



**LUNDS**  
UNIVERSITET

Department of Psychology

*Master of Science Program in Psychology*

**Beyond Symptom Amelioration: Relationships Between Work Supports, Functional Impairments and Quality of Life in Swedish Adults with Self-Reported ADHD**

**Sara Leinerud & Josef Sandström Knight**

Master thesis, Science Program in Psychology, 2017

Supervisor: Sean Perrin  
Examiner: Daiva Daukantaitė

### **Abstract**

The current study aimed to survey a sample of Swedish adults with self-reported ADHD and to explore: 1) how level of education and employment status relate to the general population, 2) whether they had been offered supports from their workplace or place of education for their ADHD, 3) whether such supports were related to their self-reported QoL, job satisfaction, general mental health and work impairment. An additional aim was to investigate the relationships between the variables defined above. Participants were 230 adults (18-70 years) with self-reported ADHD, who answered a survey posted in ADHD-interest groups on Facebook. Data was collected through validated self-report measures, demographic questions and questions about received work supports and their perceived helpfulness. The participants in the current study had worse general mental health and higher unemployment rates than the general Swedish population. A majority of participants reported having received work supports and those receiving support reported higher QoL and job satisfaction than those without. Self-report measures of outcome variables were all moderately to strongly correlated. Findings of this study suggest that work supports may be beneficial for the subjective wellbeing of adults with ADHD in work or studies. More research is needed to explore the potential efficacy of work supports.

*Keywords:* Attention Deficit Hyperactivity Disorder, ADHD, AAQoL, Quality of Life, work support, occupational function, mental health

### **Sammanfattning**

Denna studie syftade till att undersöka ett urval av svenska vuxna med självrapporterad ADHD på följande punkter: 1) utbildningsnivå och anställningsgrad i relation till svensk befolkning, 2) om de blivit erbjudna stöd på sin arbetsplats eller i sin studiesituation för sin ADHD, 3) om denna typ av stöd var relaterat till självrapporterad Quality of Life (QoL), nöjdhet med arbetsroll, allmän hälsa samt nedsättning i arbetsfunktion. Studien syftade också till att undersöka förhållanden mellan ovanstående variabler. Deltagarna var 230 vuxna (18 – 70 år) med självrapporterad ADHD, vilka svarade på en enkät som lades upp i intressegrupper för ADHD på Facebook. Data samlades in genom validerade mätinstrument, demografiska frågor samt frågor om mottagna typer av arbetsstöd samt hur hjälpsamma dessa upplevdes vara. Deltagarna i denna studie rapporterade sämre mental hälsa och högre arbetslöshet än svensk befolkning. Majoriteten av deltagarna angav att de mottagit stöd på arbetsplatser eller i studiesituationer för sin ADHD. De som mottagit stöd rapporterade högre upplevd QoL och nöjdhet med sin arbetsroll än de som inte mottagit någon form av sådant stöd. Självrapporteringsinstrumenten korrelerade medium till starkt med varandra. Enligt denna studie verkar stöd på arbetsplatser öka subjektivt välbefinnande för vuxna med ADHD. Mer forskning krävs för att undersöka hur verksamt arbetsplatsstöd är.

*Nyckelord:* Attention Deficit Hyperactivity Disorder, ADHD, AAQoL, Quality of Life, stödinsatser, arbetsförmåga, mental hälsa

Introduction.....	6
Prevalence and Duration.....	6
Psychiatric Comorbidity.....	7
Functional Impairments.....	8
Quality of Life, Work & ADHD.....	9
Treatments and Predictors of Functioning in Adults with ADHD.....	10
ADHD Symptoms and Occupational Functioning.....	11
Swedish Guidelines on how to Support Individuals with ADHD.....	12
Summary and Aims.....	14
Research Questions.....	15
Method.....	15
Participants.....	15
Design.....	15
Survey Construction.....	16
Measures.....	17
AAQoL.....	17
GHQ-12.....	18
WPAI:GH.....	19
BJSM.....	19
Questions regarding Work Supports.....	20
Statistical Calculations.....	21
Ethical Considerations.....	24
Results.....	25
Question 1: Levels of Education and Unemployment .....	25
Question 2: Comparisons of Mean Scores on Self-Report Measures of Impairment and Wellbeing .....	27
Question 3: Relationships between Self-Report Measures.....	29
Question 4: Prevalence and Perceived Helpfulness of ADHD-specific Work Supports.....	29
Question 5: Relationships between ADHD-specific Work Supports and Self-Report	

Measures of Impairment and Wellbeing.....	31
Discussion.....	33
Question 1: Levels of Education and Unemployment.....	33
Highest level of Education.....	33
Employment.....	33
Question 2: Comparisons of Mean Scores on Self-Report Measures of Impairment and Wellbeing.....	34
General Mental Health.....	34
AAQoL.....	34
Occupational Function.....	35
Activity Impairment.....	35
Job Satisfaction.....	36
Gender Differences.....	36
Question 3: Relationships between Self-Report Measures.....	37
Question 4: Prevalence and Perceived Helpfulness of ADHD-specific Work Supports.....	38
Question 5: Relationships between ADHD-specific Work Supports and Self-Report Measures of Impairment and Wellbeing. ....	39
Methodological Discussion.....	41
Design and Procedure.....	41
Instruments.....	42
Statistical Analysis.....	42
Participants.....	43
Conclusions and Future Directions.....	44
Practical Implications.....	45
References.....	47
Appendix A.....	57
Appendix B.....	70
Appendix C.....	71

## **Introduction**

Attention Deficit Hyperactivity Disorder (ADHD) is a serious neuropsychiatric condition defined in the 5<sup>th</sup> edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5; American Psychiatric Association [APA], 2013) by the presence of 6 or more symptoms from three symptom clusters (attention deficits, hyperactivity, impulsivity), which occur in more than one setting and have been present for at least 6 months (APA, 2013). In addition, inattentive or hyperactive-impulsive symptoms should have been present before the age of 12 (APA, 2013). Individuals with ADHD experience significant health and socioeconomic burdens with the disorder being associated with high rates of psychiatric comorbidity, increased healthcare usage, and impairments in family, school, and work functioning (Brod, Pohlman, Lasser & Hodgkins, 2012; Caci et al., 2014; Cussen, Sciberras, Ukoumunne, & Efron, 2012; de Graaf et al., 2008; Klorá, Zeidler, Linder, Verheyen & von der Schulenburg, 2015; Pitts, Mangle, & Asherson, 2015). This thesis focuses primarily on one such area where ADHD is associated with significant impairments in functioning for adults – the workplace. What follows is a brief review of the literature on the prevalence and impacts of ADHD. For brevity's sake, we do not review the expansive literature on the etiology of this condition. This review is followed by our specific research questions and then by our description of an online survey of Swedish adults with ADHD and the types of supports they were offered in their workplace because of this disorder.

### **Prevalence and Duration**

ADHD is a commonly occurring disorder in the general population, although prevalence rates will vary as a function of which diagnostic criteria are used and how the disorder is assessed (Polanczyk, Willcutt, Salum, Kieling, & Rohde, 2014; Rowland et al., 2015). Meta-analyses have estimated the worldwide prevalence of ADHD at between 5% and 7% in children and adolescents, and at 3% (range 1.2–7.3%) in adults (Polanczyk et al., 2014; Willcutt, 2012). The prevalence of ADHD among young children aged less than six years or adults over the age of 44 years is less well studied (Polanczyk et al., 2014). Not surprisingly, studies suggest that the prevalence of ADHD is much higher in clinical settings than in the general population. A recent multinational European study reported a prevalence of 17.4% for ADHD, according to criteria used in the DSM-5 (APA, 2013), in 2,284 adults seeking treatment from outpatient psychiatric clinics (Deberdt et al., 2015).

Studies consistently find that ADHD is more common among males than females across the age range (Willcutt, 2012). In a 24-month naturalistic (observational) study conducted across 10 European countries, the authors found that boys were 1.6 times more

likely than girls to develop ADHD (Nøvik et al., 2006). The European study of ADHD prevalence in adult psychiatric patients also found significant gender differences, with 14.6% of female participants (vs. 21.6% of male participants) meeting diagnostic criteria for ADHD (Deberdt et al., 2015). The authors also found there were more previously undiagnosed females than males identified as suffering from ADHD (Deberdt et al., 2015).

The prevalence of ADHD is also associated with indicators of economic disparity. Data from the Avon Longitudinal Study of Parents and Children (n = 8,132) was used to explore the relationship between different measures of socioeconomic status at birth and up to three years of age and their association with a diagnosis of ADHD at age seven (Russell, Ford & Russell, 2015). The authors found that families either struggling with financial difficulties, living in government housing, or containing younger or single mothers, were all more likely to have a child with a diagnosis of ADHD at age 7 (Russel et al., 2015).

Assessing the longevity of ADHD symptoms is made more challenging as the DSM criteria were developed with children in mind rather than adults (Davidson, 2008). Nevertheless, ADHD tends to be a chronic condition with meta-analyses showing that more than half of children with ADHD will carry either the disorder or clinically significant symptoms into adulthood (Faraone, Biederman & Mick, 2006; Caye et al., 2016). There is however some evidence to suggest that there is a general decline in the total number of hyperactive-impulsive symptoms during the onset of adulthood, with inattentive symptoms persisting at similar levels as in childhood (Davidson, 2008; Wilens, Biederman, Faraone, Martelon, & Spencer, 2009). A recent meta-analysis found that the children most likely to carry ADHD into adulthood were those that had more severe ADHD, were treated for ADHD, and had comorbid behavior and depressive disorders (Caye et al., 2016).

### **Psychiatric Comorbidity**

There is consistent evidence across studies and countries that individuals with ADHD run a significantly elevated risk of suffering from another psychiatric disorder (Fayyad et al., 2007). In a large, nationally representative sample of children and adolescents from the USA (Jensen & Steinhausen, 2015), the most commonly occurring comorbid disorders were conduct disorder (16.5%), specific developmental disorders of language, learning and motor skills (15.4%), autism spectrum disorder (12.4%), and intellectual disability (7.9%). In a similar national study of American adults, those with ADHD were 2-7 times more likely to suffer from bipolar disorder, social and specific phobias, intermittent explosive disorder, generalised anxiety disorder, substance use disorders (alcohol/drugs), and major depressive disorder than the general population (Kessler et al., 2006). Similar levels of comorbidity

among adults with ADHD have been found in nationally representative samples outside the US, including Sweden (Friedrichs, Larsson & Larsson, 2012), Spain (Piñeiro-Dieguez, Balanzá-Martínez, García-García, & Soler-López, 2016) and Taiwan (Chen et al., 2015). The evidence suggests that both males and females with ADHD share similar levels of lifetime risk for psychiatric comorbidity (Biederman et al., 2006, 2010). Data from a large study of adult twins in Sweden found that individuals with the combined hyperactive-inattentive-impulsive subtype of ADHD had, on average, the highest risk of comorbid disorders, whilst those with the inattentive only subtype had the lowest risk (Friedrichs et al., 2012).

Though high levels of comorbidity certainly pose significant issues for many adults with ADHD there is data that suggest that adults with ADHD are more likely to suffer adverse consequences as a result of uninhibited or impulsive behaviors even after statistically controlling for the presence of comorbid disorders (Bernardi et al., 2012). It seems to be the case that ADHD in itself often results in significant deficits in areas of function and psychological wellbeing.

### **Functional Impairments**

As has been mentioned, adults with ADHD often suffer impairments in several areas of adult role function (Fayyad et al., 2007). A 2016 systematic review of the literature found that untreated ADHD in both adults and children was associated with impairment in social functioning, with 70% of those with ADHD reporting poorer social outcomes than non-ADHD control groups (Harpin, Mazzone, Raynaud, Kahle & Hodgkins, 2016). The study considered social and familial relationships, work and school, social skills, participation in social activities, living arrangements, dating and marital history, and sexual behaviour as areas of importance for adult-role functioning and included these as social outcomes to be measured (Harpin et al., 2016).

Studies have consistently found ADHD to be associated with impairments in occupational settings (Gjervan, Torgersen & Nordahl, 2012; Pitts et al., 2015; Pulay et al., 2016). A recent UK study found that adults with ADHD differed significantly from controls in social and occupational functioning, including the total number of jobs in the past 10 years, planning and organizational skills, greater work difficulties and lower educational attainment (Pitts et al., 2015). A World Health Organization initiative (WHO), in which a survey targeting 18-45-year-olds was launched across 10 countries, found that ratings on an ADHD-screening instrument were related to higher levels of absenteeism (time out of work-role), poorer work-performance than comparison groups and lower employment status (de Graaf et al., 2008). On average individuals with ADHD had an excess of 8.4 days out of work role,



21.7 days of reduced work quantity, and 13.6 days of decreased work quality (de Graaf et al., 2008). Furthermore, and as noted in a previous study (Fayyad et al., 2007), very few individuals with estimated ADHD in the WHO study reported receiving any formal ADHD treatment, suggesting a general lack of awareness of the impacts of ADHD on multiple areas of functioning and the suffering caused to the individual ADHD (de Graaf et al., 2008).

With ADHD being associated with such significant deficits in central aspects of adult role functioning, it is not difficult to see why the disorder is rated among the most burdensome conditions. Aside from the direct effects of the ADHD symptoms, it is reasonable to assume that the occupational instability, occupational and academic underachievement, and significant difficulties in daily role functioning described in the literature, contribute directly to the very high levels of depression found in adolescents and adults with ADHD (Bernardi et al., 2012; Bron et al., 2016; Sprafkin, Gadow, Weiss, Schneider & Nolan, 2007; Torgersen et al., 2006).

### **Quality of Life, Work & ADHD**

Quality of life (QoL), is a multidimensional concept that refers broadly to an individual's subjective perception of his/her ability to function in a range of areas considered important for wellbeing and adjustment (Agarwal, Goldenberg, Perry & Ishak, 2012). QoL may, amongst other things, involve a personal evaluation of mental health, daily living activities, social, educational and occupational functioning, impairments or handicaps, pain, motor-functions, energy levels, mood etc. (Agarwal et al., 2012). According to a systematic review, almost all definitions of QoL include physical, social and psychological domains, with a cognitive aspect often being added (Coghill, 2010). QoL is commonly divided into overall/ generic QoL and health-related QoL (Agarwal et al., 2012). Overall QoL can be defined as "a person's wellbeing that stems from satisfaction or dissatisfaction with areas of life that are important to him or her" (Wahl, Rustøen, Hanestad, Lerdal, & Moum, 2004, pg. 1001). Health-related QoL most often refers to the impact of particular symptoms or illnesses on the person's everyday activities and sense of wellbeing (Agarwal et al., 2012). Various forms of illness including psychiatric disorders have been shown to impact both overall and health-related QoL (Coghill, 2010).

