

Quality of Life in Adults Aged 50+ With ADHD

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Abstract

Objective: To study the quality of life in adults aged 50+ with ADHD. **Method:** An anonymous questionnaire survey was performed on 148 adults aged 50+ with ADHD. Quality of life was assessed with EuroQol and the Satisfaction With Life Scale. Age-matched Norwegian and Danish population samples served as reference groups. **Results:** Mean age of participants was 55.7 years, and mean age when diagnosed with ADHD was 50.2 years, while mean Adult ADHD Self-Report Scale Screener score was 15.2. Adults with ADHD reported significantly reduced health-related quality of life and reduced satisfaction with life compared with population norms. Nonemployment and severe ADHD were associated with poor quality of life. **Conclusion:** Adults aged 50+ with ADHD diagnosed in late adulthood reported significantly reduced quality of life when compared with population norms. The negative impact of ADHD persists into late adulthood. (*J. of Att. Dis.* 2015; 19(5) 405-413)

Keywords

ADHD, adults aged 50+, health-related quality of life, Satisfaction With Life Scale, EQ-5D

Introduction

For a majority of subjects with ADHD, the condition is considered to be lifelong with major impacts on daily living (Danckaerts et al., 2010; Wilens, Biederman, & Spencer, 2002). Although the disorder is well studied in childhood, adolescence, and young adulthood, less is known about adults aged 50+ with ADHD (da Silva & Louza, 2008; Wetzel & Burke, 2008).

The core symptoms of this neuropsychiatric childhood disorder are hyperactivity, impulsivity, and inattention, which lead to dysfunctions in daily life (American Psychiatric Association, 2000). Although an age-dependent decline of hyperactivity and impulsivity has been described, problems with inattention in particular seem to persist into adulthood (Biederman, Mick, & Faraone, 2000). There is some evidence that the prevalence of ADHD, estimated to be 2.5% in younger adults, does not diminish in older age groups (Guldberg-Kjar & Johansson, 2009; Michielsen et al., 2012; Simon, Czobor, Balint, Meszaros, & Bitter, 2009).

Controlled follow-up studies have shown that ADHD in young adulthood is associated with impairment in academic, occupational, and social functioning (Barkley, Fischer, Smallish, & Fletcher, 2006; Biederman, Petty, Evans, Small, & Faraone, 2010; Biederman, Petty, Monuteaux, et al., 2010; Mannuzza, Klein, Bessler, Malloy, & Hynes, 1997). ADHD is associated with high percentages of behavioral and psychiatric comorbidities (The MTA

Cooperative Group, 1999; Sobanski, 2006; Yoshimasu et al., 2012). Increased economical burden has been shown for adults with ADHD (Hodgkins, Montejano, Sasane, & Huse, 2011; Secnik, Swensen, & Lage, 2005).

Quality of life and satisfaction with life are important outcome measures in research and clinical settings in medicine (Agarwal, Goldenberg, Perry, & William, 2012). Health-related quality of life (HRQoL) is defined as overall well-being in the main domains of life (e.g., physical, material, social, and emotional) and the possibility of personal development and purposeful activity (Felce & Perry, 1995). Patients with the same disorder assessed for HRQoL can react and feel differently (Guyatt, Feeny, & Patrick, 1993). Although measurement of HRQoL is important for examination of the impact of a disorder, satisfaction with life covers a broader perspective. Three separate components of subjective well-being (e.g., positive affect, negative affect, and life satisfaction) have been identified (Diener, Emmons, Larsen, & Griffin, 1985).

