.8% among the older adults.

There is a paucity of epidemiological research reporting the prevalence of late-age PTSD. Twelve-month estimates using large, random samples range from 0.4[5] to 1.0%.[9] These estimates are lower than those found among younger adults, with data from the NCS-R reporting that 3.7% of 18–44 year olds and 5.1% of 45–64 year olds met diagnostic criteria for PTSD in the past year.[5] Likewise, the lifetime prevalence for older adults has been reported as 2.5% compared to 6.8% for all adults over the age of 18.[7] Similarly, data from a large Australian nationally representative sample were used to compare the prevalence of PTSD across age groups for those who reported experiencing a traumatic event. A reduction in PTSD prevalence was observed with increasing age, with a prevalence estimate of 4.9% in the 18–24 year old group compared to 0.2% in the 65 and older group.[12] In contrast, a study examining the prevalence of PTSD in a German community sample compared younger adults (44 and younger) to middle aged (45–64 years) and older adults (65 and older), and found no significant differences among the 1-month prevalence estimates of 3.6%, 2.6%, and 1.5%, respectively.[13] However, these percentages reflect only PTSD diagnoses for those who endorsed experiencing a traumatic event. Thus, if all participants had been assessed for PTSD, much lower prevalence estimates are likely to have been observed. Furthermore, there may have been insufficient power to detect statistically significant differences across age.

In summary, these epidemiological studies indicate that anxiety disorders are relatively common in late life, but less common than in younger adults. One exception may be OCD, although this could be due to statistical power issues given the low base rates (see Table 1). In addition to the several limitations discussed above with regard to synthesizing epidemiological data, there are a number of barriers to diagnosing anxiety disorders in late-life samples that may contribute to the variation in estimates. Lenze et al.[14] and Lenze and Wetherell[15] note that clinicians have difficulty distinguishing between adaptive and pathological anxiety, perhaps because older adults and/or clinicians misattribute anxiety symptoms to normal aging processes. For example, older adults and clinicians alike often view fear, anxiety, and avoidance as normal given aging circumstances. Additionally, Lenze et al.[14] list a number of other barriers, such as tendencies for older adults to (a) minimize symptoms, especially when asked in a categorical format; (b) use different language to describe symptoms (e.g., "concerns" rather than worry); (c) attribute their symptoms to physical illnesses and conditions,[16] thereby sometimes being excluded from diagnoses; and (d) have difficulty remembering or identifying symptoms. In addition, Lenze and Wetherell[15] note that it may be inappropriate to ask older adults to rate their anxiety in terms of autonomic responses with the same questions used for younger adults. Finally, as reviewed in a later section, older adults may experience anxiety differently, rendering the diagnostic criteria less sensitive to the detection of their anxiety disorders.

Although some of these barriers are based on clinical experience and lack empirical support, some data exist to suggest that the aforementioned problems do affect

our ability to understand the prevalence of anxiety disorders in late age. For example, research has investigated response biases in diagnostic instruments among the elderly that lower the detection rates for anxiety disorders. A recent study demonstrated that questions within the CIDI may be problematic for older adults to answer, leading to lower prevalence estimates.[17] More specifically, the authors hypothesized that older adults would be less likely to endorse long and complicated screening questions on the CIDI. They compared the endorsement rate of the GAD screening question, "In the past 12 months, have you had a period of a month or more when for most of the time you felt worried, tense or anxious about everyday problems such as work or family?" to the simpler GAD screening question on the K-10 (self-report measure), "In the past four weeks, about how often did you feel nervous?" Percent disagreement between the endorsement of the two items was 29% for those aged 55–64 and rose to 71% for those aged 75 and older, suggesting that one reason for low detection of anxiety disorders in late life may be the complexity of the assessment questions. Knauper and Wittchen[16] explored response biases during administration of the depressive disorders module of the CIDI in older adults and found that lower working memory (assessed via a working memory task) was associated with a greater likelihood of attributing symptoms of depression to physical illness. The authors suggest that the complex questions and probes are likely to result in response bias for those with diminished working memory capacity.

In addition to the barriers raised by Lenze et al., Bryant et al.[18] point to the discrepancy between evidence suggesting a lower prevalence of anxiety disorders among older adults compared to younger adults (see above), but a high prevalence of older adults who report anxiety symptoms.[19] They conclude that subthreshold anxiety disorders may present commonly among older adults and that these cases are typically not being recognized. More research is needed to elucidate the patterns of reporting among older adults that may lead to non-diagnosis.

AGE OF ONSET

In other areas of psychopathology (e.g., depression and schizophrenia), there is evidence that age of onset explains significant variance in the expression of disorders with regard to the nature of symptoms, symptom severity, and treatment responsiveness. Thus, this section reviews age of onset in late-life anxiety disorders, and whether age of onset influences the expression of anxiety disorders. One general limitation to investigating age of onset in the context of interviewing older adults is the problem of retrospective reports, especially given a high prevalence of memory problems and a longer lifetime to consider when answering interview questions.

It is generally agreed that the majority of anxiety disorders develop sometime between childhood and young adulthood.[20,21] Indeed, the NCS-R used projected lifetime risk analyses to determine that fewer than 1% of individuals will develop an anxiety disorder after the age of 65.[7] Specifically, fewer than 1% of individuals will develop: (a) PD after age 62; (b) SP after age 64; (c) SOP after age 52; (d) GAD after age 74; (e) PTSD after age 71; and (f) OCD after age 54. Other studies are consistent with these low rates of incidence for these disorders in late life.[22,23] In comparison, 90% of individuals who developed a primary anxiety disorder did so before the age of 41 and 75% before the age of 21. In general, later onset is infrequent.[23] One Swedish study, albeit with a convenience sample and therefore of questionable generalizability, followed an elderly population for 34 years, starting at age 67[24]: 11% of females and 2% of males in the sample developed a new anxiety disorder during the study period. These findings suggest that anxiety disorders can have a late age of onset.

A significant amount of research has focused on GAD in older age, and several studies have attempted to understand the chronology and age of onset for this disorder. Most studies of the general adult population indicate an onset of GAD from late adolescence to early adulthood.[25] In contrast, some studies of older adults report a bimodal distribution, with just over one-half of participants reporting an age of onset before age 50.[26] Similarly, a recent study, using a nationally representative sample of adults aged 55 or older from the United States, found that only 33.7% of the respondents with current GAD reported onset before the age of 50, with an increase in incidence around the age of 55.[27] Earlier onset of GAD diagnosis was associated with greater symptom severity,[26] higher prevalence of comorbid anxiety, mood, and substance use disorders,[27] but better health-related quality of life.[27] There are limitations, however, including arbitrary cut-offs that distinguish "early onset" from "late onset" and recall biases when estimating age of onset. On the other hand, a large nationally representative sample of Canadian elderly (65 and older) was assessed for the presence of SOP and reported a mean age of onset of 16.9 ($SD = 14.4$), with more than half of all respondents reporting onset in the first 14 years of life and fewer than 10% reporting onset after age 54.[22] Because these estimates for SOP are consistent with general adult populations, the findings in late-life GAD samples are unlikely to be fully explained by memory biases.

