

the ADHD

REPORT

Russell A. Barkley & Associates

• Volume 27

• Number 4

• ISSN 1065-8025

• June 2019

Assessment and Treatment of ADHD in People Over 60

J. J. Sandra Kooij, M.D., Ph.D., Denise Bijlenga, Ph.D., and Marieke Michielsen, Ph.D.

ADHD IN OLDER ADULTS

The worldwide prevalence of ADHD is estimated at 5.0% among children and 4.4% among adults (Polanczyk, De Lima, Horta, Biederman, & Rohde, 2007). Population-based studies showed that ADHD is prevalent in around 3% among those aged 60 and above (Das, Cherbuin, Easteal, & Anstey, 2014; Guldborg-Kjar, Sehlin, & Johansson, 2013; J. J. Kooij, Michielsen, Kruithof, & Bijlenga, 2016; Michielsen et al., 2012; Surman & Goodman, 2017). According to *DSM-5* criteria, ADHD is a neurodevelopmental disorder that has an onset before the age of 12. Besides the core ADHD symptoms of problems with attention, impulsivity, and hyperactivity, it has been shown that emotional dysregulation and mind-wandering are associated with ADHD (Mowlem et al., 2016; Skirrow & Asherson, 2013). In this article, we summarize the recent literature on ADHD in adults aged 60 years and over (J. J. Kooij et al., 2016).

Prevalence

Three studies have investigated the prevalence of ADHD at older age, showing that ADHD can be identified in around 3% of the general Dutch and Swedish population above 60 years of age (Guldborg-Kjar et al., 2013; J. J. Kooij et al., 2005; Michielsen et al., 2012; Semeijn, Michielsen et al., 2013). The results from the most extensive study using a two-phase design of screening and diagnostic assessment, the Longitudinal Aging Study Amsterdam (LASA), showed that younger elderly adults (60–70 years) reported more ADHD symptoms than the oldest group (71–94 years) (Michielsen et al., 2012). This may be an indication of earlier death in those with ADHD, but more research is needed on this subject. However, similar findings were

found in the Australian PATH Through Life Project, which used a screening list (Das et al., 2014).

Clinical Picture

Literature is scarce on the manifestation and accompanied problems of ADHD in older age. This particular group may have experienced a life-long struggle due to their ADHD symptoms, because they may never have had recognition of or support for their problems earlier in life. In the Dutch LASA study, ADHD diagnosis and ADHD symptoms were associated with clinically relevant levels of anxiety and depressive symptoms (Michielsen et al., 2013); and also in the Australian PATH Through Life Project, increased comorbid depressive symptoms were found (Das et al., 2014). In addition, the

Contents

- **Assessment and Treatment of ADHD in People Over 60, 1**
- **Expert Recommendations for Improving Driving Safety for Teens and Adult Drivers with ADHD, 8**

NOTICE TO NON-PROFESSIONALS The information contained in this newsletter is not intended as a substitute for consultation with health care professionals.

Russell A. Barkley, Ph.D.
Virginia Treatment Center for Children
Virginia Commonwealth University
School of Medicine
Send correspondence to
drbarkley@russellbarkley.org

Dr. Russell Barkley discloses that his work includes serving as a paid Speaker/Consultant for pharmaceutical companies in his area of expertise.

ADVISORY BOARD

Kevin Antshel, Ph.D., Syracuse University • **José J. Bauermeister, Ph.D.**, University of Puerto Rico, San Juan • **Stephen P. Becker, Ph.D.**, Cincinnati Children's Hospital Medical Center • **Will Canu, Ph.D.**, Appalachian State University • **Anil Chacko, Ph.D.**, New York University • **Andrea M. Chronis, Ph.D.**, University of Maryland, College Park • **George J. DuPaul, Ph.D.**, Lehigh University, PA • **Gregory Fabiano, Ph.D.**, University of Buffalo • **Jeff Epstein, Ph.D.**, Cincinnati Children's Hospital Medical Center • **Sam Goldstein, Ph.D.**, University of Utah, Salt Lake City • **Cynthia M. Hartung, Ph.D.**, University of Wyoming • **Stephen Hinshaw, Ph.D.**, UC Berkeley • **Betsy Hoza, Ph.D.**, University of Vermont • **Charlotte Johnston, Ph.D.**, University of British Columbia, Vancouver • **Laura E. Knouse, Ph.D.**, University of Richmond, VA • **Scott Kollins, Ph.D.**, Duke University Medical Center, Durham, NC • **Sandra Kooij, M.D.**, Expertise Center Adult ADHD, The Netherlands • **Joshua Langberg, Ph.D.**, Virginia Commonwealth University • **Florence Levy, M.D.**, The Prince of Wales Children's Hospital, Australia • **Larry Lewandowski, Ph.D.**, Syracuse University, NY • **Sandra Loo, Ph.D.**, Neuropsychiatric Institute, UCLA • **Keith McBurnett, Ph.D.**, University of California, San Francisco • **Richard Milich, Ph.D.**, University of Kentucky, Lexington • **Brooke Molina, Ph.D.**, University of Pittsburgh • **Kevin Murphy, Ph.D.**, Adult ADHD Clinic of Central Massachusetts • **Joel Nigg, Ph.D.**, Oregon Health Sciences University, Portland, OR • **Linda Pfiffner, Ph.D.**, University of Chicago • **J. Russell Ramsay, Ph.D.**, University of Pennsylvania Perelman School of Medicine • **Mark Rapport, Ph.D.**, University of Central Florida • **Luis Rohde, M.D.**, Federal University of Rio Grande do Sul • **Julie Schweitzer, Ph.D.**, UC-Davis MIND Institute, Sacramento, CA • **Mary V. Solanto, Ph.D.**, Hofstra Northwell School of Medicine • **Dan Waschbusch, Ph.D.**, Penn State University Medical Center • **Jeanette Wasserstein, Ph.D.**, The Mount Sinai School of Medicine • **Lisa Weyandt, Ph.D.**, University of Rhode Island • **Alan Zametkin, M.D.**, Private Practice

THE ADHD REPORT (ISSN 1065-8025) is published bimonthly by The Guilford Press, 370 Seventh Avenue, Suite 1200, New York, NY 10001-1020. Guilford's GST registration number: 137401014.

Subscription price: (eight issues) Individuals \$105.00, Institutions, \$497.00. Add \$15.00 for Canada and Foreign (includes airmail postage). Orders by MasterCard, VISA, or American Express can be placed by Phone at 800-365-7006, Fax 212-966-6708, or E-mail news@guilford.com; in New York, 212-431-9800. Payment must be made in U.S. dollars through a U.S. bank. All prices quoted in U.S. dollars. Pro forma invoices issued upon request. Visit our website at www.guilford.com.