There is a large body of evidence showing that people who experience their working environment as stressful or in some way negative, or who report lower levels of work satisfaction and/or disengagement from their work, report more health problems (including psychiatric difficulties) and lower levels of subjective wellbeing (Benach & Muntaner, 2011; Benach, Muntaner, Solar, Santana & Quinlan, 2007; Faragher, Cass & Cooper, 2005; Theorell

et al., 2015; Wendsche & Lohmann-Haislah, 2016). Likewise, there is evidence showing that individuals (children and adults) with ADHD report lower QoL than the general population (Coghill, 2010). For example, individuals suffering from ADHD were shown to fall between 1.5 and 2 standard deviations below age-appropriate population norms for QoL, with relatively robust effects visible on measurements of psycho-social functioning and achievement (Coghill, 2010). Furthermore, a 2015 study, utilizing the European Quality of Life 5-Dimensions questionnaire (EQ-5D), found that adults with ADHD had a significantly lower QoL compared to the age matched general population (Pulay et al., 2016). It seems reasonable to assume that the lower levels of QoL reported by adults with ADHD may, in part, be due to the impact of their symptoms on their capacity to engage in educational and occupational pursuits, although there has been surprisingly little research examining both QoL and its determinants in adults with ADHD (Agarwal et al., 2012).

### **Treatments and Predictors of Functioning in Adults with ADHD**

There is evidence indicating that the same pharmacological agents used to treat ADHD in children and adolescents, in particular medications that inhibit the reuptake of catecholamines/dopamine, serotonin, or norepinephrine, produce clinically significant reductions in ADHD symptoms in about 50-80% of adults with this disorder (Davidson, 2008; Castells et al., 2011). By way of contrast, there has been relatively little research conducted on the efficacy of psychosocial interventions, either alone or in combination with medication, in adults with ADHD (Davidson, 2008). However, randomized controlled trials of some form of cognitive behavioral therapy (CBT) have begun to appear in the literature, for instance in the work of Young et al. (2017), or in research documenting trials of internet-based CBT for Swedish adults with ADHD (Pettersson, Söderström, Edlund-Söderström & Nilsson, 2017). Currently both CBT and psychoeducational approaches are recommended by Socialstyrelsen as an adjunct to pharmacotherapy for adults with ADHD (Socialstyrelsen, 2014).

There is evidence to suggest that the prognosis for favorable occupational outcome in adult life may be related to how early in life an individual with ADHD receives his/ her first stimulant-based treatment (Gjervan et al., 2012). In a Norwegian study the early detection of ADHD and early implementation of stimulant-based interventions was shown to have a significantly beneficial effect on occupational outcome later in life, independent even of comorbidity, substance abuse and current treatment/ interventions (Halmoy, Fasmer, Gillberg & Haavik, 2009). Another Norwegian study, utilizing a clinically-referred sample of diagnosed ADHD-patients, found that later age of first stimulant treatment, along with symptom severity, was a significant predictor of occupational outcome in adults with ADHD,

with only 17.4% of the study's relatively impaired participants receiving stimulant treatment before the age of 18 (Gjervan et al., 2012).

A study exploring vocational and occupational outcomes compared young adults with and without ADHD on measures of occupational status, level of post-high school education and potential predictors of these outcomes, and concluded that early interventions are of paramount importance for occupational and academic achievement (Kuriyan et al., 2013). Findings revealed that a childhood ADHD diagnosis and, in particular childhood disciplinary problems related to ADHD, negatively predicted occupational outcome in young-adulthood, with occupational function being affected both in terms of lower occupational status in jobs-held and in terms of an increased risk of being fired from work (Kuriyan et al, 2013). Furthermore, post-high school enrolment was negatively predicted by academic and disciplinary problems and the relationship between ADHD and post-high school education was mediated by academic and disciplinary problems in childhood (Kuriyan et al., 2013). Indeed, the detrimental impact of ADHD symptoms on a child's ability to function in significant relationships and important academic settings is clearly established, with studies consistently showing significant impairments over a multitude of investigated domains (Caci et al., 2014). The relationships between struggles in school and childhood and future difficulties in areas of adult role functioning are certainly of importance for our understanding of ADHD and it is evident from research previously discussed that interventions at an early stage may be invaluable for affected individuals.

The above research highlights the protective influence of early detection and stimulant-based interventions for individuals with ADHD. Nevertheless, as pointed previously (de Graaf et al. 2008), a significant proportion of adults with ADHD were undiagnosed as children. Thus, many adults with ADHD, particularly those with a late diagnosis, are likely to be having difficulties continuing their education or entering and remaining in the workforce. In the next section, we briefly review the literature on ADHD and work.

### **ADHD Symptoms and Occupational Functioning**

Despite the severity and persistence of ADHD, there have been relatively few studies examining its impact in adulthood on occupational functioning, which has corresponded to a lack of guidance from governments and employers on how to best support adults with ADHD in their attempts to enter, remain in, and function well in the workplace (Adamou et al., 2013). However, studies and guidelines have begun to appear in the literature that attempt to identify the scope of the problem.

Brod and colleagues (2005), as part of their construction of an ADHD-specific QoL measure (Adult ADHD Quality of Life Scale - AAQoL) collected data from clinicians, experts, patients and relevant literature to identify “Functional Impairment Pathways”. These pathways assume that any individual ADHD symptom can lead to a wide array of behavioural manifestations that may impact an individual’s functioning, and, in turn, their subjective assessment of life satisfaction and experience of being able to function. ADHD-related deficits in attention, for instance, may result in difficulties producing work expense reports, leading the individual to fall behind in work and in the long term to develop a poor work history (Brod, Perwien, Adler, Spencer & Johnston, 2005). In a similar way, ADHD-related impulsivity may manifest itself in an individual often acting without thinking (Brod et al., 2005). Acting without thinking may result in engaging in risky behaviours, uninformed decision-making, or irritating, contra-productive behaviour such as interrupting during meetings; all of which could easily result in the affected individual developing long term social and/or occupational difficulties (Brod et al., 2005).

The occupational issues of adults with ADHD was addressed at an international conference that aimed to create consensus guidelines for employers on supporting adults with ADHD (Adamou et al., 2013). In an attempt to pave the way for more positive occupational outcomes, the conference identified ADHD-related symptoms that may be responsible for work impairments and offered clinically informed compensatory workplace adjustments that may be useful for affected adults (Adamou et al., 2013). For example, symptoms of inattention and impulsivity may be accommodated for by providing private offices or quiet work spaces, flexible working-hours, regular supervision, and more; symptoms of hyperactivity and/or restlessness might be accommodated for by allowing regular breaks and “productive movements at work”, avoiding long meetings, etc.; and issues related to executive dysfunction or deficits in working memory may be accommodated for by providing alarms, memory-prompts, incentives/ rewards, written guidelines and instructions, breaking down longer tasks/ projects into more easily achievable sub goals (Adamou et al., 2013). In essence, suggestions from Adamou et al. (2013) can be theoretically viewed as targeting the functional impairment pathways identified by Brod and colleagues (2005) as a way to reduce the negative consequences that unmanaged ADHD symptoms can produce.

### **Swedish Guidelines on How to Support Individuals with ADHD**

The Swedish Socialstyrelsen has identified ADHD as a condition that can cause functional impairment in, amongst other areas of adult role functioning, occupational life or higher theoretical studies (Socialstyrelsen, n. d.). Affected adults who do not experience

remission in early adulthood are to be viewed as suffering from a lifetime disability with differing outcomes depending on symptoms, compensatory individual resources, social circumstances, etc. (Socialstyrelsen, n. d). Furthermore, adults with ADHD may suffer activity impairments and work loss (Socialstyrelsen, n. d). Environmental adjustments – such as adjusting work assignments to fit the individual's needs and developing individual cognitive-support strategies (tools for time management and planning) – are recommended in such cases (Socialstyrelsen, n. d).

A 2014 report from Socialstyrelsen classified as *kunskapsstöd* – i.e. a national, clinically informed guide, seeking to inform various authorities such as mental health services, schools, Swedish employment services (Arbetsförmedlingen) and the Swedish social insurance agency (Försäkringskassan) – highlighted the importance of identifying adults with ADHD and implementing systematic and multi-modal interventions.

Adult mental health services are primarily responsible for diagnosis and implementation of specialised clinical interventions for adults with ADHD (Socialstyrelsen, 2014). Socialstyrelsen (2014) recommends an adult out-patient psychiatric treatment guide that incorporates psychoeducational training, either individually or group-based, and for more severe symptoms a combination of this approach and empirically validated psychopharmacological treatments. Evidence based psychological treatments such as CBT are also available for comorbid conditions and cognitive skill-training (Socialstyrelsen, 2014).

Recommendations are also offered for various institutions outside of a mental health context (Socialstyrelsen, 2014). In educational settings adults with ADHD should be offered the following supports: compensatory support during exams, help with notes, extra time with a supervisor, a lower study-tempo and more accessible/ individualised course literature-plans (Socialstyrelsen, 2014). In occupational settings, Socialstyrelsen (2014) recommends a series of concrete workplace adjustments and compensatory tools, such as those previously discussed (Adamou et al., 2013). A structured work environment, a tolerant and open work climate, part-time employment or reduced work load planned in a continuous correspondence between employer and Social insurance agency are listed amongst Socialstyrelsens (2014) recommendations for workplace interventions.

Riksförbundet Attention (2016) – a Swedish organization financed largely by donations and operating on a national basis, promoting and enhancing awareness of neuropsychiatric disorders – recently produced a report describing an online survey conducted as part of their project *ADHD på jobbet* (ADHD in the workplace). Amongst other things, the survey asked questions about how members of their organization relate to their ADHD

symptoms and whether or not they have any strategies that help them manage difficulties. Amongst individuals currently in work, 18% reported adjustments in their workplace environments, 35% reported adjustable working-hours, 19% reported adjustments in work-assignments, and 12% reported some form of supervision (Riksförbundet Attention, 2016). Furthermore, 24% of their informants reported lacking much-needed support, 48% reported receiving familial support and 46% reported that they attend follow-up meetings with an employment-officer (Riksförbundet Attention, 2016). The report concluded with suggestions that individuals with ADHD should receive workplace adjustments and that awareness of Neuropsychiatric Disabilities should be promoted in the workplace (Riksförbundet Attention, 2016). It is, however, important to note that the survey (Riksförbundet Attention, 2016) lacks empirically validated measures of important external variables such as the impact of ADHD symptoms on one's ability to function, degree of work-related impairment, and level of psychiatric disturbance, making it difficult to draw firm conclusions about the impact of ADHD on work.

### **Summary and Aims**

As has been outlined above, ADHD is a commonly occurring neurodevelopmental disorder, that onsets during childhood and persists into adulthood for many sufferers, and is associated with a significantly increased risk of comorbidity and functional impairment across the lifespan (APA, 2013; Caye, 2016; Davidson, 2008; Fayyad, 2007). To the best of our knowledge there is a general dearth of research on ADHD and occupational functioning in a Swedish context. Though there has been important research conducted in Norway on the impact of ADHD on occupational functioning (Gjervan et al., 2012; Gjervan & Nordahl, 2010; Halmoy et al., 2009), the vast majority of studies have been conducted outside of the Nordic regions. There is also a much larger gap in the literature in that no studies have examined the relationship between ADHD-specific QoL and whether ADHD-specific supports were offered to the sufferer by their employer. Sweden is a good country to carry out such research because the Socialstyrelsen provides guidance to employers on how to accommodate individuals with ADHD.

The primary aim of our study was to survey a large sample of Swedish adults with self-reported ADHD and to explore: 1) whether they had been offered supports from their workplace (or school) because of their ADHD; and 2) whether such supports were related to their self-reported QoL, work satisfaction, impairment in work or studies and general mental health. As a secondary aim, we sought to explore the relationships between the core symptoms of ADHD and work impairment, QoL, job satisfaction and general mental health.

## Research Questions

**Question 1.** How do the current participants compare with national statistics for levels of education and employment status?

**Question 2.** What are the mean scores for current participants on self-report measures of general mental health, satisfaction in current role, ADHD-specific QoL (AAQoL) and ability to function in work and/or studies, and how do these compare with previous research?

**Question 3.** In the present sample, how are general mental health, satisfaction in current role, ADHD-related QoL and work impairment related to each other?

**Question 4.** In a sample of adults with self-reported ADHD, what proportion inform their employer of their diagnosis, and what proportion receive ADHD-specific supports in their workplace? To what extent do current participants experience these supports as helpful?

**Question 5.** Are ADHD-specific supports from the employer related to general mental health, job satisfaction, ADHD-related QoL and work impairment?

## Method

### Participants

The original pool of participants were 247 adults who answered a survey posted on Facebook pages for individuals interested in discussing ADHD. Two participants lacked values for all questions owing to technical difficulties with the survey program (SUNET Survey) used for data collection and were therefore excluded from all analyses. Participants who stated that they had not been given an ADHD diagnosis by a healthcare professional ( $n = 15$ ) were also excluded. Thus, the final sample consisted of 230 adults. Characteristics of the sample are discussed in the results section.

### Design

A review of literature on ADHD and occupational outcome was conducted. The articles were found through Lund University's numerous journal subscriptions that are free for students to use via LubSearch and through references in previously found articles. Also, Riksförbundet Attentions webpage "ADHD på jobbet" provided further insight in the kind of issues that were interesting at the present. Since there has been relatively little research conducted on the subject of ADHD and support in the workplace in Sweden, with the notable exception of Riksförbundet Attention's report (2016), an explorative cross-sectional design was deemed appropriate. A cross-sectional design makes it possible to describe population characteristics and explore differences between groups, or correlations between variables, that could be used for predictive purposes. Since no manipulation takes place, no causal inferences can be made (Shaughnessy, Zechmeister & Zechmeister, 2011).

Data was collected through an online survey (see Appendix A), which was posted online (from 170212 to 170314) on Facebook-pages that serve as discussion forums for adults who suffer from ADHD and spread by active members. A total of 17 interest groups were selected and approached through private messages to the administrators of the pages to secure permission to post the survey on their pages. Of the 17 page administrators that were contacted, 8 responded and gave permission to post the survey to their members. The 8 individual pages reported membership numbers ranging from 400 to 12,000. The administrators from the remaining 9 groups did not respond to the request and were not approached again. At a later stage, the survey was spread on our personal pages on Facebook, but this action added very little to the sample size, yielding very low response rates. Aside from approaching ADHD groups on Facebook, we contacted Riksförbundet Attention to explore the possibility of posting the survey on their website but no clear response was received before the survey was finally closed.