The onset of PTSD in late life is somewhat higher than the average across anxiety disorders, with 5% developing a new case after the age of 61 and 10% after the age of 53.[7] Given the linkage of the diagnosis of PTSD with the occurrence of traumatic events, it is not surprising that age of onset may be more variable across the lifespan than is the case for other anxiety

disorders. Still, these data suggest that the majority of those with PTSD (75%) develop the disorder before the age of 39.[7]

The small body of literature regarding incidence of PD indicates that late age of onset is uncommon, with the ECA study reporting a 0.04 person-years at risk rate for those 65 years of age and older compared to the 0.82 person-years at risk ratio in the 30–44 year old age group.[23] Several epidemiological studies indicate that the average age of onset for PD is in the 15–40 year old range.[28] Although there is little research examining late-onset PD, one study found that those with a late onset (35 years or older) reported experiencing less distress during panic attacks than those with earlier-onset PD.[29] In addition, Sheikh et al.[29] found that younger participants (less than 60 years old; $N = 93$) reported a mean age of onset of 31 years old, whereas older participants (60 years and older; $N = 74$) reported a mean age of onset of 40. As with the LeRoux et al.[26] study, the Sheikh et al.[29] study is limited by an arbitrary distinction between early and late-onset PD. It is possible that biased recall may impact these reports and remains a significant limitation. There is a paucity of research evaluating the onset of other anxiety disorders across the lifespan, and discrepancies are apparent within the existing literature.

Another significant problem with regard to incidence of anxiety disorders in late life is the overlap with and influence of significant medical illnesses or other life changes. For example, Lindesay[30] found that AG among the elderly typically had a recent onset, but many of the fears regarding crowded spaces and traveling away from home began after a physical illness or trauma. It is uncertain if the diagnosis of AG is appropriate in such situations, because the fears may be more related to legitimate safety concerns rather than panic attacks or agoraphobic fears.[31] In addition, Raj et al.[32] reported that 58.8% people with PD noted an onset after the age of 60, and the Canadian Community Health Survey[33] indicated that 23% of residents aged 55 and older diagnosed with PD reported an onset of PD after age 55. However, none of these articles teased apart the confounding role that medical illness may play in the development and maintenance of PD in late life. Furthermore, Raj et al.[32] used a clinical convenience sample and retrospective chart review, both of which are significant limitations. Taken together, the majority of data suggest that there is a low likelihood of anxiety disorders developing in late life. However, evidence of late-onset anxiety disorders has been observed. Future research using longitudinal designs that follow participants into later adulthood are needed.

RISK FACTORS AND DEMOGRAPHICS

A comparison of risk factors for anxiety disorders across the lifespan can shed light on potential similarities and differences between age groups, and can also inform clinicians about how the profile and history of individuals who develop anxiety disorders may change across the lifespan. Unfortunately, risk factor data are rather limited. The following risk factors have been found to be associated with increased likelihood of having an anxiety disorder in late age: (a) being female;[8,11] (b) having several chronic medical conditions;[5] (c) being single, divorced, or separated (compared to being married);[5,6,8] (d) lower education;[5,8] (e) impaired subjective health;[8] (f) stressful life events;[34,35] (g) physical limitations in daily activities;[33](h) adverse events in childhood;[36] and (i) neuroticism.[35,36]

One study evaluated older (60 and older) and younger adults (younger than 60) affected by the 2004 Florida hurricanes.[37] They found that: (a) younger adults reported significantly higher symptom levels of PTSD and GAD than older adults; (b) social support and earlier traumatic event exposure were associated with PTSD and GAD for both age groups; (c) using risk factor by age interaction analyses—PTSD was associated with Hispanic ethnicity only among younger adults whereas PTSD was associated with lower income among older adults only; and (d) using the same interaction analyses—GAD was uniquely associated with female gender only among younger adults, whereas GAD was associated with income only for older adults.[35] This study adds to the body of literature suggesting that younger adults may experience greater severity of anxiety disorder symptoms than older adults, and also highlights that differences exist with regard to risk factors across the life span.

Little data have been collected on race and ethnicity comparing younger and older adults with anxiety disorders. There is some evidence that "anxious depression" may be more prevalent among Puerto Ricans older adults compared to African-American older adults.[38] Also, impairment caused by late-life depression and anxiety may be more substantial in Puerto Ricans than African-Americans, possibly because of the effects of language differences in the interviews and the tendency for Hispanics to express distress via somatic complaints as opposed to cognitive complaints.[36]

Another study examining racial and gender differences in anxiety disorders found the highest prevalence estimates of GAD among older African-American women (3.7%) and the lowest prevalence among older African-American men (0.3%).[39] Finally, a study comparing white and African-American older adults with PTSD found that while there were no significant differences in the distribution of PTSD diagnoses, elderly white participants who experienced a non-physical trauma (e.g., burglary) were more likely than elderly African-Americans to report hyperarousal symptoms.[40] Although not directly comparing different racial and ethnic groups, an important study using a large national sample of older African-Americans found that the anxiety disorder with the highest 12-month

prevalence among African-Americans aged 55 and older was PTSD (2.85%).[41] This is in direct contrast to studies using nationally representative samples that include the nationally representative proportion of African-Americans (and thus a small percentage of the sample), which typically found that other anxiety disorders, such as GAD and SP, are more prevalent than PTSD (see Table 1). Significantly, more research with patients who represent a wider variety of ethnic and racial backgrounds is needed before any statements about the role of ethnicity can be made with respect to late-life anxiety.

EFFECTS OF ADVANCING AGE UPON SYMPTOM EXPERIENCE AND EXPRESSION

An important empirical question is whether the clinical expression and severity of symptoms change with age. It is reasonable to expect that the nature of symptom presentation undergoes substantial variance due to interactions with medical comorbidity and functional changes related to normal aging processes, such as changes in sleep regulation. In this section, the experience of emotion and the report of anxiety symptoms are reviewed.

Emotional expression. Basic behavioral, psychophysiological, and neuroimaging research in emotion processing suggests that emotion expression changes with aging. Older adults appear to experience less negative affect in self-report and laboratory tests. Lawton et al.[42] found distinctly different factor structures for self-reported affect in young, middle-aged and older individuals. The greatest observed difference was that emotional terms involving guilt loaded more heavily for the younger group than the older group. In addition, older adults reported experiencing less of the most negative emotional states assessed and a lower level of negative affect (depression, anxiety–guilt, hostility, and shyness) relative to the younger group. There were very few differences in the experience of positive affect between the groups. Similarly, behavioral studies indicate that older adults show decreased attention to negative stimuli compared to neutral or positive stimuli, decreased attention to negative affect, increased memory for positive items relative to negative ones, and decreased levels of negative affect.[39,43–47]

Other complementary findings in neuroimaging and pathophysiological studies suggest an age-related change in the underlying systems involved in emotional expression. One study found greater amygdala activation for positive relative to negative pictures, in contrast to younger adults.[48] In a study of responses to emotional faces, older adults activated different corticolimbic regions (more left frontal, less amygdala) than younger adults, suggesting they may utilize different cortical networks in emotional processing.[49] Neiss et al.[50] examined the effects of age and gender on emotional perception and physiology and found that older adults rated emotionally valent pictures as more positive than younger adults, and reported being more aroused by the positive pictures than younger adults. However, despite subjective reports of greater arousal, older adults exhibited less objective arousal (as measured by skin conductance response). Finally, subjective ratings of emotional arousal and skin conductance responses were correlated in younger adults but not in older adults, suggesting that the perception of emotional states is disconnected from physiology in older adults. These findings are somewhat consistent with Flint et al.[51] who compared behavioral and cardiovascular effects of a panicogenic agent (CCK-4) in younger and older groups and found the latter to have less heart rate increase, fewer reported symptoms, as well as lower intensity and shorter duration of symptoms. In summary, these findings suggest that older adults experience and process emotions differently than younger adults, with less of a bias toward negative emotion, and possibly less autonomic response to strong emotional states, than younger adults.