CHANGE OF ADDRESS: Please inform publisher at least six weeks prior to move. Enclose mailing label with change of address. Claims for lost issues cannot be honored four months after mailing date. Duplicate copies cannot be sent to replace issues not delivered because of failure to notify publisher of change of address. Postmaster: Change of address to The ADHD Report, Guilford Press, 370 Seventh Avenue, Suite 1200, New York, NY 10001-1020.

Photocopying of this newsletter is not permitted.
Inquire for bulk rates.

Copyright © 2019 by The Guilford Press.
Printed in the United States of America.

LASA study showed that older adults with ADHD have lower self-esteem, lower self-efficacy, lower sense of mastery, and higher levels of neuroticism and social inadequacy than older adults without ADHD (Michielsen et al., 2014).

Older adults with ADHD compared with their age-matched peers without ADHD report a worse quality of life that was associated with unemployment and severity of ADHD symptoms (Lensing, Zeiner, Sandvik, & Opjordsmoen, 2015). In a study among 24 older adults with ADHD, averaging 66 years of age, lower income was reported due to impulsive spending, lower educational attainment, poorer work performance, and greater social isolation (Brod, Schmitt, Goodwin, Hodgkins, & Niebler, 2012). In another study, the majority of the nine women who were diagnosed with ADHD after their 60th year experienced peer rejection in their past, as well as at present (Henry & Hill Jones, 2011). Some of these women have felt different from others since childhood.

In the Dutch LASA study, 17 older adults aged 67–86 years were examined on how ADHD symptoms may have affected their lives (Michielsen, de Kruif, et al., 2015). About half reported having low self-esteem, overstepping boundaries, and feeling different from others throughout their lives. In another study, subjects reported negative impacts of ADHD-associated behavior over their life span. The impairments remained stable over time in the areas of family life, social relationships, dealing with money, and organization of daily life. These results reflect the burden of ADHD, not only in young and middle adulthood, but also in seniority (Philipp-Wiegmann, Retz-Junginger, Retz, & Rosler, 2016).

In addition, since ADHD is associated with relationship problems, social isolation and loneliness in old age may be more apparent in this group (Michielsen, Comijs et al., 2015). Older adults with ADHD are more often divorced and indeed report more loneliness than their peers without ADHD, similar to younger adults (Guldberg-Kjar & Jo-

hansson, 2009; Michielsen, Comijs et al., 2015).

A review of the validity of the DSM criteria for ADHD for older people reported evidence that various ADHD criteria identify subjects with clinical presentations similar to that seen in younger adults. ADHD traits may be less common in the general population of older adults than in younger adults, suggesting that the threshold for ADHD traits may be lower in older populations (Surman & Goodman, 2017).

Clinical Case Vignette. Mrs. Weisman* was diagnosed with ADHD at age 52. She recognized symptoms of inattention, impulsivity, and hyperactivity in herself from childhood until the present time, but had never considered that these characteristics might be part of ADHD. Thanks to her intelligence and the support of her husband, she was able to compensate for the symptoms for a long time. Mrs. Weisman chronically suffered from emotional instability that increased in the premenstrual period and after childbirth. She has been treated for depression twice in her life. At age 48, she started having menopausal symptoms, and from that time on, she had difficulty coping with her increasing mood swings and cognitive impairment. She thought she was developing dementia, as she had difficulty remembering daily tasks and appointments. She started having relationship difficulties in her stable marriage of 23 years, and was fired from her job. After the diagnosis of ADHD, she was treated with psychoeducation, methylphenidate, and cognitive behavioral therapy (CBT). For her menopausal mood problems, she was prescribed hormone replacement therapy by her primary care physician (GP). These interventions helped both her cognitive and her mood problems.

Cognitive and Physical Health

Few studies have been performed on ADHD in older adults and their cognitive functioning. In the LASA study, performance on different tasks in the areas of executive functioning, information processing speed, memory, and at-

*Names and details have been disguised to protect patient privacy.

tention/working memory was lower in those with ADHD, but this was mainly due to depressive symptoms (Semeijn et al., 2015). There were similar findings in the Australian PATH study, which showed that in older adults with ADHD (68–74 years), depression is a stronger predictor of poorer cognitive performance than in younger adults (48–52 years) with ADHD (Das et al., 2014). Another study on neuropsychological functioning of older adults with ADHD (60–75 years of age) showed that 80% had a deficit in any neuropsychological domain, but the majority performed within the average range on each test (Thorell et al., 2017).

Few studies have focused on the relationship between ADHD and cognitive impairment or dementia later in life. In both Lewy body dementia (LBD) and ADHD, a hypodopaminergic and noradrenergic substrate appears to play a central role in the development of the disorder (Dougherty et al., 1999; Durston et al., 2003; Golimstok et al., 2011). One study showed a relationship between LBD and a retrospective diagnosis of childhood ADHD (Golimstok et al., 2011). In contrast, a review found no association between a retrospective diagnosis of childhood ADHD and mild cognitive impairment (MCI) or Alzheimer's disease (Ivanchak, Fletcher, & Jicha, 2012). Another review suggests that ADHD is not directly related to MCI, but that the disorders are more likely to be related because of common factors such as an adverse lifestyle (Callahan, Bierstone, Stuss, & Black, 2017). A recent retrospective cohort study found that patients with ADHD had a more than doubled risk of developing early-onset Parkinson's and Parkinson's disease-related disorders, compared to matched controls (Curtin et al., 2018). The risk was even six- to eight-fold higher in ADHD patients that were prescribed stimulant medications. The authors commented that this increased risk for Parkinson's disease may reflect a more severe phenotype of ADHD, rather than an effect of the stimulant medication, but that more research is needed to disentangle these effects.

Not only in research, but also in clinical practice there is yet little focus on ADHD in older adults. A U.S. survey

shows that ADHD later in life is often not identified by memory clinics (Fischer, Gunter-Hunt, Steinhafel, & Howell, 2012). Only one-fifth of the investigated memory clinics reported they regularly screened for ADHD, although about 60% reported seeing older ADHD patients.

The physical functioning of older adults with ADHD was also assessed in the LASA study. Here, ADHD was associated with chronic non-specific lung diseases, cardiovascular diseases, and poorer self-perceived health (Semeijn, Kooij et al., 2013). However, there were no associations between either symptoms of ADHD and smoking or drinking alcohol, or with obesity or diabetes. These associations may have been absent in this age group due to their earlier deaths, a hypothesis that is backed because in the oldest group (71–94 years), the prevalence of ADHD was lower than in the younger group (60–70 years) (Michielsen et al., 2012).