To increase the amount of responses, several reminders were posted on the ADHD interest pages during the period that the survey was available to respondents. After two weeks online, it was noted that the majority of respondents were female (>70%), and we posted another notice thanking women for their participation and asking only male members of these interest-groups to participate. However, it was still possible for women to answer the survey.

### **Survey Construction**

The survey consisted of background questions targeting the following clinical and demographic characteristics: age, gender, employment status, level of education, satisfaction with work-load, main source of income, whether a formal diagnosis of ADHD has been made by a health professional, age at time of ADHD diagnosis, and whether or not participants had been offered psychopharmacological or psychological treatment for their ADHD, or were currently receiving psychopharmacological or psychological treatments for their ADHD.

The survey included the following measures: Adult ADHD Quality of Life Questionnaire (AAQoL) (Brod, Johnston, Able & Swindle, 2006), General Health Questionnaire (GHQ-12) (Goldberg, 1972), Work Productivity and Activity Impairment Questionnaire: General Health (WPAI: GH) (Reilly, Zbrozek & Dukes, 1993) and the Brief Job Satisfaction Measure II (BJSM-II) (Judge, Locke, Durham & Kluger, 1998). The survey concluded with questions about specific workplace interventions that have been suggested for employees with ADHD (Adamou et al., 2013; Socialstyrelsen, n. d.), and whether each individual support was experienced as helpful by the participant or, if said support had not



been received, whether the participant believed that he/she would experience the support as helpful if it were implemented in place of work or studies.

### **Measures**

**AAQoL.** The AAQoL (Brod et al., 2006) is a 29-item measure of QoL whose items were drawn from clinical experts, patients with ADHD and publications on ADHD impairments, reflecting the following five areas: work, daily activities, relationships, psychological wellbeing and physical wellbeing (Brod et al., 2006). Items are distributed into four-derived subscales: Life Productivity (11 items), Psychological Health (6 items), Life Outlook (7 items) and Relationships (5 items). Items are rated on a 5-point Likert scale (Not at all/never are scored = 1; Extremely/very often are scored = 5). All items, except for the Life Outlook subscale, are negatively phrased and reversed scored. All item scores are transformed to a 0-100 scale (1=0; 2=25; 3=50; 4=75; 5=100). A total score is calculated by adding all items together and dividing the sum by the number of answered items; the same method is used for calculating total scores on the four subscales (total of subscale items/number of answered items on subscale). Higher scores indicate higher QoL. One item per subscale up to a maximum of three can be missed by the respondent and still yield a valid score for the whole scale (Gjervan & Nordahl, 2010).

A psychometric evaluation in 2006 with a managed care sample in the USA (Brod et al., 2006) found the measure to possess good internal consistency and criterion validity. The measure is also useful in identifying the domains in a person's life that matter the most individually for monitoring the effects of treatment (Brod et al., 2006) and for targeting areas for change in psychological treatment (Gjervan & Nordahl, 2010). In a European validation study the AAQoL showed similar and comparable levels of reliability and validity (Brod et al., 2015). Furthermore, there is evidence that the AAQoL correlates more strongly with measures of treatment outcome and psychological wellbeing in ADHD samples than other non-ADHD specific QoL scales (Matza, Johnston, Faries, Malley & Brod, 2007).

The AAQoL was translated from English to Swedish following guidelines for translation recommended in the literature (e.g., Beaton, Bombardier, Guillemin & Ferraz, 2000) and by the WHO (WHO, n.d.) by the authors. First, one of the authors is a bilingual native speaker of English and translated the measure from English to Swedish and this version was given to another bilingual person who translated it from Swedish to English, and the two English versions were compared by the authors and minor adjustments made to Swedish version. Next, the Swedish translation was given to Swedish speakers who were asked for feedback on the instructions and items for clarity and meaning. Small modifications were

made and again it was administered to Swedish speakers for feedback. This test-revise-test method was used four times until a final version was agreed. The validated Norwegian translation of the AAQoL was used as a guide during the process of translating the English AAQoL into Swedish.

The subscales of our Swedish translation of the AAQoL demonstrated high levels of internal consistency as indicated by the following Cronbach's alphas: Life productivity = .83; Psychological Health = .73; Life outlook = .84; and Relationships = .73. The Swedish translation in its entirety (i.e. AAQoL Total Score) demonstrated a Cronbach's alpha of .90. The above values are comparable to those reported by Gjervan and Nordahl (2010) for the Norwegian translation of the AAQoL, where the AAQoL totalscore had a Cronbach's alpha of .93 and subscores ranged from .75 to .88.

**GHQ-12.** The 12-Item General Health Questionnaire (Goldberg et al., 1997) is a short version of the General Health Questionnaire (GHQ), and is a commonly used screening instrument for minor, non-psychotic psychiatric disorders in the general population, in addition to being used as a general measure of psychiatric wellbeing (del Pilar Sanchez-Lopez & Dresch, 2008). It was initially developed as a clinical screening instrument for psychiatric disorders, with high scores warranting a thorough psychiatric evaluation (Goldberg et al., 1997). The GHQ-12 has been found to be sensitive to the presence of a range of psychiatric disorders including anxiety and mood disorders in the general population (Mann et al., 2011).

The GHQ-12 consists of 12 items each measuring a specified psychiatric disturbance on a 4 point Likert scale ranging from 0 to 3, with high scores indicating worse mental-health. Items 1, 3, 4, 7, 8 and 12 are reverse-scored. An individual's total score is then calculated as the sum of item-scores (total score range 0-36). There has been international discussion regarding whether the GHQ-12 is best considered a one-dimensional measure of general mental health or whether it is meaningful to view the measure as multi-dimensional (Gelaye et al., 2015; Sconfienza, 1998). However, a thorough analysis of different multi-factor models revealed that the GHQ-12 retains its utility as a one-dimensional measure of general mental health in a Swedish population (Sconfienza, 1998).

The GHQ-12 is available in many languages and the Swedish translation used in the current study has been tested in longitudinal and cross-sectional studies and been shown to be a valid measure of psychiatric illness and wellbeing in the general population (Sconfienza, 1998). The GHQ-12 has demonstrably good internal validity across countries with Cronbach's alphas often exceeding .80 (Gelaye et al., 2015). In the current study, Cronbach's alpha was .88 and thus comparable to previous alpha values (Gelaye et al., 2015).

**WPAI:GH.** To measure functioning in work and or studies and degree of impairment in these areas, we used the WPAI:GH (The Work Productivity and Activity Impairment Questionnaire: General Health, (Reilly et al., 1993). The measure consists of 6 items and asks participants to estimate to what extent their health issues – i.e. any physical or emotional problems or symptoms experienced during the past two weeks – have affected their work productivity, ability to perform everyday activities and time in and out of work role. Individuals who are not currently in work are asked not to answer questions related to work-life. The measure is designed to assess: 1) Absenteeism (percent of work-time missed because of health problems), 2) Presenteeism (percent of impairment while working because of health problems), 3) Work productivity loss (percent of overall work impairment because of health problems), and 4) Activity impairment (percent of everyday activity impairment because of health problems). The items and scoring algorithms for the scale are presented in Appendix B which is based on a table originally appearing in Pulay et al., (2016).

The WPAI and its disease-specific variations are widely used in clinical research. The WPAI, in its varying forms, has shown discriminative validity as a tool for measuring work- and activity impairment in patients with IBS (Reilly, Bracco, Ricci, Santoro & Stevens, 2004) and discriminative validity, reliability and responsiveness in measuring work- and activity impairments in patients with Crohn's disease (Reilly, Gerlier, Brabant & Brown, 2008). The WPAI has also been used in studies of adult depression (Beck et al., 2011) and as a measure of ADHD-related work- and activity impairment, associating the condition with significant productivity loss and work-related impairments that were more severe than findings from some studies examining IBS patients (Pulay et al., 2016). In this study, we used the Swedish translation of the WPAI:GH provided by the authors on their website (Reilly Associates, n. d.). The measure was altered minimally such that questions about work were reworded to include both work and education so that participants currently in education could estimate the impact of their ADHD on their ability to function in their adult studies.

**Brief Job Satisfaction Measure (BJSM).** To measure satisfaction in current role (work or studies) the BJSM (Judge et al., 1998) was selected. The measure consists of 5 items scored on a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Items 3 and 5 are reverse scored. Total scores are then calculated as the sum of each individual item-score. The five items were taken directly from the Brayfield-Rothe (1951) measure of job satisfaction and then utilized as an outcome variable in a 1998 study exploring the impact of personality dispositions on job satisfaction (Judge et al., 1998). The study tested the BJSM's reliability and validity in 222 university employees and found high levels of internal

reliability (Cronbach's alpha = .88) and significant correlations with another measure of job satisfaction  $r = .68$  (Judge et al., 1998).

In this study, we used an existing Swedish translation of the BJSM-II, but minor adjustments were made to the questions so that individuals in adult education would be able to report their overall satisfaction with their current studies. In the current sample, the Cronbach's alpha was .90, suggesting that this Swedish translation possessed acceptable levels of internal reliability, similar to the figure obtained for the English-language original (Cronbach's alpha = .88) (Judge et al., 1998).

### Questions regarding Work Supports

Table 1 presents information taken from Adamou et al. (2013), outlining the core ADHD symptoms alongside possible concrete workplace adjustments. The information in Adamou et al. (2013), summarized in Table 1, and the recommendations from Socialstyrelsen (2014) were used to guide the development of questions about the types of workplace supports the participants might (or should) be offered by their employers or schools to help reduce the impact of their ADHD symptoms.

Table 1.

#### *ADHD symptoms and possible adjustments in the workplace (Adamou et al., 2013)*

Symptom	Possible adjustments
Attention and impulsivity	Private office/quieter room/positioning in office, flexi-time arrangement, headphones, regular supervision, buddy system.
Hyperactivity/restlessness	Allowing productive movements at work, encouraging activity, structured breaks in long meetings.
Disorganisation, time management, and memory problems	Provide beepers/alarms, structured notes, agendas, regular supervision with frequent feedback, mentoring, delegating tedious tasks, incentive/reward systems, regularly introducing change, breaking down targets and goals, supplement verbal information with written material.

*Note.* The information in this table originally appeared in: Adamou, M., Arif, M., Asherson, P., Aw, T., Bolea, B., Coghill, D., Guðjónsson, G & ... Young, S. (2013). *Occupational issues of adults with ADHD. BMC Psychiatry*, 13:59.

In total, we generated 13 individual work supports, including: 1) a written work plan; 2) flexible time arrangements; 3) regular supervision including frequent, structured feedback

on performance; 4) mentor at work; 5) feedback or instructions given in both verbal and written formats, with clear, structured goals and time targets; 6) daily written agenda setting out the various tasks to be completed, and the time it should take for each task; 7) structured breaks from long meetings or assignments; 8) opportunities throughout the day to move around; 9) headphones or some other noise quieting device to reduce distraction; 10) private office or quieter work space to reduce distractions; 11) reassign tasks to other colleagues; 12) frequent incentives or rewards for progress during long or complicated tasks; 13) employer prompts to help to stay focused on tasks (emails, SMS, input from colleague/manager). Participants were asked to report whether they had received each individual support in their current workplace or in their adult studies. Participants currently out of work/studies were asked whether they had received such supports in their most recent workplace. Possible answers to questions regarding whether a support had been received or not were the following (1 = yes, 2 = no, 3 = not relevant). Participants were then asked to rate how helpful they consider each support to be (1 = not at all, 2 = somewhat helpful, 3 = very helpful, 4 = not relevant). Individuals who did not report the support in question were asked to assess how helpful they thought the support would be if they were to receive it (1 = not at all, 2 = somewhat helpful, 3 = very helpful, 4 = not relevant).

A new variable was then computed entitled Work Support in which individuals who reported having received at least 1 of a possible 13 supports in their workplace or in their adult studies were coded 1 (some support received), and those not reporting any of the 13 possible supports were coded 2 (no supports received whatsoever). Participants were then split into two groups based on this Work Support (any) variable so that comparisons could be carried out on measures of QoL, general mental health, work impairment and work satisfaction.

### **Statistical Calculations**

Our expectation, based on previous online research carried out by our supervisor in Sweden, was that we were likely to have more than 200 respondents if we posted the survey online and left it there for two weeks. With the assistance of our supervisor, and using the free online software G\*Power 3 (Faul., Erdfelder, Lang & Buchner, 2007), we knew prior to commencing the survey that a sample size between 20 and 95 participants would be needed to have 80% power to find statistically significant pairwise correlations ( $p = .05$ ) in the small to moderate range ( $r = .25$  to  $.50$ ) between our standardized measures of QoL, work satisfaction and general mental health. G\*Power 3 further indicated that a sample size of between 70 and 200 participants would provide at least 80% power to find statistically significant differences

on the mean scores of these measures between participants who did and did not receive workplace supports, assuming that these mean differences were in the small to moderate range of effect size (.20 - .60) as indexed by Cohen's  $d$  (Cohen, 1992).

After data was collected, we used the Descriptives command in SPSS to examine the frequencies of individual items (including missing values). For total scores on the measures of QoL, work satisfaction, general mental health and work impairment, the individual items were summed to obtain a total score only if 75% or more of the individual items were non-missing; otherwise a missing value was entered for the total score. We then used the Descriptives command (histograms, box-plots, 5% trimmed means, and extreme values table) to examine the distributions for total scores on the measures of QoL, work satisfaction, work impairment and general mental health; looking for departures from the normal distribution and outliers. No modification of the data was made to allow us to include statistical outliers; participants with scores on the QoL, work satisfaction, and general mental health that were statistical outliers were excluded from analyses. Where there were significant departures from the normal distribution, we used nonparametric statistics to evaluate the relationships between variables. The use of nonparametric statistics will be discussed further later on.

Mean scores for current participants were calculated for each self-report measure. These were broken down by gender to explore whether there were significant gender differences in the current sample. T-tests for independent samples were conducted when assumptions of normality were met for self-report measures to explore whether differences between men and women were significant. Total scores were also compared with results from previous research. Mann-Whitney's U-test was used to compare mean ranks between women and men on WPAI: WPL (Work Productivity Loss) as this variable was not normally distributed, with different shaped distributions being identified in populations of men and women.