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In children and adolescents with ADHD, a reduced quality of life has been described (Danckaerts et al., 2010). Studies on HRQoL in adults with ADHD have mostly been related to pharmacological trials in younger age groups of adults (Adler et al., 2006; Brod, Perwien, Adler, Spencer, & Johnston, 2005; Mattos, Louza, Palmieri, Oliveira, & Rocha, 2012; Spencer et al., 2008; Weiss et al., 2010). Pathways of functional impairment of ADHD and the impact on HRQoL in adults with the disorder have been described (Brod et al., 2005). For example, inattention in adults with ADHD may lead to poor time management, inability to follow through on a task, and disorganization or procrastination, all of which have a negative impact on work productivity and daily life functioning with low self-esteem as a possible consequence (Brod et al., 2005). In a study of young adults with ADHD, severity of ADHD was found to be associated with decreased quality of life (Mick, Faraone, Spencer, Zhang, & Biederman, 2008). Moreover, in a sample of younger adults with ADHD who were on treatment with drugs for ADHD, work and interpersonal impairments were found to be challenging areas of quality of life and satisfaction with life (Safren, Sprich, Cooper-Vince, Knouse, & Lerner, 2010).

Adults aged 50+ with ADHD have lived most of their lives with an undiagnosed and untreated condition (Turgay et al., 2012). The question then arises how they have managed to live with the disorder and whether their HRQoL and satisfaction with life has been affected in a different way than individuals who have been diagnosed at an earlier age.

So far, only a few case reports and small sample studies have been published (Brod, Schmitt, Goodwin, Hodgkins, & Niebler, 2012; Henry & Jones, 2011; Manor et al., 2012). Long-lasting medical problems, experiences of peer rejections, and difficulties with work and relationships have been described (Henry & Jones, 2011; Manor et al., 2012). However, strengths such as creativity as to the management of ADHD symptoms at school and in work have been mentioned as important aspects (Henry & Jones, 2011; Manor et al., 2012). In a sample of 24 adults with a mean age of 66 years and a mean age of 9 years after having been diagnosed, significant academic, occupational, social, and financial problems related to ADHD were reported. Interestingly, when compared with younger adults with ADHD, the older sample reported a better life outlook (Brod et al., 2012).

To further investigate the impact of ADHD on quality of life across the life span, we studied a sample of adults aged 50+ where the aims were

1. to investigate HRQoL and satisfaction with life compared with population norms and
2. to identify characteristics associated with better quality of life.

We hypothesized that (a) adults aged 50+ with ADHD would report reduced quality of life compared with population norms and that (b) absence of comorbidity and reduced ADHD symptom severity would be found associated with better quality of life.

Method

An anonymous survey among members of the Norwegian ADHD patient organization was performed in 2010. The national ADHD patient organization was established in 1979 and has nearly 10,000 members. Included in this study were adults aged 50+ (age range = 50-69 years) diagnosed with ADHD by a psychiatrist or clinical psychologist, which was confirmed by self-reported year of diagnosis of ADHD. Altogether, 251 members of the patient organization met the inclusion criteria. To secure anonymity, the questionnaire was sent three times to the eligible sample by the patient organization. The data protection officer at the Oslo University Hospital approved the study.

Instruments

EuroQol (EQ-5D) is a generic standardized HRQoL self-report instrument developed by the EuroQol Group (1990). It has been extensively validated in the general population and in groups with chronic and psychiatric disorders (Rabin & de Charro, 2001). As such population data are not yet available for Norway, the recently published Danish EQ-5D data were used as a reference sample (Sorensen, Davidsen, Gudex, Pedersen, & Bronnum-Hansen, 2009). The latter comprised data from three population health surveys on 15,700 individuals aged 20 to 79 years (Sorensen et al., 2009). Only individuals in the age groups 50 to 59 years ($n = 3,162$; 50.8% females) and 60 to 69 years ($n = 2,121$; 52.3% females) were used as the reference sample in this study. The Nordic countries compare well with respect to well-developed health and welfare politics (Wahlbeck, Westman, Nordentoft, Gissler, & Laursen, 2011). EQ-5D consists of five descriptive dimensions (mobility, self-care, usual activity, pain/discomfort, and anxiety/depression) and a visual analogue "thermometer" scale (EQ-VAS). On each of the five dimensions, participants were asked to judge current health state on one of three possible levels: "no," "some," or "extreme" problems, which is scored 1, 2, and 3, respectively. On the EQ-VAS, participants were asked to indicate current health condition on a scale from 0 (*worst imaginable health state*) to 100 (*best imaginable health state*). Studies have shown that the test-retest reliability for the five dimensions (κ coefficients) ranged from .63 to .80 (Coons, Rao, Keininger, & Hays, 2000). In our study, the Cronbach's alpha index for the five dimensions was .68.