Symptoms of anxiety disorders. Many studies have attempted to disentangle how changes in developmental life stages and life transitions affect the content of fear and worry. As adults transition into later life cycles, they face many significant changes in their lives, such as retirement, physical health problems, the loss of a spouse or other loved ones, and reduced economic resources. Thus, it is not surprising that older adults worry more about health and disability,[52–54] and have fewer concerns about work,[55] finances,[54] and family[54] than younger adults. In addition, age-specific fears have been documented among older adults, such as fears of being a burden on others [Kogan JN, Edelstein BE].

A growing body of literature has attempted to explore the symptom presentations of anxiety disorders among the elderly. Recent research on PD diagnosis and symptom presentation among older adults suggests that older adults with PD report fewer panic symptoms, less anxiety and arousal, and higher levels of functioning than their younger age counterparts.[29] However, earlier studies comparing older and younger adults with PD suggest that there are: (a) no significant differences between age groups on frequency of somatic or psychological symptoms of panic;[56] (b) no differences in the odds of having cardiac or psychological (i.e., mental) symptoms/concerns during panic attacks;[57] and (c) no differences between age groups in symptomatology in a sample of patients with a history of panic attacks who presented themselves to a cardiology clinic.[58] In addition, one study using a large national sample of older adults aged 55 and older found that the majority of those with AG did not meet diagnostic criteria for PD, a finding which differs from the general literature on PD consisting primarily of younger adult samples.[59] Taken together, data with regard to potential differences in PD symptoms and

severity between older and younger adults are contradictory. More research is needed to clarify any potential differences. Although considerably more research is needed, Flint et al.[56] present an interesting hypothesis that decreases in noradrenergic activity in the aging brain,[60] along with a decrease in cholecystokinin[61] and maintenance of inhibitory GABA,[62] neurotransmitter systems thought to be implicated in PD may result in a natural "calming" effect that could explain age-related changes in PD. A caveat to the comparisons with younger age groups is that late-life PD may be confounded with cognitive dysfunction that is presented as fearfulness and hyperarousal and/or medical conditions that induce panic-like symptoms.[63]

In GAD, the research is limited mostly to comparisons with late-life non-clinical controls, which sheds little light on whether any of these characteristics are unique to the elderly GAD population. For example, GAD in older age is associated with lower quality of life,[64] worry about a wider array of topics,[65] and more anxiety, worry, social fears, and depression[66] compared to non-clinical controls, but this is the case for GAD in general adult populations as well. Although no direct comparisons were made with younger adults, Diefenbach et al.[65] did compare their findings to literature on younger adults with GAD and found that older adults reported a higher percentage of health worries and a lower percentage of work-related worries relative to younger adults. These findings indicate that there are differences in the qualitative nature of worry content between adult age groups, but do not provide any information about differences in symptom presentation or severity. As with PD, some researchers have highlighted the complexity of diagnosing GAD in late life, given that anxiety often manifests as somatic symptoms in late life[67] and that anxiety has been associated with several medical conditions.[68] A discussion of late-age anxiety and medical comorbidity is presented in a later section.

A study comparing the clinical features of OCD between younger adults and older adults (aged 60 or older) found that, although no differences were found with regard to severity on the YBOCS, elderly patients had fewer symmetry concerns and counting rituals, a significantly greater fear of having sinned, and reported more hand washing than younger OCD patients.[69] These findings suggest that older adults may be more or less likely to present with different subtypes of OCD than younger OCD patients. Although not specifically addressing OCD in late age, one study comparing late onset of OCD (30 years old or later) to early onset of OCD (younger than 30 years at onset) found that the former group showed lower severity of obsessions and were less likely to report contamination, religious, or somatic obsessions.[70] In contrast, there were no differences in functional impairment between early- and late-onset groups. Finally, some evidence suggests that compulsive hoarding severity increases with age.[71]

There is a limited amount of research investigating symptom expression of PTSD, SOP, and SP in late adulthood, and a dearth of research comparing symptoms of these disorders in younger and older adulthood. Some evidence suggests that, contrary to anecdotal reports, the prevalence of re-experiencing symptoms in PTSD declines with age, with 10% of those over the age of 65 who reported experiencing a trauma meeting criterion B (re-experiencing symptoms) compared to 21.5% of those aged 18–24, in one study.[12] In a Swedish community sample of 18–70 year olds,[72] older adults ($M = 53.3$ years) met diagnostic criteria for significantly more natural environment phobias than younger adults ($M = 29.0$ years; 16.8% for older adults versus 9.4% for younger adults). In particular, fear of lightning (3.3% for older adults versus 0.9% for younger adults) and heights (9.9% for older adults versus 5.3% for younger adults) were statistically significant. Other studies report a higher prevalence of fear of falling observed in older adults.[73] With regard to SOP, one study using a convenience sample of younger ($M = 34.69$, $SD = 11.36$) and older adults ($M = 74.35$, $SD = 7.92$) found that SOP severity (as measured by the Social Phobia and Anxiety Inventory; SPAI) declined with age, with some indication that severity increased again after age 80.[74] Furthermore, the authors found that, when comparing older and younger adults with clinically significant levels of SOP symptoms, younger adults were more likely to endorse higher severity ratings on certain items on the SPAI (i.e., not being likely to speak to people until they speak to you, thinking about all the things that could go wrong in a social situation), whereas older adults were more likely to endorse greater anxiety for a number of situations compared to younger adults (i.e., informal meeting, talking about business, talking for longer than a few minutes, writing in front of others, going places where there are others). These findings suggest that specific social concerns and situational anxiety and/or avoidance may differ between younger and older adults who score highly on measures of social anxiety.

Taken together, the literature on symptom presentation among the elderly suggests that, in general, symptom expression is similar to that of younger adults, with some minor differences, such as subtypes of OCD, worry spheres, and level of anxiety related to specific social situations. The question arises as to whether the similarities are true to a psychopathology that is independent of age, or representative of reliance upon the same criteria set to diagnose anxiety disorders in older and younger age groups. That is, older anxious adults may experience other symptoms that are not being assessed or may experience the same symptoms but use different terminology to describe them. For example, Flint[75] discussed that anxiety among older adults may be described and experienced as more somatic in nature with complaints, such as dizziness and shakiness, than in younger age groups. However,

direct empirical evidence is lacking. If the expression of symptoms does differ in older adults, diagnosticians may miss anxiety disorder cases among the elderly; only older patients whose anxiety symptoms present similar to younger adults will be diagnosed with an anxiety disorder. This problem is inevitable, but should be considered when evaluating currently identified similarities and differences between younger and older individuals. Likewise, certain clusters of symptoms and/or clinical anxiety-related presentations may be commonly observed among older adults but not clearly delineated by DSM, such as fear of falling or hoarding, thus leading to problems with detection and diagnosis. Clearly, there is a need for more research on these questions. Geriatricians should be queried about the types of symptoms they see in older patients who they believe may be suffering from anxiety problems.

In addition to potential differences in symptom presentation among older adults, another issue that has been raised concerns the possibility that older adults may present with subclinical anxiety or symptoms of anxiety that cause distress and/or impairment, but do not meet diagnostic criteria for any anxiety disorder.[76] To support this hypothesis, Kogan et al.[76] cited a community study of older adults (55 and older); 17% of men and 21.5% of women in the sample had clinically significant levels of anxiety on a self-report measure.[77] However, the same discrepancy between rates of anxiety disorders versus clinically significant anxiety symptomalogy may occur in younger age groups as well. Thus, more research is needed comparing subsyndromal anxiety and/or the presence of what would be considered an anxiety disorder NOS diagnosis between older and younger adult age groups.