To explore relationships between self-report measures we obtained Pearson's product moment correlation coefficients and associated p-values for pairs of measures. The reliability of Pearson's correlation coefficient can be reduced if there are significant outliers in the data and these should be removed before analyzing our data (Wilcox, 2005). A total of 4 outliers were identified which deviated more than 3 standard deviations from the value predicted by the regression equation for Pearson's correlations between AAQoL and GHQ-12. Removing these outliers slightly increased Pearson's  $r$ .

The Pearson product moment is also less reliable when the underlying distributions depart significantly from bivariate normality and homoscedacity (Wilcox, 2005). No

violations of homoscedasticity assumptions were identified. Normality could be assumed for AAQoL and GHQ-12, based on both visual plots and Shapiro-Wilkes tests for normality but not for WPAI: WPL and BJSM. The distribution for WPAI scores was characterized by high frequencies of values on both extremes, whilst BJSM scores were characterized by negative skewness. Such distributions are common in clinical populations and transformation of the data to “normalize” the distributions can lead to a loss of meaningful information (Kim, 2012). Instead we used non-parametric equivalent of Pearson’s correlation, Spearman’s rho, for analyses involving the WPAI: WPL and BJSM.

To answer research question 5, two groups were formed based on receipt of work support (any) and compared using t-tests for independent samples. A filter variable was created selecting participants based on whether employer knowledge of ADHD was reported and whether or not participants had answered yes to the first item of the WPAI:GH measure (“I am currently employed and/or in adult education”). Thus, all unemployed participants were excluded along with currently employed participants who did not report employer knowledge of their ADHD. Equal variances could be assumed for all measures according to Levene’s test. WPAI: WPL and the BJSM deviated from normal distributions, according to both Shapiro Wilkes and visual inspection of normality plots. We chose not to transform the data because of fears of losing meaningful information. Because of this the Mann-Whitney U-test, which is a non-parametric test appropriate for non-normal distributions, was carried out along with t-tests so that the same comparisons were conducted again.

IBM SPSS Statistics version 23 was used to calculate all statistical analyses. An alpha of  $p \leq .05$  was the cutoff for assessing statistical significance for all analyses, i.e. no corrections of alpha were made to address possible inflation of Type I error (falsely rejecting the null hypothesis) owing to the number of analyses carried out with this single dataset. Such a correction was not done for three reasons: 1) the study was more than adequately powered to undertake pairwise correlations between the measures; 2) the study was exploratory in nature and reducing the risk of Type I error is necessarily accompanied by an increase in the risk of Type II error (falsely accepting the null hypothesis) and thereby ignoring meaningful departures from the null hypothesis (Perneger, 1998); and 3) an over focus on statistical significance by researchers and journals can result in a publication bias such the 'true' relationship between variables is over-estimated in the literature (Nakagawa, 2004; Perneger, 1998). As a balance against the problem of Type I error arising from multiple comparisons, it has been suggested that researchers simply describe what tests of significance have been performed and why, and where possible provide standardized indices of the size of the

relationship between variables (i.e., the effect size) regardless of significance levels, and allow the reader to decide whether the results are meaningful (Nakagawa, 2004). We have followed that recommendation.

### **Ethical Considerations**

Vetenskapsrådet [Swedish research council] (2002), states four main demands on ethically conducted research that concern humans. 1. Participants should be informed of all parts of a study that may affect their wish to partake in the study and that all participation is voluntary. 2. The participants have to, after receiving the information in the aforementioned demand, freely consent to participate. 3. All information concerning the participant should be treated with confidentiality. 4. The data collected should only be used for the stated purposes.

In the Facebook posts as well as on the first page of the survey the purpose and method of the study was stated. We were identified as master's students of psychology at Lund University with full names in both survey and Facebook posts and e-mail addresses in the Facebook posts. All participation was voluntary and the individuals approached had the opportunity to ignore the survey link if they were not interested or disliked the purpose of the study. To access the survey, participants had to answer a question that confirmed that we had their informed consent (see Appendix A) to participate and that they were aware that they could leave the survey and terminate all participation at any time if they wished to do so. If this question was not answered the participant would have been unable to access the main survey.

The study inquired into areas related to psychological health and wellbeing, along with explicitly asking participants whether they had received a formal diagnosis of ADHD. These areas are considered as sensitive by Swedish law (Svensk författningssamling [SFS], 1998:204). The design, however, ensured complete anonymity that made it impossible to identify participants based on their answers. Personal information was not collected and the answers could not be linked to an individual. The author enrolled in the Facebook groups discontinued her membership in the groups after the survey was closed.

The aim of the study was defined as expanding the knowledge on how support in the workplace could lead to an improvement in work situations for the targeted group. This combined with the innocuous nature of the questions in the survey that were not constructed to affect the participants in any way, ensured that the risk of the participants being negatively affected by their partaking in the study was considered extremely small. Since the questions and questionnaires used in this survey have been used in prior surveys without any reports of unintended or negative responses, and since the targeted participants were actively engaged in



groups and forums aimed at adults interested in discussing their ADHD symptoms, we (and our supervisor) did not foresee any reason why the questions might cause significant or lasting distress to any participants. Nevertheless, in the event that participation raised questions or concerns, a link to Riksförbundet Attentions website about ADHD in the workplace (<http://www.adhdpajobbet.se/>) was provided at the end of the survey for those interested in learning more. Also, we offered to answer questions and comments about the survey via email and Facebook (and did so when asked).

## **Results**

For the sake of clarity, the results are presented according to the research questions.

### **Question 1: Levels of Education and Unemployment.**

Table 2 presents sociodemographic characteristics, age at time of diagnosis of ADHD, and receipt of different forms of treatment for ADHD in the current sample.

By means of comparison educational levels in Sweden for the group 15-74 years in 2015 were the following: 18.2% had only finished high school or less, 44% had finished gymnasium, 35.6% had finished either vocational college or a university degree (Statistiska centralbyrån, n. d.). Educational levels presented by Gjervan, Torgersen and Hjemdal (2016) in a Norwegian sample with confirmed ADHD diagnoses were the following: 61.1% of participants had finished the Norwegian equivalent of gymnasium and 18.1% had bachelor's degree or higher university degrees. Thus, the present sample had similar levels of educational attainment as the normal population. A closer examination of comparisons with the Norwegian clinically-referred sample will be provided in the upcoming discussion.

Not reported in the table, the main source of income for participants was normal wage (54.6%), student finances (7.9%), disability pension/social benefits (17.6%) and 'other' (19.8%). In a cross-sectional study of the Swedish population in 2016, Statistiska Centralbyrån (2002-) reported that of the population between the ages of 15 and 74 years, 67% were employed, 6.9% were unemployed, and 7.7% (14% excluding retired persons) were in studies. Gjervan et al. (2016), though using somewhat a slightly different definition of employment, found that 38% of their ADHD sample were reported to be completely out of work or studies over the last 12 months, whilst 36% were in work or studies and 26% were in work or studies to varying extents but in capacities that were less than full-time.

Thus, the proportions of participants in the current study that reported being in employment or studies was somewhat lower than the general population and somewhat higher than a Norwegian sample of adults with ADHD.

Difference in prevalence of sick-leave was also examined. For the Swedish population, an estimate was calculated using data provided by Statistiska Centralbyrån (2002): in order to do this the number of individuals reporting they were ill in the general population ( $n = 308,000$ ) was divided by the total number of persons in the age-group 15-74 years ( $n = 7,323,000$ ), yielding a 4.2% rate of sick-leave in the Swedish population in 2016. The percentage of sick-leave in the current sample was 22.5%.

Table 2.

*Sociodemographic and clinical characteristics of study participants for women and men separately and for all participants*

	Women ( $n = 160$ )	Men ( $n = 67$ )	All Participants (male and female) ( $n = 227$ )
Mean age in years (SD)	34.6 (9.3)	38.4 (9,9)	35.5 (9.6)
Highest Level of Education			
High School or less, %	20.0	19.4	17.6
Gymnasium, %	40.6	53.7	44.5
Vocational College, %	15.6	9.0	13.7
Bachelor's degree or above, %	23.8	17.9	22.1
Employment Status			
Employed, %	44.4	56.7	48.0
Unemployed, %	5.0	9.0	6.2
Student, %	14.4	6.0	11.9
Sick leave, %	25.0	16,4	22.5
Other, %	11.3	11.9	11.5
Age at ADHD diagnosis			
≤ 18 years of age, %	13.1	9.0	11.9
> 18 years of age, %	86.9	91.0	88.1
Treatment for ADHD			
Offered stimulant medication, %	83.1	82.1	82.2
Currently using stimulant medication, %	59.4	61.2	59.9
Offered non-stimulant medication, %	56.3	50.7	54.6
Currently using non-stimulant medication, %	18.8	28.4	21.6
Offered Psychotherapy, %	42.5	53.0	45.4
Currently in psychotherapy, %	15.6	9.0	13.7

**Question 2: Comparisons of Mean Scores on Self-Report Measures of Impairment and Wellbeing.**

Means and standard deviations for women, men, and all participants on the self-report measures of ADHD-specific QoL, general mental health, work satisfaction, and work-related impairment are reported in Table 3. To better interpret these measures in the current sample, we obtained means and standard deviations from previous studies (identified in notes of Table 3). In our sample, men scored significantly higher on the Psychological Health subscale of the AAQoL than women but there were no significant differences for total QoL as indexed by the Total Score on the AAQoL in the two gender groups. There were also no significant differences between men and women on GHQ-12 or BJSM scores. In the current sample, when comparing mean ranks with Mann-Whitney U-test instead of means with a t-test, women were found to have higher scores on the Work Productivity Loss subscale of the WPAI:GH (women's mean rank = 80.65 vs men's mean rank = 58.44, Asymptotic Significance (two-tailed)  $\leq 0.05$ ). Comparing results from the current study with those of Lundin and colleagues (Lundin et al., 2016) cross-sectional study suggest that mental health issues, as measured by the GHQ-12, appear to be greater in the current sample than in the general population.

Table 3.

*Means, standard deviations for women, men, and all participants on self-report measures of quality of life, general mental health, work satisfaction, and work-related impairment from ADHD.*

Measures	Gender				All Participants <sup>n</sup>		Previous research	
	Women		Men		M	SD	M	SD
AAQoL	(n = 160)		(n = 67)		(n = 230)		(n = 313 <sup>a</sup> )	
Total Score	42.9	13.0	43.8	16.0	43.2	13.9	50.89	16.46
Life Productivity	44.0	16.8	45.1	19.9	44.4	17.7	50.34	19.52
Relationships	44.5	18.0	46.4	21.8	45.0	19.2	55.97	20.21
Life Outlook	45.0	16.8	40.7	18.5	43.7	17.4	52.33	17.40
Psychological Health	37.3	17.0	42.8	18.8*	38.9	17.7	46.68	21.17
GHQ-12	(n = 160)		(n = 67)		(n = 230)		(n = 552 <sup>b</sup> )	
Total Score	21.0	7.0	20.6	7.6	21.0	7.2	9.73	4.98
BJSM	(n = 107)		(n = 44)		(n = 151)		(n = 122 <sup>c</sup> )	
Total Score	25.4	7.0	25.5	7.0	25.4	7.6	33.6 <sup>e</sup>	10.9 <sup>e</sup>
WPAI:GH	(n = 106)		(n = 44)		(n = 150)		(n <sup>d</sup> )	
Presenteism (%)	46.5	33.1	30.0	25.7	41.7	32.0	40.7	(n = 39)
Absenteism (%)	21.6	35.3	8.1	19.1	17.6	31.9	12.8	(n = 43)
Work productivity loss (%)	51.0	34.8	33.0	27.1**	45.7	33.7	47.5	(n = 38)
WPAI:GH Activity impairment (%)	(n = 160)		(n = 67)		(n = 230)		(n = 75 <sup>d</sup> )	
	59.0	27.9	54.3	28.9	57.7	28.2	42.9	

*Note.* GHQ-12 = General Health Questionnaire, 12-item version; BJSM= Brief Job Satisfaction Measure II; AAQoL=Adult ADHD Quality of Life Scale; WPAI:GH=Work Productivity and Activity Impairment scale, General Health version.

Equal variances not assumed for AAQoL and Work Productivity Loss.

<sup>a</sup>Gjervan et al. (2016). <sup>b</sup>Lundin et al. (2016). <sup>c</sup>Judge et al., (1998). <sup>d</sup>Pulay et al., (2016).

<sup>e</sup>Values from Judge et al. (1998) are multiplied by 5 to compensate for different calculation formulas. <sup>n</sup> all participants include 3 participants reporting their gender as other than man/woman.

\* Indicates correlations are significant at  $p \leq 0.05$  (2-tailed).

\*\*Indicates Asymptotic Significance at  $\leq 0.05$  for Mann-Whitney U-test.

### Question 3: Relationships between Self-Report Measures.

Spearman's rho coefficients and Pearson correlation coefficients between total scores on measures of general mental health, job satisfaction, ADHD-specific QoL, and work productivity loss are reported in Table 4. Moderate to strong correlations, in the expected directions, were found between all outcome variables and all correlations were significant at  $p \leq 0.05$ .

Table 4.

*Spearman's rho and Pearson correlation coefficients between total scores on measures of general mental health, job satisfaction, ADHD related quality of life, and work productivity and impairment.*

Measure	1	2	3	4
1. GHQ-12 (n = 226)	-			
2. BJSM (n = 151)	-.477	-		
3. AAQoL (n = 226)	-.818 <sup>p</sup>	.470	-	
4. WPAI:WPL (n = 150)	.533	-.405	-.553	-

*Note.* Ns vary depending on employment status and missing data.

GHQ-12 = General Health Questionnaire, 12-item version; BJSM = Brief Job Satisfaction Measure II; AAQoL = Adult ADHD Quality of Life Scale; WPAI:WPL = Work Productivity and Activity Impairment scale, Work productivity Loss.

All correlations were significant at  $p \leq 0.05$  (2-tailed). <sup>p</sup> = Pearson Correlation.

### Question 4: Prevalence and Perceived Helpfulness of ADHD-specific Work Supports.

52.4 % of the study's participants had informed their most recent employer or director of studies of their ADHD diagnosis. Of these participants 80% (n = 98) reported being in work or adult studies at the time of the survey, with 14% of these being predominantly in adult education (n = 14). 85% of participants that professed employer awareness of their ADHD reported having received some form of ADHD-specific support in their work or studies.