The Satisfaction With Life Scale (SWLS; Diener et al., 1985) is a five-item self-report instrument measuring the

satisfaction with one's life as a whole. In the original version, a 7-point scale was used. The range of the scale has varied throughout the years (Hultell & Gustavsson, 2008). In this study, each statement was scored from 1 (*totally disagree*) to 5 (*totally agree*), giving a range from 5 (*extremely dissatisfied*) to 25 (*highly satisfied*) as the total of all five statements. While a summary score of 20 on the original 7-point scale defines a neutral status (Diener, 2012), we set the equivalent score on the 5-point scale at 15. The Cronbach's alpha index of .84 in our study was in line with previous reports (Diener et al., 1985). SWLS data from the ADHD group were compared with the Norwegian reference sample, which was adapted from the Norwegian study on life course, ageing and generation (NorLAG). NorLAG includes data from 2003 to 2007 on more than 3,500 individuals 40 years of age and older as well as 15,000 individuals aged 18 years and older from the Norwegian study of life course, generation, and gender, which in 2007 was merged with the original NorLAG study (The NorLAG, 2011). In the NorLAG study, the five-item version of the SWLS was used (Solem, 2003).

ADHD symptoms were assessed with the Adult ADHD Self-Report Scale (ASRS v1.1) Screener (Kessler et al., 2005). Several studies have demonstrated the validity of the instrument (Matza, Van Brunt, Cates, & Murray, 2011; Yeh, Gau, Kessler, & Wu, 2008). This instrument consists of four items of inattention and two items of hyperactivity/impulsivity. Symptom frequency was rated on a 5-point scale from 0 (*never*) to 4 (*very often*), with a cutoff score of 14 (Taylor, Deb, & Unwin, 2011). In no cases were more than two items missing. The value of missing items was replaced by the mean of the available item values. The Cronbach's alpha index in our study was .80, which was in line with previous reports (Kessler et al., 2007). The interitem correlations measured with Spearman's rho ranged from $r_s = .21$ to $.69$. To explore the two dimensions of the ASRS Screener independently, an equally weighted sum of responses was used to create an Inattention Trait Score (ITS) and Hyperactive/Impulsive Trait Score (HTS; Das, Cherbuin, Butterworth, Anstey, & Eastale, 2012).

Statistics

Statistical analyses were performed with the Predictive Analytic SoftWare (PASW Statistics, IBM Armonk, New York) 18.0 for Windows. Chi-square statistics were calculated to assess pairwise associations between categorical variables. Associations between binary and continuous variables were analyzed with the independent samples *t* test. Pearson correlation coefficients between continuous variables were calculated, while Spearman's rho was used to calculate correlation coefficients between categorical and continuous variables. Linear and binary logistic regression analyses were performed to identify factors associated with better outcomes. To increase the probability to report true

Table 1. Characteristics of 148 Adults Aged 50+ With ADHD.

Variables	N = 148
Gender (females), <i>n</i> (%)	89 (60.1)
Age (years), <i>M</i> (<i>SD</i>)	55.7 ± 4.3
Age (years) when ADHD was diagnosed, <i>M</i> (<i>SD</i>)	50.2 ± 5.9
Education college/university, <i>n</i> (%)	52 (35.1)
Civil status single, <i>n</i> (%)	54 (36.5)
Unemployed, <i>n</i> (%)	87 (58.5)
Co-occurring disorders, <i>n</i> (%)	105 (70.9)

findings, the level of significance was set to $p < .01$. Percentages in the Danish EQ-5D sample were adjusted for the age and gender distribution of the ADHD group as recommended by Hjermstad, Fayers, Bjordal, and Kaasa (1998). A one-sample nonparametric binomial test then was used to analyze for statistically significant differences.