COMORBIDITY AND DIFFERENTIAL DIAGNOSIS

The Life Span Study group recommended that consideration be given to the interactions between advancing age and comorbid medical and psychiatric illness. This section reviews the data on psychiatric, medical, and cognitive comorbidity in late-life anxiety.

Psychiatric comorbidity. It is well established that anxiety and depression frequently are comorbid in younger adults.[7,78] In the ECA study of people aged 18–54 years, 20% of individuals who received a diagnosis of any anxiety disorder in the past 6 months also received a diagnosis of some type of affective disorder.[11] With regard to the elderly population, data from a longitudinal study of a random community sample in The Netherlands indicated that 13% of older adults (55 and older) with anxiety disorders also met criteria for major depressive disorder (MDD; past 6 months diagnosis),[79] and 29.4% of those with an anxiety disorder in a random German community sample met criteria for any depressive disorder (current diagnosis).[6] One study using a community-based sample of Canadian adults aged 55 and older found that depression was the most common comorbid disorder among those with any anxiety disorder, with 23% of those with anxiety disorders also meeting diagnostic criteria for major depressive disorder.[80] Studies of depressed older adults also indicate that approximately half of them meet criteria for an anxiety disorder. More specifically, Beekman et al.[81] found that 47–50% of community-based individuals over the age of 55 with depression had comorbid anxiety disorders. Lenze et al.[82] examined anxiety disorder comorbidity among a sample of depressed elderly patients (aged 60 and older) from primary care and psychiatric settings. The authors found that 23% of patients with a depressive disorder also had a current anxiety disorder diagnosis, with the most common anxiety disorder diagnoses being PD (9.3%), SP (8.8%), and SOP (6.6%). Lenze et al.[82] noted that GAD diagnoses were not given if the GAD symptoms occurred only during a major depressive episode, but found that 27.5% of those depressed elderly patients would meet diagnostic criteria for GAD. The authors also reported that comorbid anxiety disorders were associated with lower social functioning. In contrast, there was no significant association between comorbid anxiety disorders and physical functioning.

The co-occurrence of GAD and depression is particularly well documented across different age groups in large nationally representative samples.[3,81,83] Research with large community-based samples suggests that co-occurring GAD and depression in older age (aged 64–84) is associated with greater chronicity than GAD alone or depression alone.[84] In a sample of elderly patients at a long-term care facility, Parmelee et al.[85] found that of the 3% who met DSM-III criteria for GAD, 60% met criteria for major depression (compared to 4% in non-anxious patients). Porensky et al.[86] found a 28.9% comorbidity rate for depression in a GAD treatment-seeking sample of elderly adults.

There are discrepancies in both the younger and older adult literature regarding the chronology of GAD and MDD. In younger adult samples, longitudinal and epidemiological studies suggest that anxiety disorders precede mood disorders,[78,87] with the possible exception of GAD and OCD.[78,88–90] Information about the chronology of MDD and GAD in older adult populations is limited to one study. Lenze et al.[91] found that it was rare for GAD and MDE to begin and remit simultaneously in late-life samples. Most cases of GAD tended to be present as a single, chronic episode with a mean duration of 16.7 years, whereas major depression tended to be episodic and recurrent; most often, GAD preceded depression and persisted without spontaneous remission even if comorbid depression remitted. Discrepancies in the literature may be a result of limitations similar to those discussed in the prevalence section. Differences in methodology, such as stringency of assessment, sampling procedure, and age groups evaluated, are likely to significantly limit our ability to draw firm conclusions

about the chronology of comorbid GAD and MDD, particularly among older adults whose recall for dates of onset may be unreliable.

In terms of other patterns of comorbidity, a community-based survey of adults over 65 living in the Netherlands found that among 16 individuals with PD,[74] 50% had comorbid depression. Similarly, findings from the NCS-R indicate that 36.7% of those with PD have comorbid MDD.[92] Findings from a large nationally representative sample in Canada revealed that among those aged 55 and older ($N = 12,792$), psychiatric comorbidity significantly predicted the presence of SOP[22] and PD.[33] In particular, strong associations with PD were observed for MDD and SOP.[33] Data from a large, nationally representative sample of older adults (National Epidemiological Survey on Alcohol and Related Conditions, NESARC; 55 and older) in the United States ($N = 13,420$) also observed high comorbidity of MDD for those with SOP (38.5%).[93] In addition, Chou et al.[93] found that 35.2% of those who met diagnostic criteria for SOP also met diagnostic criteria for alcohol abuse or dependence. Consistent with these high comorbidity rates, data from the same study indicated that 20.7% of older adults (55 and older) with SP also met criteria for MDD, as did 18.5% met diagnostic criteria for alcohol abuse or dependence.[34] Overall, these findings highlight the high rates of anxiety–mood disorder comorbidity and anxiety–substance use disorder comorbidity in late life, consistent with what is seen in younger adult and general adult samples.[7,78]

Interestingly, several review articles have argued that the typical presentation of anxiety in older adults seen in clinical practice is mixed anxiety–depression.[94–97] Unfortunately, none of these articles provide data supporting this claim. Because anxiety and depressive disorders are highly comorbid across adulthood, the incremental utility of adding a "mixed anxiety–depression" diagnosis specifically for older adults is unclear. Furthermore, research has revealed a low prevalence for mixed anxiety–depression in the general adult population[98] as well as in primary care samples,[99] and demonstrated instability of the classification.[100] Thus, significantly more research is needed to develop and empirically test the construct of mixed anxiety–depression in older adults before considering it as a diagnosis in its own right. Currently, these problems may be best described as NOS diagnoses.

Taken together, the findings regarding comorbidity suggest that: (a) as with younger adults, anxiety disorders among the elderly often occur alongside other disorders, particularly MDD and substance use disorders; and (b) findings are equivocal with regard to the chronology of comorbid anxiety and mood disorders, with little information about the course of these disorders in older adult samples. The impact of comorbid disorders among older adults with anxiety disorders indicates a variety of negative consequences. More specifically, the presence of depression has been associated with higher severity of GAD among older adults;[101] likewise, the presence of GAD symptoms among depressed older adults has been associated with greater suicidality.[82] In a study of primary care patients above the age of 65, suicidal ideation increased by 8% in the presence of anxiety disorders compared to no anxiety disorders, and increased even more significantly in the presence of comorbid anxiety and depression (18%).[102] These findings are consistent with those found in younger adults.[103]

Finally, comorbidity may impede treatment responsiveness. Older adults with depression and concurrent anxiety symptoms required 50% more time to respond to antidepressants in one study,[104] and were less responsive to treatments using nortryptyline and more likely to discontinue treatment[105] compared to depressed individuals without anxiety in another study. Although less is known about the prevalence of comorbid disorders among older adults with PTSD, some information about treatment response among older adults with MDD and comorbid PTSD is known. One study, investigating a large clinical population of depressed older adults (aged 60 and older), found that while those with MDD and comorbid PD responded as well to psychiatric treatment in primary care settings as those with no comorbid anxiety disorders, those with MDD and comorbid PTSD showed a delayed response to treatment.[106] These results are consistent with those found in young adult samples; the more severe and long standing the depressive symptoms in individuals with comorbid anxiety disorders, the more time is needed to recover.[107] Likewise, anxiety disorder treatment has been found to be less effective when major depressive episodes are present.[108]

Medical comorbidity. Certain medical conditions have demonstrated an association with anxiety disorders and anxiety symptoms, such as gastrointestinal problems,[109] hyperthyroidism,[110] and diabetes.[111] Studies suggest that between 80 and 86% adults 65 and older have at least one chronic medical condition.[112,113]Older adults with anxiety may be even more likely to have medical illnesses. Furthermore, the link between anxiety and medical illness, particularly cardiovascular disease, is associated with increased mortality. For example, anxiety has been found to pose an increased risk for mortality after heart surgery,[114] and panic attacks have been found to be associated with increased risk for cardiovascular morbidity and mortality.[115] Thus, understanding medical comorbidity is especially important in this population.