Table 5 reports frequencies of ADHD-specific supports provided in the workplace or place of education for those participants who had informed their current or most recent employer of their ADHD (n = 122). Along with this, it describes participants' assessment of each individual support's helpfulness. The number of participants that considered or would

consider the support in question to be helpful, unhelpful or irrelevant for their specific work role or work environment is also provided.

The number of participants in the whole sample ( $n = 230$ ) that reported having received ADHD-specific supports in current or previous work or studies was 152 (66.1%). For a description of the prevalence of work supports and their perceived helpfulness in relation to all participants, i.e. both those with and without employer awareness, see Appendix C.

Table 5.

*Proportion of participants being offered work ADHD-specific supports at work and helpfulness of these supports.*

	Received	Perceived helpfulness		
		Helpful	Not helpful	Not relevant
Written work plan (n received = 122, n helpful = 111)	19 (15.6%)	44 (39.6%)	9 (9.9%)	56 (50.5%)
Flexible time arrangements (n received = 122, n helpful = 115)	51 (41.8%)	71 (61.7%)	9 (7.8%)	35 (30.4%)
Regular supervision including frequent, structured feedback on performance (n received = 121, n helpful = 111)	26 (21.5%)	54 (48.6%)	15 (13.5%)	42 (37.8%)
Mentor at work (n received = 122, n helpful = 112)	13 (10.7%)	37 (33%)	23 (20.5%)	52 (46.4%)
Feedback or instructions given in both verbal and written formats, with clear, structured goals and time targets (n received = 122, n helpful = 110)	16 (13.1%)	42 (38.2%)	11 (10%)	57 (51.8%)
Daily written agenda setting out the various tasks to be completed, and the time it should take for each task. (n received = 122, n helpful = 111)	8 (6.6%)	29 (26.1%)	21 (18.9%)	61 (55.0%)

Table 5 continued.

	Perceived helpfulness			
	Received	Helpful	Not helpful	Not relevant
Structured breaks from long meetings or assignments (n received = 122, n helpful = 113)	25 (20.5%)	46 (40.7%)	15 (13.3%)	52 (46.0%)
Opportunities throughout the day to move around (n received = 121, n helpful = 117)	69 (57.0%)	84 (71.8%)	8 (6.8%)	25 (21.4%)
Headphones or some other noise quieting device to reduce distraction (n received = 122, n helpful = 113)	14 (11.5%)	42 (37.2%)	17 (15.0%)	54 (47.8%)
Private office or quieter work space to reduce distractions (n received = 122, n helpful = 114)	20 (16.4%)	45 (39.5%)	13 (11.4%)	56 (49.1%)
Reassign tasks to other colleagues (n received = 122, n helpful = 113)	20 (16.4%)	40 (35.4%)	15 (13.3%)	58 (51.3%)
Frequent incentives or rewards for progress during long or complicated tasks (n received = 122, n helpful = 114)	55 (45.1%)	78 (68.4%)	9 (7.9%)	27 (23.7%)
Employer prompting to help to stay focused on tasks (emails, SMS, input from colleague/manager) (n received = 122, n helpful = 112)	30 (24.6%)	57 (50.9%)	12 (10.7%)	43 (38.4%)

*Note.* Differences in n are due to technical difficulties with the survey program used for data collection. n-received contains participants answering having received a support or not. n-helpful contains participants answering whether or not they consider the support helpful.

### **Question 5: Relationships between ADHD-specific Work Supports and Self-Report measures of Impairment and Wellbeing.**

Means and standard-deviations for GHQ-12, AAQoL, BJSM and WPAI:GH: Work Productivity Loss for the group who received support and the group who did not, are reported in Table 6. Also reported in Table 6 are t-tests for comparisons between groups on the previously mentioned variables. Participants whose closest supervisor was unaware of their employee's ADHD diagnosis along with those who were not employed or in adult studies at the time of the survey – were all excluded from these analyses. In the group receiving support,

88% were in work and 12% in studies, in the group receiving no support 87% were in work and 13% in studies. For the sake of clarity, duly note that when we use the terms work support, work productivity loss and work satisfaction throughout the study we are also referring to the 12-13% of participants currently in adult studies.

There were no significant differences in general mental health measured by GHQ-12 between the groups. In addition to this, both parametric and non-parametric tests failed to find significant differences in percentage work productivity loss between groups: Mann-Whitney Test for independent samples = 529.500,  $p = 0.595$ . Participants receiving work support for their ADHD did, however, have a significantly higher QoL than those not receiving work support. Those receiving work supports also had significantly higher job satisfaction than those who did not receive work support for their ADHD. This was the case according to both parametric and non-parametric tests: Mann-Whitney Test for independent samples = 408.00,  $p = 0.034$ . Cohen's  $d$  calculations indicate medium-sized effect sizes for significant differences found between groups on measures of job satisfaction and QoL. Since the significance of group differences did not depend on the use of parametric or non-parametric tests, only t-tests are reported in Table 6.

Table 6.

*Means and standard deviations for Support and No support groups, excluding all participants that did not report employer knowledge of ADHD and all participants that are currently out of work and/or studies.*

Measures	Support		No support		t-test			
	M	SD	M	SD	$\Delta$	T	p	$d$
GHQ-12 (n = 83, n = 15)	18.96	7.74	22.13	5.64	-3.17	-1.51	0.134	
AAQoL (n = 83, n = 15)	47.02	15.78	37.18	13.43	9.84	2.27	0.026	0.67
WPAI:WPL (%) (n = 83, n = 14)	40.59	32.77	47.56	39.01	-0.07	0.71	0.476	
BJSM (n = 83, n = 15)	25.67	7.43	20.53	8.93	5.13	2.39	0.019	0.63

*Note.* Ns vary because of missing data. GHQ-12 = General Health Questionnaire, 12-item version; BJSM = Brief Job Satisfaction Measure II; AAQoL = Adult ADHD Quality of Life Scale; WPAI: WPL = Work Productivity and Activity Impairment scale, Work productivity Loss.  $\Delta$  = Mean difference.



## **Discussion**

The primary aim of this study was to survey a sample of Swedish adults with ADHD to see whether they had been offered supports from their workplace or school because of their ADHD and whether such supports were related to their self-reported QoL, levels of work satisfaction, work impairment and general mental health. We now discuss the results in relation to each research question.

### **Question 1: Levels of Education and Unemployment.**

**Highest level of education.** Levels of education in the current sample of adults with self-reported ADHD were relatively close to the general Swedish population, with only marginal differences to be found. However, when compared to the highest level of education presented in Gjervan et al. (2016) where 61.1% of participants reported having finished the Norwegian equivalent of gymnasium and 18.1% had attained bachelor's degree or higher university degrees, the current sample was found to have a higher percentage of participants reporting having completed vocational college, bachelors or higher university degrees (35.8% vs 18.1%). The conclusion to be drawn from this, with some reservations for differing categorizations of higher education, is that the current sample of adults with self-reported ADHD is more high achieving than a sample of clinically-referred adults with ADHD from Norway, but largely comparable with the general population.

**Employment.** Employment levels in the current sample were lower than the Swedish general population. Although a similar percentage claimed that they were currently unemployed (6.2% in the current sample and 6.9% in Swedish population), the percentage of participants reporting that they were employed in the current study was lower than in the general population (48% vs. 67%). Even though there may be some self-employed participants not wanting to classify themselves as “employed” in the current study, and hence hiding in the category “other”, it is relatively safe to assume that there is a difference to be found here. Furthermore, comparisons revealed higher percentages of participants reportedly on temporary sick-leave in the current sample (22.5%) than in the general Swedish population (4.2%). This may well be a result of high levels of comorbidity reportedly affecting individuals with ADHD. It may also reflect the possibility that people who frequent ADHD support pages on Facebook, from where the overwhelming majority of participants for this study were recruited, are more ill than other people with ADHD or the general population.

When compared to Norwegian adults with ADHD (Gjervan et al., 2016) where 36% reported being in work or studies, the current study's participants reported a higher

employment rate with 59.7% in work or studies. Differences may be attributable to the Norwegian participants having been recruited from adult psychiatric clinics, making it reasonable to assume that they may have been more impaired than our sample.

Overall, and as indexed by current levels of employment, our sample of adults with ADHD appear to have poorer occupational outcomes than the general Swedish population but slightly better occupational outcomes than a clinically-referred Norwegian ADHD population. Furthermore, the results suggest that our current sample may be more impaired and have more general mental health issues than the Swedish population when comparing the percentage of individuals currently reported to be on sick-leave in Sweden with the current sample. The impairment of the current sample is also evident in findings ascertained from the self-report measures previously described. This will be discussed in the upcoming sections.

## **Question 2: Comparisons of Mean Scores on Self-Report Measures of Impairment and Wellbeing.**

**General Mental Health.** Our results suggest that mental health issues were more prevalent in this sample of adults with ADHD than in the general Swedish population. Scores on clinical instruments administered to the general population tend to be positively skewed, with the majority reporting lower levels of health-related issues (Pallant, 2007). Scores on the measure of general mental health (GHQ-12) in our sample were normally distributed, and the mean was higher than in the general population (Lundin et al., 2016), suggesting a higher prevalence of mental health issues in the current sample of adults with self-reported ADHD. This finding is consistent with international research tentatively suggesting a significantly elevated risk for psychiatric morbidity such as anxiety and mood disorders in adults with ADHD when using the GHQ-12 (Gjervan et al, 2012; Mann et al., 2011). We do not know whether the higher GHQ-12 scores in this sample are directly attributable to the core symptoms of ADHD or to comorbid conditions, but in either case the results are consistent with this sample of adults identifying current ADHD symptoms falling in the clinical range of severity for psychiatric disturbance.

**AAQoL.** The current sample reported similar levels of ADHD-specific QoL to the adults in the validation study of the Norwegian version of the AAQoL. This suggests that the current participants in the current sample were experiencing adverse effects of their ADHD symptoms in their relationships, psychological health, life productivity and life outlook that were comparable to a clinically-referred sample of adults with ADHD in a neighboring Nordic country (Gjervan et al., 2016). The results tentatively suggest that through Facebook support groups for Swedish people with ADHD we have been able to recruit a sample who

are comparable in their levels of functioning to formally diagnosed ADHD sample in Norway. However, we need to point out that the majority of participants reported being diagnosed after the age of 18 years (88.1%), which may suggest that they differ in important ways from individuals who were diagnosed as children, i.e., they are less severe in their presentation or may even be misdiagnosed with ADHD as adults. In any case, assuming they are correctly diagnosed after age 18, these participants will have missed interventions in childhood that have been shown to improve functional outcomes in adult life (Gjervan et al., 2012; Halmóy et al., 2009; Kuriyan et al., 2013). This may be part of the explanation for the degree of impairment in the current sample.

**Occupational Function.** Results suggest impairments in occupational function that are comparable with previous research (de Graaf et al., 2008; Pulay et al., 2016). Swedish adults with ADHD are impaired in their working lives, both in terms of missing work or studies because of their ADHD (17.6% work loss because of Absenteeism) and impaired performance whilst at work or studies, with a mean of 41% of time spent at work or studies being lost because of their ADHD. The finding that ADHD hits hardest not in terms of hours-missed, but in impaired performance in the workplace has also been found in previous research (Pulay et al., 2016). The size of these figures and the plausible consequences not only for the individual sufferer, whose struggles in occupational settings are plain to see, but also for employers and workplaces in general, are substantial. Furthermore, these findings are alarming in that around 60% of the current sample were currently taking stimulant-based ADHD-medication and 22% were currently using non-stimulant based ADHD medication, suggesting that medication alone is not enough to ensure good occupational functioning in adults with ADHD. The degree of impairments in this area of adult function further underlines the need for effective interventions in the workplace and experimental testing of the same.

**Activity Impairment.** Aside from impairment in occupational settings, our sample are also clearly struggling with everyday activities with 57.7% of everyday activities being reported as impaired by ADHD symptoms. However, it is important to note that this figure, unlike analyses of occupational function, includes all 230 participants. This means that participants that reported currently being out of work or studies or on sick leave (29%) were included in the analyses. It is reasonable to suspect that these individuals were more impaired than those currently in work or studies.

**Job Satisfaction.** It is difficult to interpret level of job satisfaction in the current sample and to compare this with other previous research as the articles we reviewed do not present appropriate norms for work satisfaction. Samples in previous research (Judge et al.,

1998) differ too much in demographic characteristics from the current sample in order to draw meaningful conclusions. This is an understudied area in adults with ADHD.

**Gender Differences.** We found significant differences between men and women such that women reported higher levels of work productivity loss from ADHD than men. Previous research on gender and ADHD has found that the differences between genders come primarily in the prevalence of different types of comorbid psychiatric disorders rather than in core symptoms of ADHD (Babinski et al., 2011; Soendergaard et al., 2016). Also, Babinski et al. (2011) found that occupational outcomes of men and women with childhood ADHD were similar with no differences between men and women on self-report and parent-report measures of work impairment in terms of jobs lost, and with similar levels of pay in jobs held. It is difficult to interpret our findings in respect of this previous research as we were not able to recruit the same number of men as women through our survey. It is possible that the women in our survey, members of these Facebook support pages, had higher levels of symptom severity and comorbidity than the male members. Re-evaluation of these findings in a representative sample of the Swedish population of adults with ADHD is needed.

Furthermore, although women and men did not differ in terms of objective measures of general mental health (GHQ-12), and total QoL (AAQoL Totalscore), there were significant differences in scores on the AAQoL subscale Psychological Health, with women reporting significantly lower Psychological Health than men. It is possible that our findings reflect a true state of affairs, i.e., that women experience a more negative impact on their general psychological wellbeing from ADHD than their male counterparts as evidenced by their lower scores than men in this sample on the AAQoL subscale Psychological Health. Interestingly, women and men were shown to differ in the same way in previous research on adults with ADHD (Gjervan et al., 2016). Women reported significantly lower values than men on the Psychological Health AAQoL subscale, but did not differ from men on the other subscales or in terms of AAQoL Totalscore (Gjervan et al., 2016). In this Norwegian study (Gjervan et al., 2016) the only gender differences that were discussed were those found in types of comorbid psychiatric disorders, with borderline personality disorder being more prevalent in women than men and substance abuse being more common amongst male sufferers of ADHD. This finding from Gjervan et al. (2016) is consistent with other research cited above (Soendergaard et al., 2016). Ultimately, Gjervan et al. (2016) made no attempts to explain differences on the AAQoL subscale in question. Clearly, further investigation is warranted.