Results

Altogether, 166 participants (66.1%) returned the questionnaire. Eighteen were excluded (in 12, the diagnosis of ADHD could not be confirmed, 5 lacked information on age, and 1 was older than 69 years). Thus, the total sample consisted of 148 participants of whom 60.1% were women. In 5 cases (3.4%), information on gender was not available.

A comparison between participants and the eligible sample did not reveal significant statistical differences with respect to gender distribution, age, and place of residence in the country.

Participant Characteristics

Characteristics of participants are presented in Table 1. None of the characteristics differed significantly between sexes. In the unemployed group, 62 participants (71.3%) received social security (e.g., rehabilitation or disability benefit), 6 (6.9%) had retired, 4 (4.6%) were homemakers, and 15 (17.2%) mentioned other reasons. Among those with co-occurring disorders, 67 participants (63.8%) reported somatic disorders—most frequent were hypothyroidism (20.3%), hypertension (17.4%), and fibromyalgia (17.4%)—whereas 49 participants (46.7%) reported psychiatric disorders—most frequent were depression (36.7%), anxiety (26.5%), and bipolar disorder (24.5%). Twenty-one participants (20.0%) stated co-occurrence of at least one somatic and one psychiatric disorder.

ASRS Screener

Mean ASRS Screener score for the whole sample was 15.2 ($SD = 4.7$; range = 1-24), and 97 adults (65.5%) had a score above the cutoff ($M = 17.8$; $SD = 2.8$).

Table 2. Percentage of Moderate to Severe Problems on EQ-5D in 148 Adults Aged 50+ With ADHD Compared With Danish Population Norms.

Variables	ADHD group (N = 148) %	Reference sample ^a (N = 5,283) %	p value
Mobility	24.9	13.1	<.001*
Self-care	11.6	2.4	<.001*
Usual activities	47.8	21.7	<.001*
Pain/discomfort	73.7	43.8	<.001*
Anxiety/depression	80.5	17.8	<.001*

Note: EQ-5D = EuroQoL.

^aPercentages in the reference sample are adjusted for the age and gender distribution of the ADHD group.

* $p < .01$ (analyzed with a one-sample nonparametric binomial test).

HRQoL (EQ-5D)

The comparison of the ADHD group with age- and gender-matched Danish population norms on EQ-5D are presented in Table 2.

Adults aged 50+ with ADHD reported significantly more moderate to severe problems on each dimension of the EQ-5D (e.g., mobility, self-care, usual activity, pain/discomfort, and anxiety/depression) compared with population norms. The median EQ-VAS score of the ADHD sample was 65 (range = 2-95).

Within the ADHD sample, no significant differences were observed for the characteristics gender distribution, civil status, and age when ADHD was diagnosed on any of the EQ-5D dimensions. For mobility, however, we found significant differences for employment status, educational level, and co-occurring disorders. Problems on this dimension were reported by 34.9% of the unemployed group (vs. 11.7% of the employed group; $\chi^2 = 10.1$; $df = 1$; $p = .002$), 33.3% of the junior/senior high school group (vs. 11.5% of the college/university group; $\chi^2 = 8.3$; $df = 1$; $p = .004$), and 31.4% with co-occurring disorders (vs. 10.0% without co-occurring disorders; $\chi^2 = 7.0$; $df = 1$; $p = .008$). In addition, those with co-occurring disorders and an educational level below college/university more frequently stated problems with mobility than did the group that had finished college/university (41.8% vs. 13.5%; $\chi^2 = 9.0$; $df = 1$; $p = .003$).

Moderate to severe problems of usual activity were significantly more often reported by participants with co-occurring disorders than those without co-occurring disorders (63.8% vs. 35.0%; $\chi^2 = 9.8$; $df = 1$; $p = .002$).

Co-occurring disorders also had a significant negative impact on current health condition (EQ-VAS) when compared with those without co-occurring disorders (54.5 vs. 69.9 \pm 21.3; $t = -3.2$; $df = 135$; $p = .001$).

In summary, in our sample of adults aged 50+ with ADHD, those without co-occurring disorders generally reported better HRQoL.