Assessment of ADHD in Older Adults

The *DSM-5* requirements for an ADHD diagnosis are:

- An onset of ADHD symptoms before the age of 12
- At least several symptoms of inattention and/or hyperactive/impulsive behavior in childhood, and at least 5/9 of either or both domains in adulthood
- At least moderate severity of symptoms
- Lifetime persistence
- Lifetime impairment in two or more areas of functioning [American Psychiatric Association (APA), 2013]

The early onset and chronicity of ADHD over the lifespan may be helpful to differentiate ADHD from other psychiatric disorders with a different course, such as a later onset or an episodic course. The clinician always investigates comorbidities and differential diagnoses. Whenever possible, information is gathered from family members, spouse, and children in order to establish severity and chronicity of symptoms over the lifespan. If available, the teachers' comments in childhood school reports may

give insight into the childhood functioning.

ADHD often runs in families, and it may be helpful to identify these patterns of inattention, and/or hyperactive and impulsive behavior in other members of the family. In our clinic, we found that many of our older patients sought care because they recognized and acknowledged their own ADHD symptoms after their (grand)children were assessed and treated for ADHD.

Screening

While there are several validated screening and diagnostic tools for adult ADHD, so far there is no validated scale or diagnostic interview specific for the assessment in older adults. However, the validity and reliability of the 9-item screening list developed by Barkley and Murphy were tested on older adults in the general Dutch population (Barkley, Murphy, & Fischer, 2007; Semeijn, Michielsen et al., 2013) against a structured interview. While the screener performed with reasonable sensitivity (0.80) and specificity (0.77), the test-retest validity was moderate, with an ICC of 0.56.

Diagnostic Assessment in Older Adults

Diagnostic assessment in older adults can be done using a semi-structured diagnostic interview for ADHD in adults, like the updated version of the validated DIVA 2.0, the DIVA-5, based on the *DSM-5* criteria for ADHD, or the validated Conners' Adult ADHD Diagnostic Interview for DSM-IV (CAADID) in adults, available in English and Spanish, and based on the *DSM-IV* TR criteria for ADHD (APA, 2000; Epstein, Johnson, & Conners, 2001; J. J. Kooij, 2013; Pettersson, Soderstrom, & Nilsson, 2015). The DIVA is available online in 19 languages at www.divacenter.eu, and there is also a DIVA 2.0 app. The DIVA and CAADID must be used by a professional who is licensed to investigate psychiatric disorders.

Following the *DSM-5* criteria, there must be at least two areas of impairment, specified as: work and education, relationship and/or family, social contacts, free time/hobbies, and self-

TABLE 1. Differences and Similarities Between ADHD, Bipolar Disorder, Borderline Personality Disorder, and Neurocognitive Disorders

Symptoms and Course	ADHD	Bipolar	Borderline	Neurocognitive disorders
Mood swings, agitated	+	+	+	+
Frequency of mood swings	4–5 x/day	2–3 days	4–5 x/day	0–15 x/day
Hyperactive	+	+	-	Possible
Impulsive	+	+	+	Possible
Attention problems	+	+	-	Possible
Increased associative	+	+	-	-
Feelings of grandiosity	-	+	-	-
Sexual disinhibition	-	+	-	Possible
Childhood onset	+	+/-	-	-
Chronic/episodic course	Chronic	Episodic	Chronic	Chronic
Memory problems	+	-	-	+

confidence/self-image. As many older adults are retired, the work and education area should be investigated retrospectively.

The clinician has to weigh all information from patient and family and decide whether, and which type of presentation of ADHD should be established.

Comorbidity

Psychiatric as well as somatic complaints and disorders other than ADHD should be investigated in the diagnostic procedure, as ADHD is almost always accompanied by one or more other disorders (Biederman et al., 1993; Fayyad et al., 2017). Patterns of psychiatric comorbidity found in younger adults, such as binge eating, sleep disturbances, substance use disorders, autism, and personality disorders should also be considered in older adults (Biederman et al., 1993; S. J. Kooij et al., 2010). There are also somatic comorbidities associated with ADHD in adults that should be assessed, such as obesity, asthma, sleep disorders, migraines, and autoimmune disorders like Crohn’s disease and colitis ulcerosa, especially in females (Hegvik, Instanes, Haavik, Klungsoyr, & Engeland, 2017; Instanes, Klungsoyr, Halmoy, Fasmer, & Haavik, 2018). It is more important with older adults to pay attention to somatic diseases associated with older age, such as cardiovascular problems, as the pharmacological treatment of ADHD may

have cardiovascular side effects (Liang et al., 2018).

Differential Diagnosis

ADHD must also be differentiated from other psychiatric and somatic disorders (J. J. Kooij, 2013). Older adults with ADHD suffer from more anxiety and depressive symptoms compared to controls (Michielsen et al., 2013). The following psychiatric disorders must be differentiated from ADHD: depressive disorder, bipolar disorder, borderline and antisocial personality disorders, and neurocognitive disorders. In the process of differential diagnosis, it is important to ask about the specific symptoms, the age of onset, and the course of the symptoms over time (chronic or episodic). Similarities and differences between the emotional dysregulation in ADHD, bipolar disorder, borderline personality disorder, and neurocognitive disorders can be found in Table 1. It should be acknowledged that ADHD often also coexists with any of these disorders, which makes the diagnostic assessment more complex in some patients. Therefore, we advise clinicians to gain training in the diagnostic assessment of ADHD.

When assessing and treating ADHD in older people, the clinician needs to pay extra attention to concentration and memory problems due to cognitive decline, dementia, or Parkinson’s disease. Mild or more advanced cognitive decline occurs in about 16% of the

older population and may mimic the symptoms of ADHD due to behavioral changes, changes in attention, executive functioning, and memory (Ivančak et al., 2012). Alzheimer’s disease and vascular dementia are the most common neurocognitive disorders (Apostolova, 2016; Smith, 2016). Less frequent, but with more symptom overlap with ADHD than other dementias, is frontotemporal dementia (Ducharme, Price, Larvie, Dougherty, & Dickerson, 2015). The early onset and lifetime history of ADHD symptoms may help differentiate from the later onset of symptoms of cognitive decline. Collateral information is needed for the assessment of both disorders.

It is not only psychiatric and cognitive comorbidities, but also some somatic illnesses, that may present with symptoms similar to ADHD. These are, among others, endocrine disorders, such as hyperthyroidism, hyperparathyroidism; infectious diseases, such as syphilis; (para)malignant disorders, such as in lung carcinoma or brain tumors; and finally, side effects of medications such as bronchodilators, antipsychotics, and levothyroxine. The best way to differentiate from lifetime ADHD symptoms is, again, the later age of onset of these disorders, or side effects.

Treatment of ADHD in Older Adults

The multimodal treatment of ADHD in older people follows the treatment for adult ADHD in general and consists of psychoeducation, medication for ADHD and comorbid disorders, support groups, and coaching and/or cognitive behavioral therapy (J. J. S. Kooij et al., 2019).