### **Question 3: Relationships between Self-Report Measures.**

The results of our analyses suggest that general mental health, QoL, job satisfaction and work impairment are all moderately to strongly related to each other in a sample of Swedish adults with ADHD. It appears to be the case that individuals with worse mental health are more impaired in their work and or studies, which is consistent with earlier literature (Beck., et al, 2011; Gjervan et al., 2012). Interestingly, and here we believe we add new information to the literature, individuals who experience themselves as more impaired and encumbered by their ADHD in general, are more impaired and encumbered in their work or studies, and less satisfied in their current roles. Specifically, those who express less satisfaction in their work and/or studies, reported more difficulty functioning in these areas than those who reported higher work satisfaction.

The relationship between general mental health and ADHD-specific QoL was particularly strong ( $r > .80$ ), so much so that it may arouse concerns that the measures are capturing the same underlying constructs and hence pose questions about whether both of these measures are needed in research on adults with ADHD. Further research is needed to determine why these two measures correlate so well with each other and whether using both in research is warranted. The difference between these two scales may reside in the subjectivity inherent in the AAQoL. Disease-specific QoL is not primarily concerned with symptom severity, though this is important for the individuals in question, but rather with an individual's subjective evaluation of the impact of their symptoms on areas related to psychological and physical wellbeing. The GHQ-12, however, is concerned only with identifying mental health issues, rather than the impact of these symptoms on the individual's ability to function to a degree considered by them to be subjectively adequate. The impact of psychiatric disorders and illness in general on overall QoL has been documented (Coghill et al., 2010). Thus, it does not seem unreasonable to assume that general mental health and overall QoL will be interrelated in adults with ADHD and that the measures used are discriminating between constructs enough to make comparisons meaningful.

Of course, it is important to point out that the results of correlational analyses between two variables does not provide insight into causality or reveal the direction of influence. Furthermore, there may well be other variables influencing this bivariate relationship than those included in the analysis. Significant correlations may, however, be interpreted as suggesting that these separate constructs are all of relevance as they are interacting with each other in individuals with ADHD. Specifically, the impaired function in work or studies, general mental health, work satisfaction and QoL are clearly related to one another and

interventions successfully targeting the impact of ADHD on these factors may potentially impact other areas than those specifically targeted by an intervention. It is, however, impossible to use the current data to identify how treatment resources should be allocated.

#### **Question 4: Prevalence and Perceived Helpfulness of ADHD-specific Work Supports.**

Receiving support in the workplace for ADHD-related symptoms should logically necessitate informing one's supervisor that support is required along with specific reasons for this. When interpreting the following discussion, it should also be noted that those who professed employer awareness in their most recent occupation, but who were currently out of work and or studies at the time of the survey, referred to their most recent workplace/school when answering questions about supports. At this stage, the experiences of these individuals are still relevant.

All supports asked about in the study had been received by some of the participants, suggesting that supports like these are being offered in Swedish workplaces and educational settings. The 13 supports examined in this study, suggested by Adamou et al (2013), were conceived of as targeting the impact of three distinct ADHD symptoms on occupational function; inattention; hyperactivity and disorganization; time management and memory problems. There were supports for each of these areas of ADHD-related dysfunction that were perceived of as helpful or as potentially helpful by most participants. This can be viewed as a suggestion that workplace supports such as these could be experienced as helpful across the various symptoms experienced by ADHD sufferers. Furthermore, it should be noted that the number of participants perceiving each individual support as potentially helpful resolutely exceeded the number of participants that reported having received said support, tentatively suggesting that there is a gap between what individuals want and what they are receiving.

Our survey does not elucidate the reasons why individual supports were not always considered relevant or helpful to the same extent. Some supports may simply not be relevant to the types of employment or studies in which our participants were engaged. We did not ask about occupation type and in retrospect we should have. It is reasonable to assume that supports and individual work roles must be opportunely matched to be perceived as helpful and relevant for individual sufferers of ADHD. It is also possible that individuals experience or perceive some supports as tedious or unappealing regardless of any potential benefits they may have in the long-term for occupational or academic performance.

However, and consistent with the Socialstyrelsen (2014) guidelines for Swedish employers, our results tentatively suggest that individuals with ADHD, who inform their employer or director of studies of their condition, are being offered support. Whether these

supports are offered to all employees or students remains unclear. Also, it is important to stress the tentative nature of these results. Perceptions of helpfulness or relevance do not necessarily mean that these same supports would be found to be helpful under experimental conditions, e.g. a randomized controlled trial, and this sample may not be representative of adults with ADHD in the Swedish population. We return to these limitations issues later in the discussion.

### **Question 5: Relationships between ADHD-specific Work Supports and Self-Report Measures of Impairment and Wellbeing.**

Results suggest that adults with ADHD currently receiving work supports, of a kind similar to those recommended by Socialstyrelsen, differ significantly in their evaluations of QoL when compared to adults with ADHD that are managing the impact of symptoms at work or studies without workplace supports. They also differ in terms of job satisfaction, with those receiving supports having reported significantly greater satisfaction in work or studies than those not receiving supports. These groups did not differ significantly in terms of general mental health or work productivity loss.

The implication of these findings is that work supports that theoretically compensate for the impact of ADHD on the ability to function at work or in studies may have a positive impact on an individual's subjective experience of his/her satisfaction with key areas of their life. As has been stated by both Coghill (2010) and Brod et al. (2015), there is a demand for treatment assessments and therapeutic goal-formulations that take a more holistic view of ADHD than merely its symptoms, the severity of these and their potential amelioration. Work, as has been discussed, is one of the central aspects of adult-role functioning, and it does not seem unreasonable to assume that support in this aspect of everyday functioning may enhance QoL in a group of individuals with a chronic psychiatric disability without directly reducing or alleviating core symptoms, with the latter treatment outcome being targeted by psychopharmacological interventions.

Interestingly groups did not differ significantly on the study's primary measure of work related function and impairment. This result can be considered surprising and could tentatively suggest that employed adults with ADHD cannot be assumed to benefit in terms of increased work performance from supports specifically targeting the impact of core-ADHD symptoms on work related functioning. If valid, the results of the current study suggest that the work supports studied here do not result in differences in actual work performance as indexed by time out of work role and amount of work efficiently produced. It is, however, important to note that the small size of the group of individuals that received none of the 13

possible supports, and the large standard deviations for our measure of work-related impairment may have resulted in a risk for Type II errors. The observed differences between the groups who received or did not receive work supports in terms of work related impairment (WPAI-WPL: 40.6% vs. 47.6%) was not significant, but future research, with larger samples and a more equal gender balance, is ultimately needed to corroborate these findings.

Though it was possible to control for employer or supervisor awareness and employment status in general and exclude potential threats to validity from the analysis, differences in number of participants make it difficult to ensure that demographic characteristics are evenly distributed between the two groups. This makes it hard to rule out unidentified and uncontrolled differences between these groups. Thus, some care must be taken when claiming that groups primarily differ in terms of the presence of ADHD-specific supports in the workplace. Competing explanations could be level of education, gender, current psychopharmacological treatment adherence or the number of participants in work versus in the number of participants in adult studies. However, after exploring frequencies, this did not seem altogether likely, as ADHD-treatments, gender, level of education, and distributions of participants in work and in studies, were evenly represented in both groups.

When interpreting these results, it is also important to point out that the analyses conducted did not differentiate between different types of work supports. It is possible that some work supports may have a greater impact on outcome measures than others. Additionally, it is also possible that some work supports only have a limited impact on outcome measures or, perhaps, that they have no impact at all. Furthermore, the analyses did not take into account the amount of work supports received by participants and thus do not provide insight into whether facilitative interventions demand a large or a small amount of environmental adjustments in the workplace. It is also possible that the individuals in question were receiving some form of work support that is not included in the 13 alternatives listed in the survey. Finally, no information was collected on the participant's type of occupation or form of adult education and thus the impact of work supports in different types of settings, along with aforementioned questions, lies beyond the reach of this study and its conclusions.



## **Methodological discussion**

**Design and Procedure.** There are disadvantages to using an internet survey. First and foremost, it cannot be ensured that the participants actually have ADHD diagnosed by a health or mental health professional. The participants were asked if they had received an ADHD diagnosis from a healthcare professional and since it wasn't obvious that they would be excluded by answering no, most participants will hopefully have answered the question honestly. We note also the very high percentage of participants who reported being offered (>80%) or in receipt of medication for ADHD (60%), which would lend some support to the assumption that these individuals had actually been diagnosed with ADHD by a health professional.

The survey took around 15 minutes to fill in and contained a moderately large number of questions. This may have been an issue for participants, considering attentional and executive difficulties presumably prevalent in the sample. It is therefore possible that the most impaired participants were not able or inclined to follow through with the survey. To exclude the impact of inattention and lapses in concentration, all questions were made compulsory.

Participants with a lower level of education, or with comorbid intellectual deficits or reading disorders, may be discouraged from answering an online survey, potentially resulting in a sample that has a higher level of education compared to previous studies of people suffering from ADHD. Limitations also include participants answering the survey without being able to ask questions about items and therefore there is a risk that some respondents may have misunderstood some of the questions. Finally, if a survey concerns work, and is explicitly stated to do so, it is possible that individuals not in work are less inclined to answer than those in work, or that individuals more satisfied with their work situation are more inclined to answer than those who are less so.

We used the SUNET survey system provided by Lund University to collect our data. The system was not without its flaws which for 43 participants led to some missing data in the received support or helpfulness of support section. After examining the impact of the delivery issue, it was clear that the majority of these missing values were found in answers to questions about perceptions of supports as helpful or not. It was decided that there was no need to conduct a missing-value analysis as the missing data was a result of issues with SUNET survey. Therefore, there was no reason to assume that it should be applicable to potential differences in participants. There is no indication that the rest of the data has been affected. Therefore, scales, measures and demographic data should be considered reliable and

unaffected by the technical issue. There was no missing data in received support section for any participants included in analysis of differences between groups based on work supports.

**Instruments.** The measures GHQ-12, AAQoL and BJSM all showed good reliability with Cronbach's alpha scores ranging from .88-.90 in this sample, indicating good internal consistency for these scales and consistent with previous validation studies (Brod et al. 2006; Brod et al. 2015; Gelaye et al. 2015; Judge et al., 1998). This strengthens the statistical validity of the current study. WPAI:GH means were not normally distributed with participants tending to report values in the extremes which is not ideal for all forms of statistical analyses, but is not unusual in clinical samples. The BJSM was susceptible to somewhat skewed distributions, as is often the case with scales measuring satisfaction with different life domains, with most people preferring to report themselves as being more satisfied than dissatisfied with their lot in life (Pallant, 2007).

Strong correlations were found between some of the measures, indicating that there may be a possibility that measures are not entirely distinct. A certain amount of overlap between these constructs cannot be entirely excluded at this stage. It may, however, be viewed as support for the validity of the scales used in that they correlate with measures of potential relevance. The strong correlation between GHQ and AAQoL is an example of this issue and has been discussed above.

**Statistical Analysis.** This study was exploratory in nature and thus entails a fair amount of significance testing. It is important to remember that results found in this study should all ideally be corroborated by future research where specific hypotheses are tested to reduce Type I errors (significant differences are found even though they do not exist). The number of participants in almost all groups was large enough to avoid Type II errors ( $n > 100$ ) where significant differences are missed due to small n-sizes ( $n < 20$ ) (Stevens, 2002). If using this figure as a guideline ( $n < 20$ ) the group of adults that received no support from their direct supervisor in their current role ( $n = 14-15$ ) must be considered small enough to risk Type II errors. It is therefore possible that this small group may have affected the power of t-tests and Mann-Whitney U-tests conducted to test the differences between those who received support and those who reported having received no support whatsoever, making it difficult to rule out the possibility of Type II errors in the comparisons conducted in this section.

When violations against normality were found in the data, the non-parametric Mann-Whitney test was used to seek support for the result of the parametric t-test for independent samples. The Mann-Whitney U test is an alternative to independent sample t-tests when normality cannot be assumed. Mann-Whitney U-test compares medians instead of the t-tests

comparison of means and therefore the distribution of values does not have to be normal (Pallant, 2007). The t-test was preferred in all instances because of its higher sensitivity to detecting group differences (Pallant, 2007). This was deemed necessary given the heightened risk for Type II errors previously discussed.

When conducting Pearson correlations, outliers more than 3 standard deviations away from the mean, were removed as suggested by Pallant (2007), resulting only in slightly higher correlations. This may be viewed in the light of construct validity since the removed outliers had high values on the Quality of Life measure even though their reported general mental health was low or vice-versa. This is not a common finding, but may well be possible. A decision was taken to remove these based on the chosen method being particularly vulnerable to the influence of outliers (Pallant, 2007). Removing outliers was therefore of value to validity of correlations.

**Participants.** Though there are several clinical indications of neuropsychiatric impairment, in terms of level of work impairment, general mental health, reported diagnosis, and occupational outcome, it is impossible to control for the validity of the self-reported ADHD diagnoses in the sample. As is the case with all diagnoses, some individuals will be correctly diagnosed, whilst others will not be.

The sample is not entirely representative of adults with ADHD. Figures previously reported have shown that more men than women are typically identified as suffering from ADHD (Deberdt et al., 2015; Fayyad et al., 2007), with women potentially being underdiagnosed (Deberdt et al., 2015). Furthermore, only a small number of participants received their diagnosis in adulthood. However, as has been previously discussed differences in men and women with ADHD are relatively small (Babinski et al., 2011) and therefore the impact of gender imbalance on external validity may not be all that large.

The implication of these findings is that the current sample may well be over representative of a particular group of adults with ADHD as a result of our recruitment methods. To understand what characterizes the individuals in the current sample, some clarity may be gained by comparing results with Riksförbundet Attention's report (2016). Gender distribution in this report was similar (70% women) and 68% of participants received their ADHD diagnosis in the past 5 years, with a reported age range for women of 26-55years. Recruitment was done through the organization's ADHD interest-pages, which means that majority of participants are engaged in the topic of ADHD and active in various discussion-forums which also is true about the sample in the current study. These factors can be viewed

as indicating that the study may well recruiting similar participants to those recruited by Riksförbundet Attention (2016).