A growing body of research has focused on cardiac problems, respiratory conditions, and vestibular problems. Symptoms of these medical conditions are particularly relevant to anxiety disorders given their reciprocal nature. That is, cardiac, respiratory, and vestibular symptoms may be the direct result of underlying medical conditions and/or elicited during fear and anxiety, and in turn contribute to further anxiety. Also, patients with bona fide medical condi-

tions may develop anxiety about their symptoms. Chest pain and cardiac symptoms are commonly comorbid with anxiety disorders in older age samples.[116] Also, there is evidence for a high rate of comorbidity between anxiety and actual cases of coronary heart disease. Todaro et al.[117] found that 36% of cardiac patients averaging 60 years of age had a current anxiety disorder and 45.3% had a diagnosis at some point in their lifetime. The mean age of the sample was 60.6 ($SD = 12.3$). Other research has found the presence of anxiety symptoms to be a risk factor for the development of future coronary heart disease.[118] A prospective study of risk for coronary heart disease (CHD) among male veterans ($M = 59.6$) found that for each standard deviation of symptom increase, on the Mississippi Scale for Combat-Related PTSD or the Keane PTSD scale, a significant increase in risk for nonfatal myocardial infarction, angina, and fatal CHD was observed.[119] These findings provide evidence that PTSD symptoms may increase the risk for CHD in older men. The high overlap between anxiety and true cardiovascular disease, as well as misattributed cardiovascular symptoms, renders attribution of symptoms to cardiac versus anxiety disorders problematic. Many patients with anxiety may be overlooked if their physicians attribute their symptoms solely to heart disease.

Respiratory disorders also are highly comorbid with anxiety disorders. Studies have found that between 18[120] and 50%[121] of older age patients with chronic obstructive pulmonary disease (COPD) report significant symptoms of anxiety. A recent study compared psychiatric comorbidity between COPD patients ($M = 62.2$, $SD = 10.0$) and a clinical control group ($M = 52.7$, $SD = 13.0$).[122] A larger percentage of COPD patients met diagnostic criteria for a psychiatric diagnosis than those in the clinical control group (55 versus 30%), with 100% of the COPD patients with psychiatric diagnoses meeting criteria for an anxiety disorder (particularly PD with AG). Perhaps, not surprisingly, older adult patients with COPD who present with comborbid anxiety or depression show more functional impairment than those COPD patients without comorbid anxiety or depression.[123]

Other respiratory problems have been examined as well. In a study of Veterans with breathing disorders ($M = 63.3$, $SD = 11.8$), 82.8% screened positive for depression and/or anxiety using a brief patient telephone questionnaire.[124] A subset of this sample completed the BAI and 82.8% of this subset reported clinically significant symptoms of anxiety (i.e., BAI score of 16 or higher). One study found that asthma was associated with anxiety disorders (sample aged 60 and older), but that this association did not attain statistical significance.[125]

Vestibular symptoms represent another medical comorbidity. For example, Downton and Andrews[126] found that in adults over the age of 75 with postural disturbance, dizziness and falling were associated with higher levels of anxiety and this association was even stronger in individuals who had experienced a fall within the last 12 months. Among these individuals, 42% endorsed restricting their activity in some way because of fears related to falling. Gagnon et al.[127] also found that among elderly individuals who had been admitted to medical or orthopedic wards and who had fallen at least once in the previous year, anxiety disorders were associated with greater intensity of fear regarding falling again compared to individuals without anxiety disorders. Elsewhere, among 56 older adults seeking medical help for a postural disturbance, 37.5% met criteria for an anxiety disorder using DSM-III-R criteria.[128] Interestingly, Gagnon et al.[127] found that only one of their sample of 48 older adults with a fear of falling regarded his/her fear to be excessive, thereby ruling out the diagnosis of phobia in the current edition of the DSM.

One study found that up to 40% individuals with Parkinson's experienced significant anxiety symptoms,[129] whereas another study found that 43% individuals with idiopathic Parkinson's Disease met criteria for a current anxiety disorder.[130] Research has also focused on the relation between anxiety disorders and the manifestation/severity of Parkinson's symptoms. For example,[130] one study found that PD was associated with an earlier age of onset of Parkinson's, higher rates of motor fluctuations, and morning dystonia. In contrast, Stein et al.[131] found that among Parkinson's disease patients with concurrent anxiety, there was no correlation between the severity of Parkinson's symptoms and anxiety severity, duration of L-dopa exposure or dose of L-dopa. These discrepancies suggest that more research is needed in this area.

The comorbidity between medical illness and anxiety disorders poses difficulties for differential diagnosis and detection of anxiety. Researchers have suggested that older adults may be more likely to attribute physical symptoms related to anxiety to medical issues, including muscle tension, hypervigilance, and difficulties related to sleep.[95] In turn, many physical conditions, such as cardiovascular disease, respiratory disease, hyperthyroidism, and pulmonary and vestibular difficulties, can mimic the symptoms of anxiety (particularly the physiological symptoms), making it difficult to establish the underlying cause.[68,76] Thus, the association could be the result of two independently occurring phenomena, which are both fairly common or either phenomenon accounting for the other. Furthermore, the symptoms that result from medical illnesses may produce fearful bodily sensations that may result in the subsequent development of anxiety disorders. Additionally, anxiety could be (a) a side-effect of a medication that is being used to treat the medical issue; (b) a reaction to the dysregulation caused by the onset of the medical condition; or (c) a consequence of disabilities or changes in lifestyle that have occurred because of the medical condition.[94] However, much of this is speculation. Longitudinal

research investigating a number of medical conditions independently is needed to evaluate (a) whether specific medical conditions predict the onset of anxiety disorders and (b) whether the presence of anxiety disorders (and which ones) predict the onset of certain medical conditions. Research is also needed to evaluate the extent to which (a) medication side-effects cause anxiety symptoms in older adults; (b) older adults describe anxiety symptoms as somatic; and (c) older adults attribute their symptoms to medical problems.

DEMENTIA AND COGNITIVE DECLINE

Anxiety disorders are frequently comorbid, with cognitive decline and dementia among the elderly.[132] This comorbidity is partially due to the fact that not only cognitive decline/dementia common among the elderly, but also because there may be a specific relation with anxiety. Cognitive decline is an important consideration when defining anxiety disorders in this age group because it may affect presentation of symptoms, experience of symptoms, as well as the ability to communicate them.

Mild cognitive decline. Cross-sectional research has demonstrated that older adults (age 55 and older) with clinically significant anxiety (as measured by the SCL-90R-phobic anxiety scale) show poorer cognitive functioning as measured by the RBANS, a measure of general cognitive function.[133] Likewise, studies of older adults (60 years and older) have demonstrated that those with GAD display poorer short-term memory compared to older adults with no psychiatric diagnosis.[134]Some cross-sectional studies have demonstrated that those with mild cognitive impairment are more likely to have anxiety disorders.[135] However, the direction of this association is unclear until patients with cognitive impairment and no anxiety disorders are followed over time through the use of longitudinal designs.