Correlation Between ADHD Symptom Severity and EQ-5D

We investigated the association between ADHD symptom severity and the five EQ-dimensions as well as the current health condition (EQ-VAS). Severity of ADHD symptoms was significantly correlated with the dimension of usual activity ($r_s = .34$; $df = 146$; $p < .001$) and the current health condition ($r = .33$; $df = 138$; $p < .001$). With respect to the dimension of usual activity and the current health condition, the correlations were associated with symptoms of inattention ($r_s = .41$; $df = 146$; $p < .001$; and $r = -.33$; $df = 138$; $p < .001$, respectively) and not with symptoms of hyperactivity/impulsivity ($r_s = .15$; $df = 146$; $p = .08$; and $r = -.17$; $df = 138$; $p = .05$, respectively).

EQ-VAS Regression Analysis

A regression analysis with the median EQ-VAS score as dependent variable and gender, age at diagnosis, educational level, civil status, employment, co-occurring disorders, and ADHD symptoms (ASRS Screener score < 14 vs. ≥ 14) as independent variables showed that only ADHD symptom severity below the cutoff was associated with better current health condition (odds ratio [OR] = 3.5; 99% confidence interval [CI] = [1.3, 9.5]; $p = .001$).

Satisfaction With Life (SWLS)

In the analysis of satisfaction with life, the ADHD group was compared with the Norwegian reference sample. The percentage of participating women was statistically significantly higher in the ADHD group compared with the reference sample (60.1% vs. 49.5%; $\chi^2 = 9.1$; $df = 1$; $p = .003$). The ADHD group also was significantly younger than the reference sample (55.7 \pm 4.3 years of age vs. 58.9 \pm 5.6 years of age; $t = -6.9$; $df = 5114$; $p < .001$).

In Table 3, a comparison of educational level, civil status, and status of employment between the two groups is presented.

Although the educational level did not differ between the two samples, adults with ADHD were statistically significantly more often unemployed and single compared with the reference group. It can be argued that retirement may have accounted for the observed differences on employment status. Therefore, we reran the statistical analyses without those who had retired. Altogether, 7 participants in the ADHD group (4.7%) and 827 participants in the NorLAG group (16.6%) were registered as retired. This did, however, not change the result reported above.

The ADHD group reported substantially less satisfaction with life measured with SWLS than the reference sample (12.9 \pm 4.6 vs. 18.9 \pm 3.4; $t = -20.9$; $df = 3900$; $p < .001$). When adjusted for age, gender, civil status, and

Table 3. Characteristics of 148 Adults Aged 50+ With ADHD and an Age Group–Matched Norwegian Reference Sample.

Variables	ADHD (N = 148)	NorLAG (N = 4,968)	χ^2 ; df	p value
Educational level				
College/university, all, n (%)	52 (35.4)	1,518 (30.6)		ns
College/university, females, n (%)	29 (33.0)	767 (31.2)		ns
College/university, males, n (%)	23 (42.6)	751 (29.9)		ns
Civil status				
Single, all, n (%)	54 (41.5)	1,250 (25.2)	17.9; 1	<.001
Single, females, n (%)	36 (46.2)	760 (30.9)	8.2; 1	.004
Single, males, n (%)	16 (34.0)	490 (19.5)	6.1; 1	.01
Employed				
All, n (%)	57 (40.8)	3,424 (69.2)	53.1; 1	<.001
Females, n (%)	38 (42.7)	1,628 (66.5)	21.5; 1	<.001
Males, n (%)	20 (33.7)	1,796 (71.8)	29.4; 1	<.001

Note: NorLAG = Norwegian study on life course, ageing and generation; ns = not significant.
 $p < .01$.

employment, the difference still was significant ($B = 5.0$, $t = 16.2$; 99% CI = [4.2, 5.7]; $p < .001$). In the ADHD group, 56 (37.8%) had a SWLS score of 15 and higher ($M = 17.9$; $SD = 2.3$), whereas 92 (62.2%) had a score below 15 ($M = 9.9$; $SD = 2.6$).