The implication of this is that some care must be taken when drawing conclusions about adults with ADHD in general. As has been mentioned some differences have been found between the current sample and clinically-recruited Norwegian samples in terms of impairment and occupational status. At the same time, it is clear from results that participants in the current sample are struggling in several areas of function, a finding that suggests that the group investigated in the study clearly is of clinical interest. Future research may be warranted to explore this group of adults, i.e. adults diagnosed with ADHD after the age of 18, to examine how they differ from those diagnosed in childhood. Furthermore, the potential overrepresentation of females in this group may be of interest for researchers.

Finally, the study included a comparatively small number of individuals reportedly in some form of adult education, with this group comprising 12% of the sample as a whole. These participants feature in analyses of work supports as two of the measures used were adjusted minimally so that those in education could assess their impairment in this area of functioning and their satisfaction in this particular role. This was considered meaningful information given the study's explorative nature. As has been noted previously, though these participants feature in analyses of work supports in research question 5, the clear majority of participants included (87% and 88% in respective groups) are relating to their places of work. Upon reflection, it is also possible that some of the participants reportedly in education are also doing the same and referring to current part-time employment when answering questions about work supports. Because of these issues it is likely that the study predominantly measures relationships between ADHD and occupational function rather than academic function. Furthermore, the group of participants in adult education was too small for comparisons between those predominantly in work and those predominantly in studies to be statistically feasible. Future research may be needed to explore potential differences in this area.

### **Conclusions and Future Directions**

Swedish adults with self-reported ADHD are struggling in several areas of adult-role functioning. Adults with ADHD report higher levels of general mental health issues than the general Swedish population in terms of symptoms of current anxiety and mood disorders and a higher percentage of sick-leave. Highest levels of education are comparable with the general Swedish population, but are higher in the current sample of adults with self-reported ADHD than in clinically-referred Norwegian populations. Occupational outcome for adults with self-

reported ADHD, in terms of current employment rates, is lower than in the general population but higher than in clinically-referred Norwegian samples.

The impact of ADHD symptoms on performance in work or studies is substantial, both in terms of missing work and or studies because of one's ADHD and in impaired performance whilst at work or studies because of one's ADHD. The impact of ADHD on subjective experience of satisfaction in life in the current sample is comparable with what has been found in previous Norwegian research conducted on clinic-referred adults with ADHD. Job satisfaction, work productivity loss, QoL and general mental health are all interrelated in a sample of Swedish adults with self-reported ADHD, with correlations found to be moderate to large in size. More research is needed to explore potential causal relationships between these variables.

ADHD-specific work supports, similar to those recommended by Sosialstyrelsen, are being received to some extent by the majority of adults with ADHD currently in work or studies, who have informed their closest supervisor about their neuropsychiatric disability. Some supports are experienced as helpful, whilst others are deemed not relevant or not helpful. The different types of support differ in terms of how often they are received and to what extent they are perceived as helpful.

Adults with ADHD that have received some form of support in the workplace differ significantly in terms of QoL and job satisfaction from adults that have received no form of workplace support whatsoever, yielding medium effect sizes. The assessments of those receiving support of the impact of their ADHD on their ability to function and gain satisfaction in important areas of adult life and functioning suggest that compensatory workplace adjustments of the kind recommended by clinical expertise may be related to beneficial functional outcomes in adults with ADHD. The current study did not find any significant differences in work impairment, using total work time lost because of ADHD symptoms as a primary outcome measure, and general mental health between these two groups. More research is needed to explore the potential efficacy of workplace adjustments, both in terms of their impact on work impairment and ADHD-specific QoL.

### **Practical Implications**

In summary, though no causal inferences can be drawn, the general picture that emerges from the results of the study suggests that workplace supports may be beneficial for adults with ADHD in work and or studies in terms of their QoL and satisfaction in their current role. Furthermore, results suggest that the impact of supports such as these may well be substantial, given the moderate effect-sizes for significant group differences. This can be

considered to support the clinically informed recommendations from Adamou et al. (2013) and the assumption that workplace supports may be in the best interests of adults with ADHD, whose struggles in work life and higher education have been well documented. Enhanced occupational outcome for many adults with ADHD may well require more than just psychopharmacological treatment of core ADHD symptoms.

At the same time, the study in itself does not directly yield any results that support the notion that these work supports actually decrease functional impairment in adults with ADHD. In this sense, leaving adult education aside, it cannot be asserted that work supports clearly are in the best interest of employer, presuming, of course, that the employer's primary concern is merely to increase work productivity in the short-term. At the same time, it would be wrong to interpret this as an indication of work supports being futile or not in line with the employer's interest. The wellbeing of employees must also be a concern for employers seeking to minimize burnout and excessively elevated stress-levels in the workplace. This may well be of paramount importance in regards to adults with ADHD, where the risk of psychiatric comorbidity is high (Rucklidge, Downs-Woolley, Taylor, Brown & Harrow, 2016) and difficulties staying in the same job over a long period of time appears to be an issue (Babinski et al., 2011; Pitts et al., 2015). Thus, an intervention that targets the impact of ADHD symptoms on functioning, potentially influencing employee job- and life satisfaction and resulting in a more manageable and meaningful work life for adults with ADHD, may well yield financial and performance-related rewards for engaged employers in the long term. Furthermore, both job satisfaction and ADHD-specific QoL were shown to correlate strongly with work productivity loss, suggesting that relationships do exist between these variables, though the nature of these lie beyond the reach of the current study. More research is needed to explore the implications of these findings and possible causal relationships between QoL, job satisfaction and work performance.

### References

- Adamou, M., Arif, M., Asherson, P., Aw, T., Bolea, B., Coghill, D., Guðjónsson, G., & ... Young, S. (2013). Occupational Issues of Adults with ADHD. *BMC Psychiatry*, 13:59. doi:10.1186/1471-244X-13-59
- Agarwal, R., Goldenberg, M., Perry, R., & Ishak, W. W. (2012) The Quality of Life in Adults with Attention Deficit Hyperactivity Disorder: A Systematic Review. *Innovative Clinical Neuroscience*, 9(5-6), 10-21. Retrieved from: <http://innovationscns.com/the-quality-of-life-of-adults-with-attention-deficit-hyperactivity-disorder-a-systematic-review/>
- American Psychiatric Association. American Psychiatric Association. DSM-5 Task Force. (2013). *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. (5. ed.) Arlington, Va.: American Psychiatric Association.
- Babinski, D. E., Pelham, W. E., Molina, B. S., Waschbusch, D. A., Gnagy, E. M., Jihnhee, Y., & ... Biswas, A. C. (2011). Women with Childhood ADHD: Comparisons by Diagnostic Group and Gender. *Journal of Psychopathology and Behavioral Assessment*, 33(4), 420-429. doi: 10.1007/s10862-011-9247-4
- Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures. *Spine*, 25(24), 3186-3191. Retrieved from: <http://ovidsp.tx.ovid.com>
- Beck, A., Crain, A. L., Solberg, L. I., Unützer, J., Glasgow, R. E., Maciosek, M. V., & Whitebird, R. (2011). Severity of Depression and Magnitude of Productivity Loss. *Annals of Family Medicine*, 9(4), 305-311. doi:10.1370/afm.1260
- Benach, J. & Muntaner, C. (2011). Employment and Working Conditions as Health Determinants. In *Improving Equity in Health by Addressing Social Determinants*. Lee, J.H. & Sadana, R. (Eds.) pp. 165–195. Geneva: WHO. Retrieved from [http://whqlibdoc.who.int/publications/2011/9789241503037\\_eng.p](http://whqlibdoc.who.int/publications/2011/9789241503037_eng.p)
- Benach, J., Muntaner, C., Solar, O., Santana, V. & Quinlan, M. (2007). *Employment, Work, and Health Inequalities: A Global Perspective*. Geneva: WHO. Retrieved from [http://www.who.int/social\\_determinants/resources/articles/emconet\\_who\\_report.pdf](http://www.who.int/social_determinants/resources/articles/emconet_who_report.pdf)
- Bernardi, S., Faraone, S.V., Cortese, S., Kerridge, B. T., Pallanti, S., Wang, S., & Blanco, C. (2012). The Lifetime Impact of Attention-Deficit Hyperactivity Disorder: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine*, 42(4), 875-887. doi: 10.1017/S003329171100153X

- Biederman, J., Monuteaux, M., Mick, E., Spencer, T., Wilens, T., Silva, J., & ... Faraone, E. (2006). Young Adult Outcome of Attention Deficit Hyperactivity Disorder: a Controlled 10-year Follow-up Study. *Psychological Medicine*, *36*(2), 167-179. doi: 10.1017/S0033291705006410
- Biederman, J., Petty, C., Monuteaux, M., Fried, R., Byrne, D., Mirto, T., & ... Faraone, S. (2010). Adult Psychiatric Outcomes of Girls with Attention Deficit Hyperactivity Disorder: 11-year Follow-up in a Longitudinal Case-control Study. *American Journal Of Psychiatry*, *167*(4), 409-417. doi: 10.1176/appi.ajp.2009.09050736
- Brayfield, A. H., & Rothe, H. F. (1951). An Index of Job Satisfaction. *Journal of Applied Psychology*, *35*, 307-311. doi: 10.1037/h0055617
- Brod, M., Adler, L.A., Lipsius, S., Tanaka, Y., Heinloth, A.N. & Upadhyaya, H. (2015) Validation of the Adult Attention-Deficit/Hyperactivity Disorder Quality-of-life Scale in European Patients: Comparison with Patients from the USA. *ADHD Attention Deficit and Hyperactivity Disorders*, *7*(2):141-150. doi: 10.1007/s12402-014-0160-z
- Brod, M., Johnston, J., Able, S., & Swindle, R. (2006). Validation of the Adult Attention-Deficit/Hyperactivity Disorder Quality-of-Life Scale (AAQoL): A Disease-Specific Quality-of-Life Measure. *Quality of Life Research*, *15*: 117-129. doi: 10.1007/s11136-005-8325-z
- Brod, M., Perwien, A., Adler, L., Spencer, T., & Johnston, J. (2005). Conceptualization and Assessment of Quality of Life for Adults with Attention-Deficit/ Hyperactivity Disorder. *Primary Psychology*, *12*(6), 58-64. Retrieved from: <http://primarypsychiatry.com/conceptualization-and-assessment-of-quality-of-life-for-adults-with-attention-deficithyperactivity-disorder/>
- Brod, M., Pohlman, B., Lasser, R., & Hodgkins, P. (2012) Comparison of the Burden of Illness for Adults with ADHD across Seven Countries: a Qualitative Study. *Health and Quality of Life Outcomes*, *10*:47. doi: 10.1186/1477-7525-10-47
- Bron, T. I., Bijlenga, D., Verduijn, J., Penninx, W. J. H., Beekman, A.T.F., & Kooij, S. J. J. (2016). Prevalence of ADHD Symptoms Across Clinical Stages of Major Depressive Disorder. *Journal of Affective Disorders*, *197*: 29-35. doi: 10.1016/j.jad.2016.02.053 .
- Caci, H., Doepfner, M., Asherson, P., Donfrancesco, R., Faraone, S. V., Hervas, A. & Fitzgerald, M. (2014). Daily Life Impairments Associated with Self-reported Childhood/Adolescent Attention-Deficit/Hyperactivity Disorder and Experiences of Diagnosis and Treatment: Results from the European Lifetime Impairment Survey. *European Psychiatry*, *29*(5), 316-323. doi: 10.1016/j.eurpsy.2013.10.007



- Castells, X., Ramos-Quiroga, J., Rigau, D., Bosch, R., Nogueira, M., Vidal, X., & ... Casas, M. (2011). Efficacy of Methylphenidate for Adults with Attention-Deficit Hyperactivity Disorder: a Meta-regression Analysis. *CNS Drugs*, *25*(2), 157-169. doi: 10.2165/11539440-000000000-00000
- Caye, A., Spadini, A., Karam, R., Grevet, E., Rovaris, D., Bau, C., & ... Kieling, C. (2016). Predictors of Persistence of ADHD into Adulthood: a Systematic Review of the Literature and Meta-analysis. *European Child & Adolescent Psychiatry*, *25*(11), 1151-1159. doi:10.1007/s00787-016-0831-8
- Chen, M., Chen, Y., Hsu, J., Huang, K., Li, C., Lin, W., & ... Bai, Y. (2015). Comorbidity of ADHD and Subsequent Bipolar Disorder among Adolescents and Young Adults with Major Depression: a Nationwide Longitudinal Study. *Bipolar Disorders*, *17*(3), 315-322. doi:10.1111/bdi.12266
- Coghill, David. (2010) The Impact of Medications on Quality of Life in Attention-Deficit Hyperactivity Disorder: A Systematic Review. *CNS Drugs*, *21*(10), 843-866.
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, *112*(1), 155-159. doi:10.1037/0033-2909.112.1.155
- Cussen, A., Sciberras, E., Ukoumunne, O., & Efron, D. (2012). Relationship Between Symptoms of Attention-Deficit/Hyperactivity Disorder and Family Functioning: a Community-based Study. *European Journal of Pediatrics*, *171*(2), 271-280. doi:10.1007/s00431-011-1524-4
- Davidson, M. A. (2008). ADHD in Adults: A Review of the Literature. *Journal of Attention Disorders*, *11*(6), 628-641. doi: 10.1177/1087054707310878
- Deberdt, W., Thome, J., Lebec, J., Kraemer, S., Fregenal, I., Ramos-Quiroga, J. A., & Arif, A. (2015). Prevalence of ADHD in Nonpsychotic Adult Psychiatric Care (ADPYSC): A Multinational Cross-sectional Study in Europe. *BMC Psychiatry*, *15*:243. doi: 10.1186/s12888-015-0624-5
- de Graaf, R., Kessler, R. C., Fayyad, J., Ten Have, M., Alonso, J., Angermeyer, M., ... & Posada-Villa, J. (2008). The Prevalence and Effects of Adult Attention-Deficit/Hyperactivity Disorder (ADHD) on the Performance of Workers: Results from the WHO World Mental Health Survey Initiative. *Occupational and Environmental Medicine*, *65*, 835-842. Retrieved from: <http://www.jstor.org/stable/25835312>
- del Pilar Sánchez- Lopez, M., & Dresch, V. (2008). The 12-Item General Health