Longitudinal research has demonstrated that anxiety in late life may increase the risk of cognitive decline over and above the risk associated with increasing age. A longitudinal study of older adults (60 and older), assessed at baseline and again on average 3.2 years later, found anxiety (measured by a clinician-administered screening instrument) was a significant predictor of future cognitive decline, as defined by performance on the Mini Mental State Exam.[136] Those who were classified as experiencing clinically significant anxiety were nearly four times as likely to experience cognitive impairment at the follow-up assessment than those without anxiety. Interestingly, depression did not predict cognitive impairment. In a naturalistic study of elderly participants with MDD, De Luca et al.[137] found that individuals with comorbid anxiety disorders (either GAD or PD) showed a greater decline in memory over time than those without comorbid anxiety disorders, but no greater decline in other areas of cognitive functioning, such as attention. The authors refuted earlier findings that the association between anxiety and cognitive decline is due to greater use of benzodiazepines.[138] Alternatively, they suggest that being in a constant state of anxiety over many years depletes cognitive reserves.[139] However, these explanations remain speculative.

As with medical conditions, the association between anxiety and cognitive decline may be bidirectional: chronic anxiety may cause cognitive impairment and anxiety may also develop after cognitive impairment, perhaps (although speculative) in response to the awareness that cognitive abilities are declining.

Dementia. Prevalence estimates for anxiety disorders in individuals with dementia range from 5 to 21%.[140,141] Epidemiological data indicate that the prevalence of anxiety disorders in the demented elderly population (65 and older; 3.3%). is not significantly different from that of the non-demented population (3.2%).[1] Similarly, a study using a community sample found no differences between those with and without anxiety disorders on cognitive functioning or rates of dementia.[6] However, smaller studies of community samples have found a positive association between the presence of Alzheimer's disease (AD) and anxiety *symptoms*.[142,143] These findings suggest that more research is needed to determine whether differences exist between those meeting full diagnostic criteria for anxiety disorders versus clinically significant symptoms only.

The wide range of prevalence estimates may result from the limitations of heterogeneous methodology across studies and difficulty discerning valid diagnoses of anxiety in the context of dementia. The distinction between these disorders is difficult for several reasons. One of the primary difficulties is differentiating between the symptoms of each disorder, as there is a fair amount of overlap between them (i.e., restlessness, fatigue, and difficulty concentrating or making decisions). In addition, symptoms of anxiety may arise in response to valid concerns when experiencing functional decline and cognitive changes due to dementia, or as a direct result of neurological degeneration caused by dementia that affects areas of the brain responsible for the emotional and physiological disturbances seen in anxiety disorders. Some argue that the anxiety that is secondary to dementia is presented as agitation[144] or hoarding behavior.[145] The overlap between agitation and anxiety in particular warrants further investigation as it may have important implications for diagnosis.

Several studies suggest that anxiety may be a risk factor for dementia. Palmer et al.[146] found that of elderly individuals with MCI and anxiety symptoms, 83.3% went on to develop AD three years later in comparison to only 40.9% of individuals with MCI only and 6.1% of cognitively intact individuals. Among individuals with both MCI and anxiety, the relative risk of developing AD almost doubled with each anxiety symptom, from 1.8 to 2.7 per symptom. Gallacher

et al.[147] examined men aged 48–67 with and without symptoms of anxiety but no detectable cognitive impairment, and reevaluated them again 17 years later. Among those with trait anxiety symptom scores at the 30th percentile and above, there was an elevated risk for developing "cognitive impairment not dementia" (CIND) as well as dementia, with risk increasing as anxiety score increased. The authors posited that anxiety may be a risk factor for cognitive impairment and dementia, and while the reverse relationship cannot be ruled out, it is less likely as participants with evidence of cognitive decline at baseline were excluded.

One particular difficulty related to diagnosis in individuals with cognitive decline/dementia is how and from whom to obtain information necessary to assess symptoms. Given the difficulty that patients with dementia may have with relaying information about themselves, many researchers have chosen to rely on caregiver report. Caregivers may be better able to observe and properly report behavioral manifestations of anxiety than the patients themselves; however, it is unlikely that they are well suited to report internal symptoms, such as worry, rumination, and concentration difficulties.[132] Future research may benefit from examining whether the combination of caregiver and patient reports yields more accurate assessment of anxiety in the elderly with anxiety and cognitive decline, as well as ways of integrating divergent findings from the caregiver and patient.

In sum, there appears to be comorbidity between anxiety and cognitive decline and dementia in the elderly. There is some evidence to suggest that anxiety is predictive of the development of such decline/dementia, although anxiety may additionally develop in response to cognitive decline. Issues of assessment and differential diagnosis warrant further investigation.

FUNCTIONAL IMPAIRMENT

Life impairments in late-life should be evaluated against the background of functional change related to chronic disease, mobility limitation, and changes in role functioning, such as retirement. Numerous studies have shown that elderly individuals with anxiety show decreased quality of life as compared to age-matched individuals without anxiety. Anxiety was found to be associated with increased disability and diminished well-being among a sample of 55–85 year olds in The Netherlands.[148] In addition, one study examined the relations among anxiety, depression, and physical disability (M age of sample = 56.76, SD = 18.80) and found that after controlling all other variables (health and demographic variables, comorbid anxiety and depression, and depression alone), anxiety was associated with greater disability.[149] Furthermore, an age by anxiety status interaction indicated that older adults with anxiety experienced higher levels of disability than younger adults with anxiety. Wetherell et al.[64] found that treatment-seeking older adults (65 and older) with GAD exhibited worse health-related quality of life (i.e., worse role functioning due to physical problem, bodily pain, general health, vitality, social functioning, and role functioning due to emotional problem) compared to nonsymptomatic older adults, regardless of the presence or absence of comorbid psychiatric disorders. Similarly, Porensky et al.[150] found that older adults with GAD were more disabled and had a lower quality of life than non-anxious comparison participants. In addition, van Zelst et al.[151] found that older adults (55–85, taken from the LASA epidemiological study) with PTSD and subthreshold PTSD spent more days in bed and had more disability days than those with no PTSD, even after controlling for other diseases and functional limitations. Although the majority of studies find a significant relation between the presence of an anxiety disorder and low quality of life as compared to non-anxious counterparts in older age groups, not all studies find this pattern. For example, one large-scale epidemiological study of a nationally representative US sample of adults 55 and older found that social anxiety disorder was not related to quality of life after controlling for other psychiatric comorbidities.[93] However, the majority of available studies suggest that, as with younger adults, anxiety is associated with poorer quality of life. Unfortunately, we were unable to locate studies that directly compared quality of life as a function of anxiety disorders in late life versus younger adult groups.

TREATMENT EFFICACY

A study assessing mental health utilization among 55–85 year olds in The Netherlands found a strikingly low percentage of participants with anxiety disorders who sought help from a psychiatrist (2.6%), social worker (2.5%), or community mental health agency (3.8%).[148] Furthermore, 25.3% of those older adults with anxiety disorders reported being prescribed benzodiazepines, whereas 3.8% reported being prescribed antidepressants. Indeed, benzodiazepines are the most common form of medication used to treat the elderly for anxiety disorders, despite the serious adverse effects they may cause, including increased risk of hip fracture[152] and impaired cognitive and psychomotor functioning.[153,154] Unfortunately, few randomized clinical trials (RCTs) have been conducted for both pharmacological and psychosocial treatments for anxiety disorders in the elderly population relative to the younger adult population. Despite this, there are a sufficient number of existing studies to draw preliminary conclusions about the efficacy of particular treatment approaches. Table 2 shows basic information about the available efficacy studies reviewed. Studies that did not assess for the presence of a DSM or ICD diagnosis are not listed.