Psychoeducation. The treatment of ADHD always starts with psychoeducation on all facets of ADHD. Patients need this information to gain insight into their lifetime difficulties. A better understanding of the background of all impairments may help improve relationships and daily activities. Significant others may need information too, and they should be invited to share their experiences during the assessment phase, and later on if needed. As a rule of thumb, the most impairing disorder should be treated first, for instance mood, anxiety, and substance use disorders. These disorders need to be sufficiently remitted before starting medication for ADHD (J. J. Kooij, 2013).

Medication for Older Adults with ADHD. While there are no randomized controlled ADHD medication studies available specifically for older adults, the prescription of ADHD medication follows the results of studies among younger adults. According to international guidelines, the stimulants (methylphenidate and dexamphetamine) are the first choice medications for ADHD, and based on a meta-analysis, specifically methylphenidate in children and dexamphetamine in adults with ADHD (Cortese et al., 2018). Stimulants have the highest effect size and relatively limited side effects. Second and third choice medications in adults are atomoxetine and bupropion (Biederman et al., 2006; Biederman, Spencer, & Wilens, 2004; Bolea-Alamanac et al., 2014; CAD-DRA, 2011; Kendall, Taylor, Perez, & Taylor, 2008; Rosler, Fischer, Ammer, Ose, & Retz, 2009; Seixas, Weiss, & Muller, 2012; Spencer et al., 2005).

When prescribing stimulants to older adults with ADHD, clinicians must pay attention to somatic comorbidities, and to interactions and side effects of medication used. As older people generally need lower medication dosages (Chang, O'Hare, Miao, & Steinman, 2015), the

advice is to start low and to increase the dosage based on the clinical evaluation of (side) effects, until the optimal dosage is reached. Stimulants have dose-related cardiovascular side effects (Kendall et al., 2008). They usually increase the heart rate and may increase or decrease blood pressure. In clinical practice, in adults using stimulant medication, mean systolic blood pressure elevates by 1–5 mmHg and pulse by 4–10 bpm. These changes are usually not clinically relevant, but have to be monitored before and during medical treatment. In older adults, who have increased risk of cardiovascular diseases, existing cardiac disorders may be aggravated, and risks may increase with the use of stimulants because of an elevated heart rate and/or blood pressure. Therefore, any cardiovascular diseases need to be identified and treated by the GP or cardiologist before the start of any stimulant treatment. The long-term effects of the cardiovascular changes from stimulant use are yet unknown. So far, no significant increases of the QT interval on ECG in adults using stimulants have been found (Westover & Halm, 2012). In Appendix 1, a checklist of cardiovascular risk factors in adults of 50 years and over can be found.

In case of cardiovascular side effects, adjustment of the dosage and/or the medication should be considered. If there is a clinically valuable decrease of ADHD symptoms with the medication, a low dose beta-blocker may be added to reduce a persistent elevated heart rate.

Methylphenidate and Dexamphetamine

Methylphenidate is a dopaminergic and noradrenergic reuptake inhibitor (Kendall et al., 2008). The clinical effect is a reduction of the core symptoms of ADHD: inattention, impulsivity, hyperactivity, and mood instability. Dexamphetamine is an amphetamine that increases the release of dopamine and noradrenaline that has similar effects on the core symptoms of ADHD. It is advised to try both stimulants in case the first is not effective or well tolerated. Both medications are the first choice for ADHD (Adler et al., 2008; Paterson, Douglas, Hallmayer, Hagan, & Krupenia, 1999; Weiss &

Hechtman, 2006), although based on a recent meta-analysis, amphetamines are preferred above methylphenidate in adults (Cortese et al., 2018).

In older adults with ADHD, no studies have been performed so far to examine the effect and safety of stimulants; there is however more information available on treatment of older patients with methylphenidate in depression and dementia that may be informative (see paragraphs below) (Torgersen, Gjervan, Lensing, & Rasmussen, 2016). Case studies have already shown beneficial effects of stimulants for ADHD in this age group (Biederman, 1998; da Silva & Louza, 2008; Lensing et al., 2015; Manor, Rozen, Zemishlani, Weizman, & Zalsman, 2011; Standaert, Kooij, & Kok, 2010).

Relative contraindications for the use of stimulants are epilepsy, cardiac arrhythmia, glaucoma, hyperthyroidism, hypertension, and anxiety; these disorders need to be treated first before considering stimulant treatment for ADHD. In case of (vulnerability for) psychosis, stimulants are contraindicated, and atomoxetine or bupropion should be considered. Known side effects of the stimulants are dry mouth, decreased appetite, gastrointestinal problems, (increased) anxiety, elevated heart rate, palpitations, hypertension, insomnia, and headache. These side effects should be monitored before and during treatment (Kendall et al., 2008; Kooij et al., 2004).

Methylphenidate in Depression and Dementia. Some case reports described successful treatment using stimulants of therapy-resistant depression in older people, even in patients with medical illnesses (Fisch, 1985; Katon & Raskind, 1980; Kaufmann, Cassem, Murray, & MacDonald, 1984). These reports mentioned rapid improvement of mood, without severe side effects. This is encouraging for treating older people with ADHD with stimulants.

In a randomized controlled trial (RCT), methylphenidate was added to treatment with citalopram in 143 older people with depression (Lavretsky et al., 2015). Improvement of mood was higher and faster in the group using the combination, as compared to each medication alone. A review on patients

with dementia concluded that methylphenidate can be used to treat apathy (Dolder, Davis, & McKinsey, 2010). It is, however, yet unknown if medical treatment of ADHD in patients with cognitive impairment or dementia is beneficial for either or both disorders.

Atomoxetine and Bupropion. Atomoxetine is a selective inhibitor of the presynaptic noradrenaline transporter reuptake (Adler et al., 2009). Atomoxetine is active for about 24 hours and effective for treating ADHD, though effect sizes are lower than in stimulants (Cortese et al., 2018). No controlled studies with atomoxetine in older adults with ADHD have been published.

Bupropion is a noradrenergic and dopaminergic reuptake inhibitor and an atypical antidepressant. In adults with ADHD, bupropion is effective, though with lower effect size than stimulants or atomoxetine (Cortese et al., 2018; Maneeton, Maneeton, Intaprasert, & Woottitluk, 2014; Maneeton, Maneeton, Srisurapanont, & Martin, 2011; Wilens et al., 2005).

One RCT with bupropion for depression in older adults has been performed, showing that this medication is effective in treating depression and safe in this age group (Hewett et al., 2010). Side effects of bupropion are dry mouth, headache, and insomnia. When using high dosages, the risk of epileptic seizures is increased. A history of epilepsy has to be evaluated before starting this medication.