The Pearson correlation coefficient between ADHD symptom severity and SWLS total score was highly significant ($r = .35$; $p < .001$).

SWLS Regression Analyses

We studied whether specific characteristics of the ADHD group were associated with more satisfaction with life than others. In a binary linear regression analysis with the SWLS score as dependent variable and the aforementioned independent variables plus co-occurring disorders and ADHD symptom severity (ASRS Screener score <14 vs. ≥ 14), being employed ($B = 2.8$, $t = 3.5$; 99% CI = [.72, 4.9]; $p = .001$) and ADHD symptom severity below the cutoff ($B = 3.4$, $t = 4.3$; 99% CI = [1.3, 5.5]; $p < .001$) were associated with more satisfaction with life.

Discussion

Adults aged 50+ with ADHD in this study had significantly more often problems on all dimensions of HRQoL (EQ-5D) and were less satisfied with life compared with age- and gender-matched population norms. Unemployment and severe ADHD were associated with reduced quality of life.

Adults aged 50+ with ADHD in our study more often were unemployed and living alone compared with the reference sample. We did not, however, find differences between groups on education. The level of functional and psychosocial impairment in adults with undiagnosed ADHD has been found to be quite similar to that of adults with

diagnosed ADHD (Able, Johnston, Adler, & Swindle, 2007; Biederman et al., 2006; Shekim, Asarnow, Hess, Zaucha, & Wheeler, 1990). Follow-up studies have shown that as a group, adults with ADHD had completed less formal schooling, had lower rates of employment, achieved lower ranking occupational positions, and experienced higher rates of being fired from work, higher rates of separation and divorce, and more difficulties keeping friends compared with controls (Barkley et al., 2006; Mannuzza et al., 1997; Murphy & Barkley, 1996; R. Rasmussen & Gillberg, 2000). At least one follow-up study has shown that adults with ADHD on the individual level had achieved higher education and occupation (Mannuzza & Klein, 2000).

Although based on self-report alone, the frequency of co-occurring disorders in our sample was similar to findings by others (Halmoy, Fasmer, Gillberg, & Haavik, 2009; Torgersen, Gjervan, & Rasmussen, 2006). The prevalence of lifetime psychiatric comorbidity in adults with ADHD has been reported to be higher than in controls (Kooij et al., 2010; Sobanski et al., 2007). In our study, adults with ADHD stated more problems with physical activities compared with controls, which could be due to being older. They reported significantly more problems on the EQ-5D dimension of anxiety/depression than did the reference sample. We found co-occurring disorders to be associated with increased problems of mobility and usual activity. Furthermore, co-occurring disorders had a negative impact on current health condition when compared with those without co-occurring disorders. In a study on HRQoL in younger adults with ADHD (69.7% men; M age = 37.0 years, 67.9% ADHD, combined type), Adler et al. (2006) found them to report only slightly above mean scores on physical subscales, but significantly below mean scores on mental subscales of the Short Form-36 (SF-36) compared with population norms (Adler et al., 2006). Studies showed

that comorbidity was associated with persistence of ADHD symptoms over time (Biederman, Petty, Clarke, Lomedico, & Faraone, 2011).

In our study, adults with ADHD were significantly less satisfied with life ($p < .001$) compared with age- and gender-matched population norms. Younger adults with self-reported ADHD (M age = 31.9 years) have been found to be significantly less satisfied with life compared with controls (Biederman et al., 2006). In university students, an association between ADHD symptoms, comorbid difficulties, and reduced SWLS scores has been reported (Gudjonsson, Sigurdsson, Eyjolfsson, Smari, & Young, 2009).

As expected, a majority of participants had an ASRS Screener score above the cutoff for the instrument, whereas a substantial minority (35.5%) did report below this cutoff. The ASRS Screener measures the core symptoms of ADHD. Research has shown that even a low frequency of symptoms of ADHD was found to be associated with impairment (Biederman et al., 2000). ADHD often is associated with comorbidity that may increase impact on daily life functioning. Many participants were living in stable relationships where the partner possibly was responsible for managing daily demands and a structured environment. Moreover, an increased ability to manage symptoms of ADHD after the disorder was diagnosed (mean observation time of more than 5 years) has to be taken into account.