Pharmacological treatment approaches. Preliminary evidence suggests that antidepressants are effective in the treatment of GAD and PD in older

TABLE 2. Randomized clinical trials of pharmacotherapy and psychosocial therapy for late-life anxiety disorders

Author	Sample size	Mean age	Disorder(s)	Conditions	Tx length (sessions)	Overall findings
Barrowclough et al.[168] (2001)	55	72	PD (51%); social phobia (2%); GAD (19%); Anx D/O NOS (28%)	CBT vs. ST	8–2	CBT > ST
Gorenstein et al.[169] (2005)	42	68	GAD (55%); GAD+ PD (9%); PD (17%); Anx D/O NOS (19%)	CBT+MM vs. MM	13	CBT-MM > MM in phobic anxiety and OC; CBT+MM = MM for worry, state, and trait anxiety
Mohlman et al.[160] (2003)	27	66	GAD	CBT vs. WLC	13	CBT = WLC at post; CBT > WLC at 6-mo FU on GAD severity
Mohlman et al.[160] (2003)	15	67	GAD	Enhanced CBT w/memory aids vs. WLC	13	CBT > WLC on anxiety, worry, and GAD severity
Mohlman and Gorman[162]	32	69	GAD (divided into intact, improved, and impaired EF)	CBT vs. WLC	13	CBT > WLC for worry in improved and intact EF groups; improved EF in CBT > impaired EF in CBT and WLC on trait anxiety
Stanley et al.[170] (1996)	48	68	GAD	CBT vs. ST	14	CBT = ST (both showed improvement), on worry, anxiety, and depression
Stanley et al.[171] (2003)	85	66	GAD	CBT vs. MCC	15	CBT > MCC on worry, anxiety, and QOL
Stanley et al.[171] (2003)	12	71	GAD	CBT vs. usual care	8	CBT > usual care on GAD severity, worry, and depression
Wetherell et al.[172] (2003)	75	67	GAD	CBT vs. discussion group vs. WLC	12	CBT > WLC on GAD severity, worry, depression, QOL; CBT = discussion group on most measures
Schuurmans et al.[155] (2006)	84 (52 completers)	70	GAD (34.5%); PD (45.2%); AWOP (9.5%); social phobia (10.7%)	CBT vs. sertraline vs. WLC	15 (CBT); max dose 150ëmg SSRI	Sertraline > CBT > WLC
Lenze et al.[82]	34	70.7 (tx); 68.1 (placebo)	GAD	Citalopram vs. placebo	8 weeks	Citalopram > placebo
Katz et al.[156] (five pooled studies)	1655 young (<60); 184 old (60)	39.45 (young); 65.75 (old)	GAD	Venlafaxine ER vs. placebo	8 weeks	Venlafaxine ER > placebo for both groups; no difference in age groups

CBT, cognitive behavioral therapy; CT, cognitive therapy; ST, supportive therapy; Tx, treatment; MCC, minimal contact control; WLC, waitlist control; PD, panic disorder; GAD, generalized anxiety disorder; Anx D/O NOS, Anxiety Disorder Not Otherwise Specified; AWOP, agoraphobia without panic disorder; EF, executive functioning; FU, follow-up; QOL, quality of life; SSRI, selective serotonin reuptake inhibitor.

populations. Citalopram,[82] sertraline,[155] and venlafaxine ER[156] have all demonstrated efficacy for reducing anxiety among elderly patients. Schuurmans et al.[155] compared sertraline to CBT and waitlist controls for patients with GAD, PD, AG, and SOP. Despite high attrition rates, both treatments led to improved anxiety and worry symptoms, but sertraline had a greater effect posttreatment and at 3-month follow up than CBT. A study pooling the results from five placebo-controlled trials, comparing the efficacy of venlafaxine ER for GAD in younger and older adults (age 60 and older), found that the percentage of participants who responded to treatment was similar for older (66%) and younger adults (67%).[147] Furthermore, there were no significant differences between older and younger adults on attrition. These promising studies suggest that antidepressants are likely to be equally efficacious and tolerable for older adults as compared to younger adults. However, additional research is needed directly comparing effect sizes of older and younger adults. Many RCTs limit their inclusion to 18–65 year olds or have small samples of older adults making quantitative comparisons difficult.

Psychosocial treatment approaches. Ayers et al.[157] reviewed 17 studies of evidence-based treatment and found that relaxation training, CBT, supportive therapy, and cognitive therapy all demonstrated efficacy, with CBT for late-life GAD showing the most empirical support. This review concluded that whereas psychosocial interventions are moderately effective within elderly populations, they are far less effective than they are for younger populations and have significant room for improvement. However, the review included studies that did not assess for the presence of a DSM diagnosis and did not use statistical procedures to quantitatively compare studies.

A recent meta-analysis[158] included nine studies of CBT for late-life anxiety (mostly GAD). They found moderate and statistically significant effect sizes favoring CBT over waitlist control groups ($SMD = -.44$) and other active treatments ($SMD = -.51$).[1] Although CBT demonstrates superiority over control groups and alternative active treatments among the elderly, the effect sizes are smaller than what has been observed in published meta-analyses of CBT and other ESTs for anxiety disorders among the general adult population [e.g., GAD ($d = .90$, any EST)].[159] Thus, as discussed by Ayers et al.[157] it may be advantageous to develop CBT protocols that are designed specifically to address the specific issues and/or limitations that may be present among the elderly.

For example, CBT for late-life anxiety may be more effective when modified to fit the needs of older age groups, such as by including between-session reminder telephone calls, weekly review of the concepts, and at-home assignments.[160] This may be due to the increased rates of impaired cognitive functioning and memory decline within this population that may make it difficult for patients to remember many of the skills taught and homework assigned in weekly sessions of CBT. It may also be necessary to simplify the treatment rationale and therapeutic interventions to accommodate the limited cognitive resources in many individuals within this population.[161] Indeed, a pilot study of 32 older adults suggested that older adults with GAD and impairments in executive functioning did not respond as well to CBT for their GAD symptoms as those without executive functioning impairments.[162] More research is needed to address whether unique treatments may be warranted for older adults presented with anxiety disorders and cognitive impairment. Finally, further research is needed on the efficacy of psychosocial interventions for SOP, SP, PD, and PTSD for the elderly population.

SUMMARY AND FUTURE DIRECTIONS FOR RESEARCH

Epidemiological studies of the prevalence of anxiety disorders consistently indicate that whereas they are relatively common, they are less common among older adults (55 years and above) than younger adults. The majority of studies found that SPs and GAD are the most prevalent anxiety disorders among older adults. However, estimates are highly variable due to differences in the diagnostic criteria used, the instrument used to ascertain diagnoses, and the various barriers to detection of anxiety in the elderly that compromise the reliability and validity of existing diagnostic criteria sets. Much more research is needed on means for adequately assessing anxiety in the elderly. There is also a need to validate commonly used measures of anxiety for older adult populations.[163] Overall, research suggests that age of onset for anxiety disorders typically occurs in childhood through early adulthood, and late age onset is rare.

Self-report, behavioral, and physiological studies of emotional expression indicate a bias away from negative affect in the elderly. In terms of expression of anxiety disorders, the content of worry appears to be commensurate with developmental life stages. That is, common worries for older adults include health concerns, whereas younger populations worry more about work, family, and finances. In most cases, symptom presentation between older and younger adults appears to be similar, with some exceptions for OCD. However, direct evaluation of the reliability, validity, and utility of the anxiety disorder diagnostic symptom criteria (or anxiety symptoms, more generally) are lacking in older versus

[1]Although it appears counterintuitive that a larger ES would be observed for the CBT versus active treatment vs. waitlist control, the authors note that one study in the CBT versus active treatment comparison had very large effects for CBT and small effects for the alternative active treatment, presumably because the alternative treatment was minimal therapist contact (Stanley et al., 2003).

younger adult groups. What may appear to represent similarities in anxiety symptoms between older and younger adult groups is inherently limited by the reliance on the same criteria sets.