Psychological Treatment. Depending on the needs of older adults with ADHD, psychological treatment for this age

group should be adjusted or developed. In general, support groups serve well for mutual recognition of lifetime symptoms and impairment, and are often very useful to reduce stigma and self blame (J. J. Kooij, 2013). Coaching is an important complement to the medical treatment of ADHD. During coaching, attention is paid to common problems like sleep difficulties, anxiety, organizational skills, low self-esteem, depression, relationship issues, and financial problems due to a lifetime of ADHD, as well as acceptance of the diagnosis at older age. Learning practical skills alone may not be enough, as persistent negative cognitions often hinder treatment progress. In older adults, loneliness and physical health may be more relevant compared to younger adults. Coaching may be offered individually, in a group, or using e-health. Cognitive behavior therapy (CBT) is advised in cases of low self-esteem or negative experiences due to failure or impulsive behavior (J. J. Kooij, 2013). Older adults proved as responsive to a CBT group intervention on inattention as younger adults, although the comparison group also showed improvement on several measures (Solanto, Surman, & Alvir, 2018).

Treatment of Comorbidity. ADHD is usually comorbid with other psychiatric and/or somatic disorders. In case of comorbidity, the order of treatment is established. The most impairing disorder should be treated first, usually anxiety or depressive disorders, severe sleep disruption, mania, addiction, or psychosis (J. J. S. Kooij et al., 2019; S. J. Kooij et al., 2010). From clinical experi-

ence with adults, SSRIs, lithium, valproate, and even antipsychotic medication can be combined with stimulant medication for ADHD, but controlled trials are lacking (J. J. Kooij, 2013).

Organization of Care for a Lifespan Disorder

In order to provide qualitative care for older people with ADHD, mental health care professionals need to be trained to recognize and treat ADHD in older adults. In many countries, patients are treated based on their age in child, adult, or geriatric psychiatry. Patients with lifelong ADHD may therefore have to change mental health care professionals and/or institutions at least three times during their lives, which can be quite cumbersome. In most cases, expertise in treating ADHD will be most advanced in child psychiatry, but much less, or even absent, in adult and geriatric psychiatry. This problem can be solved by better cooperation between child and adult, and between adult and geriatric psychiatry, to facilitate each transition phase (Buitelaar, 2017), or by specialized lifespan ADHD clinics, where patients of all ages can be diagnosed and treated. Such lifespan clinics should have multidisciplinary teams, with professionals specialized in child, adult, and geriatric psychiatry working together. Our experiences at the lifespan ADHD clinic at PsyQ in The Hague in the Netherlands have been that both patients and professionals appreciate this improvement in the organization of mental health care for people with ADHD.

APPENDIX 1. SCREENING OF CARDIOVASCULAR RISK FACTORS IN ADULTS ≥ 50 YEARS OF AGE

Evaluate in patients ≥ age 50:

1. Cardiac complaints in the last 6 months
 - Shortness of breath during exertion
 - Chest pain/pain between shoulder blades
 - Arrhythmia
 - Tiredness
 - Shortness of breath at night
 - Nocturia (> 1x)
 - Peripheral edema
2. Cardiac history
 - High cholesterol/triglycerides
 - Hypertension
 - Diabetes
 - Medications for these disorders
3. Family history regarding cardio- and cerebrovascular diseases, stroke or TIA, heart attack, cardiac death
4. Physical exam: pulse, blood pressure, weight, edema
5. ECG

In case of limited cognitive impairment and/or age ≥ 65, also evaluate:

Laboratory assessment:

- Hematology
- Electrolytes
- Kidney and liver functions
- Vitamins B1, B6, B12, D, folic acid,
- fasting blood glucose, TSH,
- creatinine CRP

Evaluate after start with ADHD medication, after every dose increase, and after stabilization every 6 months:

Heart rate
Blood pressure
Pulse
Weight

Other evaluations when indicated.

This article is a summary and update of a paper previously published by the authors in 2016: *ADHD in old age: A review of the literature and proposal for assessment and treatment. Expert Review of Neurotherapeutics*, 16(12), 1371-1381. Correspondence can be sent to s.kooij@psyq.nl, d.bijlenga@psyq.nl, or m.michielsen@psyq.nl