We found severe ADHD to be significantly associated with more problems of usual activity, less perceived current health condition ($OR = 3.5$), and less satisfaction with life ($p < .001$). Moreover, severity of ADHD has also been found to have a major impact on quality of life (Danckaerts et al., 2010; Mick et al., 2008).

In our study, those without employment reported significantly more problems of mobility ($p = .002$) and significantly less satisfaction with life compared with employed adults with ADHD ($p < .001$). Nonemployment has been found to have a negative impact on quality of life (Aronson, 1997).

Limitations

Our study had several limitations. Participants were recruited from a national patient organization, which is not necessarily representative for all adults with ADHD. As a membership in the patient organization may require personal engagement and continuity, more severely impaired adults with ADHD may be underrepresented. Almost 34% of the eligible sample did not respond to the questionnaire, and it is possible that these were adults with more severe ADHD.

The cross-sectional nature of the study does not permit causal conclusions. Although all our data were based solely on self-report, other studies have shown that adults with ADHD report reliably and even are at risk to underestimate

their own problems (Kooij et al., 2008; Manor et al., 2012).

Even if the total number of co-occurring disorders was in line with other studies in adults with ADHD, self-reported psychiatric co-occurring disorders were mentioned less frequently. Increased symptom level and impairment have been found to predict poorer quality of life in ADHD, and an even higher percentage of co-occurring psychiatric disorders probably would have worsened the outcome (Danckaerts et al., 2010). The rates of medical problems in our study were higher than reported in samples of younger adults with ADHD (Barkley, Murphy, & Fischer, 2008). Conversely and in line with our findings, higher numbers of medical disorders than expected were found in a study of older adults diagnosed with ADHD (Manor, Rozen, Zemishlani, Weizman, & Zalsman, 2011). The possibility of increased risk of physical health problems in ADHD, for example, due to impulsive behavior, poor decision making, or executive functioning, has been highlighted recently (Nigg, 2012).

Our study sample comprised more women than men. Although more boys than girls are found in clinical samples of ADHD in childhood, in adults a more balanced gender distribution or even a predominance of women in some studies has been reported (Elia, Ambrosini, & Rapoport, 1999; Kooij et al., 2010). Furthermore, studies have shown small gender differences as to severity of symptoms and clinical presentations in adults with ADHD (Biederman, Faraone, Monuteaux, Bober, & Cadogen, 2004; K. Rasmussen & Levander, 2009).

The use of a generic measure of HRQoL may not capture serious impairments unique for the disorder (Brod et al., 2005; Weiss et al., 2010). Nevertheless, the aim of our study was to enable a comparison with population norms to investigate the impact of ADHD in late adulthood.

Strengths

The results are based on a relatively large sample of adults aged 50+ with ADHD. Validated instruments were used to enable comparison with population norms. The study provides information on the impact of ADHD on quality of life in adults diagnosed in late adulthood. Information was collected anonymously, which can have contributed to honest answers from the participants. The sample consisted of non-referred adults aged 50+ with ADHD.

Clinical Implications

ADHD in adults aged 50+ often is associated with reduced quality of life. As unemployment and ADHD symptom severity are found to be associated with even poorer quality of life, clinicians should be aware of the need for supporting strategies for vocational rehabilitation. Furthermore,

comprehensive strategies to manage ADHD symptoms in daily life activities should be considered.

Conclusion

Adults aged 50+ with ADHD diagnosed in late adulthood reported significantly reduced quality of life compared with population norms. The negative impact of ADHD persists into late adulthood.

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Authors' Note

Some of the data applied in the analysis of this publication are based on "Life course, Generation and Gender, LOGG easy-to-use, 2007/2008." The data are provided by Statistics Norway, and prepared and made available by the Norwegian Social Science Data Services (NSD). Neither Statistics Norway nor NSD are responsible for the analysis/interpretation of the data presented here.

Declaration of Conflicting Interests

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