As with younger adults, older adults with anxiety disorders tend to have high rates of depression. Anxiety also is highly comorbid with medical illness in older populations. These comorbidities can make differential diagnosis difficult as the symptoms overlap heavily and may also lead to underdiagnosis of anxiety disorders in older adults, if symptoms are interpreted as physical or medical symptoms only. In addition, older adults may present to their primary care physicians with somatic complaints that could be symptoms of anxiety.

Cognitive decline poses a special issue in the diagnosis, course, and treatment of anxiety disorders. Aside from difficulties diagnosing anxiety in individuals with cognitive decline, the directionality of the relation between anxiety and cognitive decline is currently unclear. Rates of cognitive decline, particularly memory loss, have been found to be higher in individuals with anxiety disorders, which raises the question of whether the symptoms and direct physiological deficits associated with cognitive decline are causing individuals to feel more anxious, or if years of anxiety may be contributing to neurological degeneration and cognitive deficits.

Although a limited number of studies explore risk factors for anxiety disorders in late age, existing literature has identified a number of variables that have been associated with increased risk of anxiety disorders in older age. In particular, female sex, nonmarried status, and having a medical condition are consistently associated with increased risk for having an anxiety disorder. More longitudinal research is needed, as the majority of studies assessing for risk factors use cross-sectional data. Across the majority of studies, anxiety disorders in late age are associated with significant impairment, including greater disability and lower quality of life.

Treatment utilization (particularly mental health treatment) among the elderly tends to be lower than among younger populations. Preliminary evidence has found antidepressants to be efficacious for late-life anxiety. CBT has also demonstrated efficacy, particularly for GAD, but less so than for younger populations. Researchers are evaluating how accommodating obstacles specific to elderly populations, such as cognitive, sensory, and physical deficits, may enhance treatment efficacy.

RECOMMENDATIONS FOR DSM

The current available literature is insufficient to warrant including either age-related manifestations alongside diagnostic criteria or age-related subtypes for late-life anxiety disorders. Extant data are most in line with extending the text section to provide more information regarding age-specific features of anxiety disorders in late life. However, these recommendations come with the caveat that available research has been limited to assessing anxiety in the elderly using the same criteria sets for assessing anxiety in younger adult groups, and thereby run the risk of missing those elderly individuals whose anxiety may not conform to diagnostic criteria developed for younger age groups. Furthermore, few studies compare features of anxiety symptom presentation as a function of advancing age. Future research may yield differences that could warrant additions of age-related manifestations or subtypes.

Despite these limitations, text revisions would provide guidance for clinicians in recognizing anxiety in the elderly and assessing for the core features of anxiety disorders, perhaps with the aid of different terminology or briefer questions for the same symptom expression. The following are recommendations for additions to the age-specific features section of the text (outlined in Table 3):

(1) Provide a discussion of differential diagnosis between anxiety disorders and medical comorbidity, including information about medical conditions that produce symptoms similar to anxiety (e.g., muscle tension, fatigue, shaking, and increased heart rate) and/or co-occur with anxiety disorders. Diagnosticians should be cautioned that a medical assessment may be needed for differential diagnosis; or at the least, gathering a medical and medication history as well as information about the dates of onset for the anxiety symptoms relative to the date that a medical diagnosis was made. The text may indicate that late or sudden onsets of anxiety disorder symptoms in late life are more likely to be attributed to a current medical illness. In contrast, symptoms of anxiety that began before the onset of a medical illness and/or present with psychiatric comorbidity may be more likely to be an anxiety disorder that is not attributable to a medical condition. Furthermore, some medications may induce the subjective experience of anxiety and/or physiological symptoms associated with fear and anxiety. In sum, a thorough assessment for older adults includes (a)

TABLE 3. Recommendations for the text of the anxiety disorders section: age-specific issues

1. Address complexities of differential diagnosis between anxiety disorders and medical comorbidity
2. Include text addressing differential diagnosis of anxiety disorders and dementia
3. Provide suggestions for more concise diagnostic assessment questions
4. Provide suggestions for alternative terminology to use to ensure older adults understand what is being asked about symptoms
5. Highlight the importance of considering subclinical anxiety, anxiety symptoms causing distress/impairment that do not conform to a DSM diagnosis, and comorbid disorders, particularly MDD
6. Clarify that distressing/impairing anxiety is not a normal aging process

medical, medication, and psychiatric history; (b) physical examination; and (c) possible laboratory examination.[65] In addition, clinicians should be advised that the presence of a medical condition that may be the cause of anxiety does not rule out the possibility that some anxiety symptoms may be unrelated to the medical condition, and that the presence of these symptoms ought to be assessed and monitored. Thus, it may be appropriate to diagnose an anxiety disorder despite the presence of a medical condition that may produce anxiety symptoms, particularly when this additional anxiety leads to significant distress and/or life interference. To further the goal of improvements to the text, experts in the diagnosis of anxiety in elderly samples should be polled to provide guidance on differential diagnosis among anxiety and medical conditions, the utility of which can then be tested in field trials. In addition, experts in pharmacology may be polled for information about medications that may induce anxiety symptoms.

(2) Addresses differential diagnosis of anxiety disorders versus dementia and other forms of cognitive decline. Clinicians working with older adults who may be experiencing cognitive decline should also be encouraged to seek corroborating information from caregivers as well as to conduct behavioral observations.[71,164] Information about distinguishing agitation from anxiety may also be useful for clinicians. Experts in dementia should be consulted to develop behaviorally specific descriptions that could clarify these distinctions in older adults.

(3) Provide suggestions for shorter assessment questions to ask older adults. Data have shown that, compared to younger adults, older adults are less likely to endorse long, complicated interview questions even when they would otherwise endorse a similar, simpler question. Thus, one assessment-related recommendation to be added to the text is use of short, straightforward questions to assess for the presence of anxiety disorders among older adults. Again, the nature of these questions can be established with the input of experts in the field of assessment of elderly anxiety.

(4) Discuss differences in terminology that may be more relatable to older adults. Users of the DSM-V should be made aware that older adults may relate to different terminology for anxiety symptoms than what is typically presented. For example, some have suggested that the term "excessive or uncontrollable worry" in the case of GAD is less likely to be endorsed by older age samples, which are more likely to use other terms, such as "concern." In addition, older adults may be more likely to describe somatic aspects of their anxiety. Because this issue has not been empirically demonstrated, terminology that could be added to this section for clinician guidance should be drawn from experts in the diagnosis of anxiety in elderly samples.

(5) Appropriately address the "mixed anxiety–depression" categorization. Despite the consistent discussion in several reviews about the high prevalence of mixed anxiety–depression and the presence of anxiety symptoms causing interference that do not meet full criteria for a diagnosis, there is little research to support these clinical observations. These are both important areas for future research. One recommendation to clinicians is to assess for distress and/or life interference with regard to anxiety symptoms, even if older adults do not meet diagnostic criteria for an anxiety disorder. Until further research is conducted, these cases may be best categorized as anxiety disorder NOS. Another recommendation is to assess for comorbidity between anxiety disorders and depressive disorders (particularly GAD and MDD), and suggest that assessing anxious older adults for depression and depressed older adults for anxiety may be important in case conceptualization.

(6) Inform clinicians that excessive anxiety that causes distress and/or interference is not a normal aging process. Guidance may be provided for ways to overcome natural tendencies to attribute anxiety symptoms to normal aging or other comorbidities common to aging, and relatedly, how to assess for the excessive nature of fear and anxiety. Clinicians, who commonly work with older adults as well as geriatricians, should be queried in order to develop this information.

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