REFERENCES

- Adler, L., Wilens, T., Zhang, S., Durell, T., Walker, D., Schuh, L., ... Trzepacz, P. (2009). Retrospective safety analysis of atomoxetine in adult ADHD patients with or without comorbid alcohol abuse and dependence. *American Journal of Addictions*, 18(5), 393-401. <https://doi.org/10.3109/10550490903077663>
- Adler, L. A., Goodman, D. W., Kollins, S. H., Weisler, R. H., Krishnan, S., Zhang, Y., ... Study, G. (2008). Double-blind, placebo-controlled study of the efficacy and safety of lisdexamfetamine dimesylate in adults with attention-deficit/hyperactivity disorder. *Clinical Psychiatry*, 69(9), 1364-1373.
- American Psychiatric Association (APA). (2000). *Diagnostic and statistical manual of mental disorders, 4th ed., text rev. (DSM-IV-TR)*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders, 5th ed. (DSM-5)*. Washington, DC: American Psychiatric Association.
- Apostolova, L. G. (2016). Alzheimer disease. *Continuum (Minneapolis)*, 22(2), 419-434. <https://doi.org/10.1212/CON.0000000000000307>
- Barkley, R. A., Murphy, K. R., & Fischer, M. (2007). *ADHD in adults: What the science says*. New York, NY: Guilford.
- Biederman, J. (1998). A 55-year-old man with attention-deficit/hyperactivity disorder. *Journal of the American Medical Association*, 280(12), 1086-1092.
- Biederman, J., Faraone, S. V., Spencer, T., Wilens, T., Norman, D., Lapey, K. A., ... Doyle, A. (1993). Patterns of psychiatric comorbidity, cognition, and psychosocial functioning in adults with attention deficit hyperactivity disorder. *American Journal of Psychiatry*, 150(12), 1792-1798.
- Biederman, J., Mick, E., Surman, C., Doyle, R., Hammerness, P., Harpole, T., ... Spencer, T. (2006). A randomized, placebo-controlled trial of OROS methylphenidate in adults with attention-deficit/hyperactivity disorder. *Biological Psychiatry*, 59(9), 829-835.
- Biederman, J., Spencer, T., & Wilens, T. (2004). Evidence-based pharmacotherapy for attention-deficit hyperactivity disorder. *International Journal of Neuropsychopharmacology*, 7(1), 77-97.
- Bolea-Alamanac, B., Nutt, D. J., Adamou, M., Asherson, P., Bazire, S., Coghill, D., ... British Association for Psychopharmacology. (2014). Evidence-based guidelines for the pharmacological management of attention deficit hyperactivity disorder: Update on recommendations from the British Association for Psychopharmacology. *Psychopharmacology*, 28(3), 179-203. <https://doi.org/10.1177/0269881113519509>
- Brod, M., Schmitt, E., Goodwin, M., Hodgkins, P., & Niebler, G. (2012). ADHD burden of illness in older adults: A life course perspective. *Quality of Life Research*, 21(5), 795-799. <https://doi.org/10.1007/s11136-011-9981-9>
- Buitelaar, J. K. (2017). Optimising treatment strategies for ADHD in adolescence to minimise "lost in transition" to adulthood. *Epidemiology & Psychiatric Science*, 26(5), 448-452. <https://doi.org/10.1017/S2045796017000154>
- Callahan, B. L., Bierstone, D., Stuss, D. T., & Black, S. E. (2017). Adult ADHD: Risk factor for dementia or phenotypic mimic? *Frontiers in Aging Neuroscience*, 9, 260. <https://doi.org/10.3389/fnagi.2017.00260>
- Canadian ADHD Resource Alliance (CADRA). (2011). *Canadian ADHD practice guidelines, 3rd ed.* Toronto, ON: Canadian Attention Deficit Hyperactivity Disorder Resource Alliance.
- Chang, F., O'Hare, A. M., Miao, Y., & Steinman, M. A. (2015). Use of renally inappropriate medications in older veterans: A national study. *Journal of the American Geriatric Society*, 63(11), 2290-2297. <https://doi.org/10.1111/jgs.13790>
- Cortese, S., Adamo, N., Del Giovane, C., Mohr-Jensen, C., Hayes, A. J., Carucci, S., ... Cipriani, A. (2018). Comparative efficacy and tolerability of medications for attention-deficit hyperactivity disorder in children, adolescents, and adults: A systematic review and network meta-analysis. *Lancet Psychiatry*, 5(9), 727-738. [https://doi.org/10.1016/S2215-0366\(18\)30269-4](https://doi.org/10.1016/S2215-0366(18)30269-4)
- Curtin, K., Fleckenstein, A. E., Keeshin, B. R., Yurgelun-Todd, D. A., Renshaw, P. F., Smith, K. R., & Hanson, G. R. (2018). Increased risk of diseases of the basal ganglia and cerebellum in patients with a history of attention-deficit/hyperactivity disorder. *Neuropsychopharmacology*, 43(13), 2548-2555. <https://doi.org/10.1038/s41386-018-0207-5>
- da Silva, M. A., & Louza, M. (2008). Case of a 67-year-old woman diagnosed with ADHD successfully treated with methylphenidate. *Journal of Attention Disorders*, 11(6), 623. <https://doi.org/10.1177/1087054707310879>
- Das, D., Cherbuin, N., Eastal, S., & Anstey, K. J. (2014). Attention deficit/hyperactivity disorder symptoms and cognitive abilities in the late-life cohort of the PATH Through Life Study. *PLoS One*, 9(1). <https://doi.org/10.1371/journal.pone.0086552>
- Dolder, C. R., Davis, L. N., & McKinsey, J. (2010). Use of psychostimulants in patients with dementia. *Annals of Pharmacotherapy*, 44(10), 1624-1632. <https://doi.org/10.1345/aph.1P341>
- Dougherty, D. D., Bonab, A. A., Spencer, T. J., Rauch, S. L., Madras, B. K., & Fischman, A. J. (1999). Dopamine transporter density in patients with attention deficit hyperactivity disorder. *Lancet*, 354(9196), 2132-2133.
- Ducharme, S., Price, B. H., Larvie, M., Dougherty, D. D., & Dickerson, B. C. (2015). Clinical approach to the differential diagnosis between behavioral variant frontotemporal dementia and primary psychiatric disorders. *American Journal of Psychiatry*, 172(9), 827-837. <https://doi.org/10.1176/appi.ajp.2015.14101248>
- Durston, S., Tottenham, N. T., Thomas, K. M., Davidson, M. C., Eigsti, I. M., Yang, Y., ... Casey, B. J. (2003). Differential patterns of striatal activation in young children with and without ADHD. *Biological Psychiatry*, 53(10), 871-878.
- Epstein, J., Johnson, D. E., & Conners, C. K. (2001). *Conners' Adult ADHD Diagnostic Interview for DSM-IV (CAADID)*. North Tonawanda, NY: Multi-Health Systems.
- Fayyad, J., Sampson, N. A., Hwang, I., Adamowski, T., Aguilar-Gaxiola, S., Al-Hamzawi, A., ... WHO World Mental Health Survey Collaborators. (2017). The descriptive epidemiology of DSM-IV Adult ADHD in the World Health Organization World Mental Health Surveys. *Attention Deficit Hyperactivity Disorders*, 9(1), 47-65. <https://doi.org/10.1007/s12402-016-0208-3>
- Fisch, R. Z. (1985). Methylphenidate for medical in-patients. *International Journal of Psychiatry in Medicine*, 15(1), 75-79.
- Fischer, B. L., Gunter-Hunt, G., Steinhafel, C. H., & Howell, T. (2012). The identification and assessment of late-life ADHD in memory clinics. *Journal of Attention Disorders*, 16(4), 333-338. <https://doi.org/10.1177/1087054711398886>
- Golimstok, A., Rojas, J., Romano, M., Zurrú, M., Doctorovich, D., & Cristiano, E. (2011). Previous adult attention-deficit and hyperactivity disorder symptoms and risk of dementia with Lewy bodies: A case-control study. *European Journal of Neurology*, 18(1), 78-84. <https://doi.org/j.1468-1331.2010.03064.x>
- Guldborg-Kjar, T., & Johansson, B. (2009). Old people reporting childhood AD/HD symptoms: Retrospectively self-rated AD/HD symptoms in a population-based

continued on p. 15

- Swedish sample aged 65–80. *Nordic Journal of Psychiatry*, 63(5), 375-382. <https://doi.org/10.1080/08039480902818238>
- Guldberg-Kjar, T., Sehlin, S., & Johansson, B. (2013). ADHD symptoms across the lifespan in a population-based Swedish sample aged 65 to 80. *International Psychogeriatrics*, 25(4), 667-675. <https://doi.org/10.1017/S1041610212002050>
- Hegvik, T. A., Instanes, J. T., Haavik, J., Klungsoyr, K., & Engeland, A. (2017). Associations between attention-deficit/hyperactivity disorder and autoimmune diseases are modified by sex: A population-based cross-sectional study. *European Child & Adolescent Psychiatry*, 5(10), 017-1056.
- Henry, E., & Hill Jones, S. (2011). Experiences of older adult women diagnosed with attention deficit hyperactivity disorder. *Women & Aging*, 23(3), 246-262. <https://doi.org/10.1080/08952841.2011.589285>
- Hewett, K., Chrzanowski, W., Jokinen, R., Felgentreff, R., Shrivastava, R. K., Gee, M. D., ... Modell, J. G. (2010). Double-blind, placebo-controlled evaluation of extended-release bupropion in elderly patients with major depressive disorder. *Psychopharmacology*, 24(4), 521-529. <https://doi.org/10.1177/0269881108100254>
- Instanes, J. T., Klungsoyr, K., Halmoy, A., Fasmer, O. B., & Haavik, J. (2018). Adult ADHD and comorbid somatic disease: A systematic literature Review. *Journal of Attention Disorders*, 22(3), 203-228. <https://doi.org/10.1177/1087054716669589>
- Ivanchak, N., Fletcher, K., & Jicha, G. A. (2012). Attention-deficit/hyperactivity disorder in older adults: Prevalence and possible connections to mild cognitive impairment. *Current Psychiatry Reports*, 14(5), 552-560.
- Katon, W., & Raskind, M. (1980). Treatment of depression in the medically ill elderly with methylphenidate. *American Journal of Psychiatry*, 137(8), 963-965. <https://doi.org/10.1176/ajp.137.8.963>
- Kaufmann, M. W., Cassem, N., Murray, G., & MacDonald, D. (1984). The use of methylphenidate in depressed patients after cardiac surgery. *Clinical Psychiatry*, 45(2), 82-84.
- Kendall, T., Taylor, E., Perez, A., & Taylor, C. (2008). Diagnosis and management of attention-deficit/hyperactivity disorder in children, young people, and adults: Summary of NICE guidance. *BMJ*, 337, a1239. <https://doi.org/10.1136/bmj.a1239>
- Kooij, J. J. (2013). *Adult ADHD: Diagnostic assessment and treatment* (3rd ed.). London, UK: Springer.
- Kooij, J. J., Buitelaar, J. K., van den Oord, E. J., Furer, J. W., Rijnders, C. A., & Hodi-amont, P. P. (2005). Internal and external validity of attention-deficit hyperactivity disorder in a population-based sample of adults. *Psychological Medicine*, 35(6), 817-827. <https://doi.org/10.1017/S003329170400337X>
- Kooij, J. J., Burger, H., Boonstra, A., Van Der Linden, P., Kalma, L., & Buitelaar, J. (2004). Efficacy and safety of methylphenidate in 45 adults with attention-deficit/hyperactivity disorder: A randomized placebo-controlled double-blind cross-over trial. *Psychological Medicine*, 34(6), 973-982. <https://doi.org/10.1017/S0033291703001776>
- Kooij, J. J., Michielsen, M., Kruithof, H., & Bijlenga, D. (2016). ADHD in old age: A review of the literature and proposal for assessment and treatment. *Expert Review of Neurotherapeutics*, 16(12), 1371-1381. <https://doi.org/10.1080/14737175.2016.1204914>
- Kooij, J. J. S., Bijlenga, D., Salerno, L., Jaeschke, R., Bittera, I., Balázs, J., ... Asherson, P. (2019). Updated European consensus statement on diagnosis and treatment of adult ADHD. *European Psychiatry*, 56, 14-34. <https://doi.org/10.1016/j.eurpsy.2018.11.001>
- Kooij, S. J., Bejerot, S., Blackwell, A., Caci, H., Casas-Brugue, M., Carpentier, P. J., ... Asherson, P. (2010). European consensus statement on diagnosis and treatment of adult ADHD: The European Network Adult ADHD. *BMC Psychiatry*, 10, 67. <https://doi.org/10.1186/1471-244x-10-67>
- Lavretsky, H., Reinlieb, M., St Cyr, N., Sid-darth, P., Ercoli, L. M., & Senturk, D. (2015). Citalopram, methylphenidate, or their combination in geriatric depression: A randomized, double-blind, placebo-controlled trial. *American Journal of Psychiatry*, 172(6), 561-569. <https://doi.org/10.1176/appi.ajp.2014.14070889>
- Lensing, M. B., Zeiner, P., Sandvik, L., & Opjordsmoen, S. (2015). Quality of life in adults aged 50+ with ADHD. *Journal of Attention Disorders*, 19(5), 405-413. <https://doi.org/10.1177/1087054713480035>
- Liang, E. F., Lim, S. Z., Tam, W. W., Ho, C. S., Zhang, M. W., McIntyre, R. S., & Ho, R. C. (2018). The effect of methylphenidate and atomoxetine on heart rate and systolic blood pressure in young people and adults with attention-deficit hyperactivity disorder (ADHD): Systematic review, meta-analysis, and meta-regression. *International Journal of Environmental Research & Public Health*, 15(8). <https://doi.org/10.3390/ijerph15081789>
- Maneeton, N., Maneeton, B., Intaprasert, S., & Woottituk, P. (2014). A systematic review of randomized controlled trials of bupropion versus methylphenidate in the treatment of attention-deficit/hyperactivity disorder. *Neuropsychiatric Disease and Treatment*, 10, 1439-1449. <https://doi.org/10.2147/NDT.S62714>
- Maneeton, N., Maneeton, B., Srisurapanont, M., & Martin, S. D. (2011). Bupropion for adults with attention-deficit hyperactivity disorder: Meta-analysis of randomized, placebo-controlled trials. *Psychiatry and Clinical Neurosciences*, 65(7), 611-617.
- Manor, I., Rozen, S., Zemishlani, Z., Weizman, A., & Zalsman, G. (2011). When does it end? Attention-deficit/hyperactivity disorder in the middle aged and older populations. *Clinical Neuropharmacology*, 34(4), 148-154. <https://doi.org/10.1097/WNF.0b013e3182206dc1>
- Michielsen, M., Comijs, H. C., Aartsen, M. J., Semeijn, E. J., Beekman, A. T., Deeg, D. J., & Kooij, J. J. (2015). The relationships between ADHD and social functioning and participation in older adults in a population-based study. *Journal of Attention Disorders*, 19(5), 368-379. <https://doi.org/10.1177/1087054713515748>
- Michielsen, M., Comijs, H. C., Semeijn, E. J., Beekman, A. T., Deeg, D. J., & Kooij, J. J. (2014). Attention deficit hyperactivity disorder and personality characteristics in older adults in the general Dutch population. *American Journal of Geriatric Psychiatry*, 22(12), 1623-1632. <https://doi.org/10.1016/j.jagp.2014.02.005>
- Michielsen, M., Comijs, H. C., Semeijn, E. J., Beekman, A. T., Deeg, D. J., & Sandra Kooij, J. J. (2013). The comorbidity of anxiety and depressive symptoms in older adults with attention-deficit/hyperactivity disorder: A longitudinal study. *Journal of Affective Disorders*, 148(2-3), 220-227. <https://doi.org/10.1016/j.jad.2012.11.063>
- Michielsen, M., de Kruijf, J. T., Comijs, H. C., van Mierlo, S., Semeijn, E. J., Beekman, A. T., ... Kooij, J. J. (2015). The burden of ADHD in older adults: A qualitative study. *Journal of Attention Disorders*. <https://doi.org/10.1177/1087054715610001>

- Michielsen, M., Semeijn, E., Comijs, H. C., van de Ven, P., Beekman, A. T., Deeg, D. J., & Kooij, J. J. (2012). Prevalence of attention-deficit hyperactivity disorder in older adults in The Netherlands. *British Journal of Psychiatry*, 201(4), 298-305. <https://doi.org/10.1192/bjp.bp.111.101196>
- Mowlem, F. D., Skirrow, C., Reid, P., Maltezos, S., Nijjar, S. K., Merwood, A., ... Asherson, P. (2016). Validation of the Mind Excessively Wandering Scale and the relationship of mind wandering to impairment in adult ADHD. *Journal of Attention Disorders*. <https://doi.org/10.1177/1087054716651927>
- Paterson, R., Douglas, C., Hallmayer, J., Hagan, M., & Krupenia, Z. (1999). A randomized, double-blind, placebo-controlled trial of dexamphetamine in adults with attention deficit hyperactivity disorder. *Australian & New Zealand Journal of Psychiatry*, 33(4), 494-502.
- Pettersson, R., Soderstrom, S., & Nilsson, K. W. (2015). Diagnosing ADHD in adults: An examination of the discriminative validity of neuropsychological tests and diagnostic assessment instruments. *Journal of Attention Disorders*. <https://doi.org/10.1177/1087054715618788>
- Philipp-Wiegmann, F., Retz-Junginger, P., Retz, W., & Rosler, M. (2016). The intraindividual impact of ADHD on the transition of adulthood to old age. *European Archives of Psychiatry and Clinical Neuroscience*, 266(4), 367-371. <https://doi.org/10.1007/s00406-015-0644-7>
- Polanczyk, G., De Lima, M. S., Horta, B. L., Biederman, J., & Rohde, L. A. (2007). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry*, 164(6), 942-948.
- Rosler, M., Fischer, R., Ammer, R., Ose, C., & Retz, W. (2009). A randomized, placebo-controlled, 24-week study of low-dose extended-release methylphenidate in adults with attention-deficit/hyperactivity disorder. *European Archives of Psychiatry and Clinical Neuroscience*, 259(2), 120-129. <https://doi.org/10.1007/s00406-008-0845-4>
- Seixas, M., Weiss, M., & Muller, U. (2012). Systematic review of national and international guidelines on attention-deficit hyperactivity disorder. *Psychopharmacology*, 26(6), 753-765. <https://doi.org/10.1177/0269881111412095>
- Semeijn, E. J., Kooij, J. J. S., Comijs, H., Michielsen, M., Deeg, D. J., & Beekman, A. T. (2013). Attention-deficit/hyperactivity disorder, physical health, and lifestyle in older adults. *Journal of the American Geriatric Society*, 61(6), 882-887.
- Semeijn, E. J., Korten, N. C., Comijs, H. C., Michielsen, M., Deeg, D. J., Beekman, A. T., & Kooij, J. J. (2015). No lower cognitive functioning in older adults with attention-deficit/hyperactivity disorder. *International Psychogeriatrics*, 27(9), 1467-1476. <https://doi.org/10.1017/S1041610215000010>
- Semeijn, E. J., Michielsen, M., Comijs, H. C., Deeg, D. J., Beekman, A. T., & Kooij, J. J. (2013). Criterion validity of an attention deficit hyperactivity disorder (ADHD) screening list for screening ADHD in older adults aged 60-94 years. *American Journal of Geriatric Psychiatry*, 21(7), 631-635. <https://doi.org/10.1016/j.jagp.2012.08.003>
- Skirrow, C., & Asherson, P. (2013). Emotional lability, comorbidity and impairment in adults with attention-deficit hyperactivity disorder. *Journal of Affective Disorders*, 147(1-3), 80-86.
- Smith, E. (2016). Vascular cognitive impairment. *Continuum (Minneapolis)*, 22(2), 490-509. <https://doi.org/10.1212/CON.0000000000000304>
- Solanto, M. V., Surman, C. B., & Alvir, J. M. J. (2018). The efficacy of cognitive-behavioral therapy for older adults with ADHD: A randomized controlled trial. *Attention Deficit and Hyperactivity Disorders*, 10(3), 223-235. <https://doi.org/10.1007/s12402-018-0253-1>
- Spencer, T., Biederman, J., Wilens, T., Doyle, R., Surman, C., Prince, J., ... Faraone, S. (2005). A large, double-blind, randomized clinical trial of methylphenidate in the treatment of adults with attention-deficit/hyperactivity disorder. *Biological Psychiatry*, 57(5), 456-463. <https://doi.org/10.1016/j.biopsych.2004.11.043>
- Standaert, W., Kooij, J. J., & Kok, R. M. (2010). The treatment of ADHD in elderly [Dutch]. *Psyfar*, 4, 26-29.
- Surman, C. B. H., & Goodman, D. W. (2017). Is ADHD a valid diagnosis in older adults? *Attention Deficit and Hyperactivity Disorders*, 9(3), 161-168. <https://doi.org/10.1007/s12402-017-0217-x>
- Thorell, L. B., Holst, Y., Chistiansen, H., Kooij, J. J. S., Bijlenga, D., & Sjowall, D. (2017). Neuropsychological deficits in adults age 60 and above with attention deficit hyperactivity disorder. *European Psychiatry: Journal of the Association of European Psychiatrists*, 45, 90-96. <https://doi.org/10.1016/j.eurpsy.2017.06.005>
- Torgersen, T., Gjervan, B., Lensing, M. B., & Rasmussen, K. (2016). Optimal management of ADHD in older adults. *Neuropsychiatric Disease and Treatment*, 12, 79-87. <https://doi.org/10.2147/NDT.S59271>
- Weiss, M., & Hechtman, L. (2006). A randomized double-blind trial of paroxetine and/or dextroamphetamine and problem-focused therapy for attention-deficit/hyperactivity disorder in adults. *Clinical Psychiatry*, 67(4), 611-619.
- Westover, A. N., & Halm, E. A. (2012). Do prescription stimulants increase the risk of adverse cardiovascular events: A systematic review. *BMC Cardiovascular Disorders*, 12, 41.
- Wilens, T. E., Haight, B. R., Horrigan, J. P., Hudziak, J. J., Rosenthal, N. E., Connor, D. F., ... Modell, J. G. (2005). Bupropion XL in adults with attention-deficit/hyperactivity disorder: A randomized, placebo-controlled study. *Biological Psychiatry*, 57(7), 793-801.

Permit #165
Burlington, VT
PAID
US POSTAGE
PRESORT TDS

The ADHD Report
Guilford Publications, Inc.
370 Seventh Avenue
Suite 1200
New York, NY 10001-1020
Address Service Requested