- Questionnaire (GHQ-12): Reliability, External Validity and Factor Structure in the Spanish Population. *Psicothema*, 20(4), 839-843. Retrieved from: <http://www.psicothema.com/pdf/3564.pdf>
- Faragher, E. B., Cass, M., & Cooper, C. L. (2005). The Relationship Between Job Satisfaction and Health: A Meta-Analysis. *Occupational and Environmental Medicine*, (2), 105-112. doi: 10.1057/9781137310651.
- Faraone, S., Biederman, J., & Mick, E. (2006). The Age-dependent Decline of Attention Deficit Hyperactivity Disorder: a Meta-analysis of Follow-up Studies. *Psychological Medicine*, 36(2), 159-165. doi: 10.1017/S003329170500471X .
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences. *Behavior Research Methods*, 39, 175-191. doi: 10.3758/BF03193146
- Fayyad, J., De Graaf, R., Kessler, R., Alonso, J., Angermeyer, M., Demyttenaere, K., & ... Jin, R. (2007). Cross-national Prevalence and Correlates of Adult Attention-Deficit Hyperactivity Disorder. *The British Journal of Psychiatry*, 190(5), 203-409. doi: 10.1192/bjp.bp.106.034389
- Friedrichs, B., Igl, W., Larsson, H., & Larsson, J. (2012). Coexisting Psychiatric Problems and Stressful Life Events in Adults with Symptoms of ADHD--A Large Swedish Population-Based Study of Twins. *Journal of Attention Disorders*, 16(1), 13-22. doi: 10.1177/1087054710376909.
- Gelaye, B., Tadesse, M. G., Lohsoonthorn, V., Lertmeharit, S., Pensuksan, W. C., Sanchez, S. E., ... & Williams, M. A. (2015). Psychometric Properties and Factor Structure of the General Health Questionnaire as a Screening Tool for Anxiety and Depressive Symptoms in a Multi-national Study of Young Adults. *Journal of Affective Disorders*, 187, 197-202. doi: 10.1016/j.jad.2015.08.045.
- Gjervan, B. & Nordahl, H.M. (2010). The Adult ADHD Quality of Life Questionnaire (AAQoL): A New Disease Specific Measure for Assessment of ADHD. *Nordic Psychology*, 62(1), 24-36. doi: 10.1027/1901-2276/a000003
- Gjervan, B., Torgersen, T., & Hjemdal, O. (2016). The Norwegian Translation of the Adult Attention-Deficit/Hyperactivity Disorder Quality of Life Scale: Validation and Assessment of QoL in 313 Adults With ADHD. *Journal Of Attention Disorders*, 1-9 doi: 10.1177/1087054716640087
- Gjervan, B., Torgersen, T., Nordahl, H. M., & Rasmussen, K. (2012). Functional Impairment

- and Occupational Outcome in Adults with ADHD. *Journal Of Attention Disorders*, 16(7), 544-552. doi: 10.1177/1087054711413074.
- Goldberg, D. (1972). *The Detection of Psychiatric Illness by Questionnaire: A Technique for the Identification and Assessment of Non-Psychotic Psychiatric Illness*. London: Oxford University Press.
- Goldberg, D. P., Gater, R., Sartorius, N., Ustun, T. B., Piccinelli, M., Gureje, O., & Rutter, C. (1997). The Validity of Two Versions of the GHQ in the WHO Study of Mental Illness in General Health care. *Psychological Medicine*, 27, 191-197. Retrieved from: [https://www.cambridge.org/core/services/aop-cambridge-core/content/view/F68509BE995ACAEDB3908312BBB14639/S0033291796004242a.pdf/validity\\_of\\_two\\_versions\\_of\\_the\\_ghq\\_in\\_the\\_who\\_study\\_of\\_mental\\_illness\\_in\\_general\\_health\\_care.pdf](https://www.cambridge.org/core/services/aop-cambridge-core/content/view/F68509BE995ACAEDB3908312BBB14639/S0033291796004242a.pdf/validity_of_two_versions_of_the_ghq_in_the_who_study_of_mental_illness_in_general_health_care.pdf)
- Halmoy, A., Fasmer, O. B., Gillberg, C., & Haavik, J. (2009). Occupational Outcome in Adult ADHD: Impact of Symptom Profile, Comorbid Psychiatric Problems, and Treatment: A Cross-sectional Study of 414 Clinically Diagnosed Adult ADHD. *Journal of Attention Disorders*, 13, 175-187. doi: 10.1177/1087054708329777.
- Harpin, V., Mazzone, L., Raynaud, J. P., Kahle, J., & Hodgkins, P. (2016). Long-Term Outcomes of ADHD: A Systematic Review of Self- Esteem and Social Function. *Journal of Attention Disorders*, 20(4), 295-305. doi: 10.1177/1087054713486516
- Jensen, C. M., & Steinhausen, H. (2015). Comorbid Mental Disorders in Children and Adolescents with Attention-Deficit/Hyperactivity Disorder in a Large Nationwide Study. *Attention Deficit and Hyperactivity Disorders*, 7(1), 27-38. doi:10.1007/s12402-014-0142-1
- Judge, T. A, Locke, E. A., Durham, C. C. & Kluger, A. N. (1998). Dispositional Effects on Job and Life Satisfaction: The Role of Core Evaluations. *Journal of Applied Psychology*, 83(1), 17-34. doi: 10.1037/0021-9010.83.1.17
- Kessler, R., Adler, L., Barkley, R., Biederman, J., Conners, C., Demler, O., & ... Demler, O. (2006). The Prevalence and Correlates of Adult ADHD in the United States: Results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*, 163(4), 716-723. Retrieved from: <http://ajp.psychiatryonline.org/doi/pdfplus/10.1176/ajp.2006.163.4.716>
- Kim, H. (2012). Statistical Notes for Clinical Researchers: Assessing Normal Distribution (1). *Restorative Dentistry & Endodontics*, 37(4), 245-248. doi:10.5395/rde.2012.37.4.245
- Klora, M., Zeidler, J., Linder, R., Verheyen, F., & von der Schulenburg, J. (2015). Costs and

- Treatment Patterns of Incident ADHD Patients - a Comparative Analysis before and after the Initial Diagnosis -. *Health Economics Review*, 5(1), 1.  
doi:10.1186/s13561-015-0078-y
- Kuriyan, A. B., Pelham, W. E., Molina, B. S. G., Waschbusch, D. A., Gnagy, E. M., Sibley, & ... Kent, K. M. (2013). Young Adult Educational and Vocational Outcomes of Children Diagnosed with ADHD. *Journal of Abnormal Child Psychology*, 41(1), 27-41. doi: 10.1007/s10802-012-9658-z.
- Lundin, A., Åhs, J., Åsbring, N., Kosidou, K., Dal, H., Tinghög, P., & ... Dalman, C. (2016). Discriminant Validity of the 12-item version of the General Health Questionnaire in a Swedish Case-control study. *Nordic Journal of Psychiatry*, 71(3), 171-179.  
doi:10.1080/08039488.2016.1246608
- Mann, R., Paglia-Boak, A., Adlaf, E., Beitchman, J., Wolfe, D., Wekerle, C., & ... Rehm, J. (2011). Estimating the Prevalence of Anxiety and Mood Disorders in an Adolescent General Population: An Evaluation of the GHQ12. *International Journal of Mental Health And Addiction*, 9(4), 410-420. doi: 10.1007/s11469-011-9334-5
- Matza, L. S., Johnston, J. A., Faries, D. E., Malley, K. G., & Brod, M. (2007). Responsiveness of the Adult Attention-Deficit/Hyperactivity Disorder Quality of Life Scale (AAQoL). *Quality of Life Research*, (9). 1511-1520.  
doi: 10.1007/s11136-007-9254-9
- Nakagawa, S. (2004). A Farewell to Bonferroni: the Problems of Low Statistical Power and Publication Bias. *Behavioral Ecology*, 15(6), 1044-1045. doi:10.1093/beheco/arh107
- Nøvik, T. S., Hervas, A., Ralston, S. J., Dalsgaard, S., Rodrigues Pereira, R., & Lorenzo, M. J. (2006). Influence of Gender on Attention-Deficit/Hyperactivity Disorder in Europe--ADORE. *European Child & Adolescent Psychiatry*, 15 Suppl 1 :15-24. doi: 10.1007/s00787-006-1003-z.
- Pallant, J. (2007). *SPSS Survival Manual: a Step by step Guide to Data Analysis Using SPSS for Windows (version 15)*. (3. ed.) Maidenhead: Open University Press.
- Perneger, T. V. (1998). What's Wrong with Bonferroni Adjustments. *BMJ: British Medical Journal*, 316(7139). 1236-1238. Retrieved from:  
<http://www.jstor.org/stable/25178955>.
- Pettersson, R., Söderström, S., Edlund-Söderström, K., & Nilsson, K. W. (2017). Internet-Based Cognitive Behavioral Therapy for Adults with ADHD in Outpatient Psychiatric Care. *Journal of Attention Disorders*, 21(6), 508-521.  
doi:10.1177/1087054714539998

- Piñeiro-Dieiguez, B., Balanzá-Martínez, V., García-García, P., & Soler-López, B. (2016). Psychiatric Comorbidity at the Time of Diagnosis in Adults With ADHD: The CAT Study. *Journal of Attention Disorders*, 20(12), 1066-1075.  
doi:10.1177/1087054713518240
- Polanczyk, G. V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD Prevalence Estimates across Three Decades: an Updated Systematic Review and Meta-regression Analysis. *International Journal Of Epidemiology*, 43(2), 434-442.  
doi:10.1093/ije/dyt261
- Pitts, M., Mangle, L., & Asherson, P. (2015). Impairments, Diagnosis and Treatments Associated with Attention-Deficit/Hyperactivity Disorder (ADHD) in UK Adults: Results from the Lifetime Impairment Survey. *Archives Of Psychiatric Nursing*, 29(1), 56-63. doi:10.1016/j.apnu.2014.10.001
- Pulay, A. J., Bitter, I., Papp, S., Gulásci, L., Péntek, M., Brodszky, V., Hevér, N. V. & ... Baji, P. (2016). Exploring the Relationship between Quality of Life (EQ-5D) and Clinical Measures in Adult Attention Deficit Hyperactivity Disorder (ADHD). *Applied Research in Quality of Life*. doi: 10.1007/s11482-016-9467-6
- Reilly Associates. (n.d.) Work Productivity and Activity Impairment Questionnaire: General Health (WPAI:GH). Retrieved 2017-01-16 from:  
[http://www.reillyassociates.net/WPAI\\_Translations.html](http://www.reillyassociates.net/WPAI_Translations.html)
- Reilly, M. C., Bracco, A., Ricci, J., Santoro, J., & Stevens, T. (2004). The Validity and Accuracy of the Work Productivity and Activity Impairment Questionnaire – Irritable Bowel Syndrome Version (WPAI:IBS). *Alimentary Pharmacology & Therapeutics*, 20(4), 459-467. doi:10.1111/j.1365-2036.2004.02091.x
- Reilly, M. C., Gerlier, L., Brabant, Y., & Brown, M. (2008). Validity, Reliability, and Responsiveness of the Work Productivity and Activity Impairment Questionnaire in Crohn's Disease. *Clinical Therapeutics*, 30(2) 393-404.  
doi:10.1016/j.clinthera.2008.02.016
- Reilly, M. C., Zbrozek, A. S., & Dukes, E. M. (1993). The Validity and Reproducibility of a Work Productivity and Activity Impairment Instrument. *Pharmacoeconomics*, 4(5), 353–365. doi: 10.2165/00019053-199304050-00006
- Riksförbundet Attention. (2016). ADHD på jobbet. Stockholm: Attention. Retrieved from  
[http://attention-riks.se/wp-content/uploads/2015/09/rapport\\_adhdpajobbet-1.pdf](http://attention-riks.se/wp-content/uploads/2015/09/rapport_adhdpajobbet-1.pdf)
- Rowland, A. S., Skipper, B. J., Umbach, D. M., Rabiner, D. L., Campbell, R. A., Naftel, A. J.,

- & Sandler, D. P. (2015) The Prevalence of ADHD in a Population-Based Sample. *Journal of Attention Disorders, 19(9)*, 741-754. doi: 10.1177/1087054713513799.
- Rucklidge, J.J., Downs-Woolley, M., Taylor, M., Brown, J. A., & Harrow, S. (2016). Psychiatric Comorbidities in a New Zealand Sample of Adults with ADHD. *Journal of Attention Disorders, 20(12)*, 1030-1038. doi: 10.1177/1087054714529457.
- Russell, A. E., Ford, T., & Russell, G. (2015). Socioeconomic Associations with ADHD: Findings from a Mediation Analysis. *Plos One, 10(6)*, e0128248. doi:10.1371/journal.pone.0128248
- Sconfienza, C. (1998). *Mätning av psykiskt välbefinnande bland ungdomar i Sverige: användning av GHQ-12* [Measurement of psychological wellbeing in adolescents in Sweden: use of GHQ-12]. Solna: Arbetslivsinstitutet.
- Shaughnessy, J.J., Zechmeister, E.B. & Zechmeister, J.S. (2011). *Research methods in psychology*. (9th ed.) New York: McGraw-Hill Higher Education.
- Socialstyrelsen. (2014). *Stöd till barn, ungdomar och vuxna med adhd – ett kunskapsstöd*. Stockholm: Socialstyrelsen. Retrieved from: <http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/19582/2014-10-42.pdf>
- Socialstyrelsen.(n.d.) *Försäkringsmedicinskt beslutstöd*. Retrieved 17-01-25 from <http://www.socialstyrelsen.se/riktlinjer/forsakringsmedicinsktbeslutsstod/adhd-f900f988>
- Soendergaard, H. M., Thomsen, P. H., Pedersen, E., Pedersen, P., Pulsen, A. E., Winther, L., & ... Soegaard, H. S. (2016). Associations of Age, Gender, and Subtypes With ADHD Symptoms and Related Comorbidity in a Danish Sample of Clinically Referred Adults. *Journal of Attention Disorders, 20(11)*, 925-933. doi: 10.1177/1087054713517544.
- Sprafkin, J., Gadow, K. D., Weiss, M. D., Schneider, J., & Nolan, E. E. (2007). Psychiatric Comorbidity in ADHD Symptom Subtypes in Clinic and Community Adults. *Journal of Attention Disorders, 11*, 114–124. doi:10.1177/1087054707299402
- Statistiska centralbyrån (n.d.). Befolkning 15–74 år efter region, utbildningsnivå, ålder och kön. År 1985 - 2015. Retrieved 17-04-18 from [http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START\\_\\_UF\\_\\_UF0506/Utbildning/?rxid=fd27f1fa-57e6-4c1f-9a0b-41514b5eb85a](http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__UF__UF0506/Utbildning/?rxid=fd27f1fa-57e6-4c1f-9a0b-41514b5eb85a)
- Statistiska centralbyrån (2002-). *Arbetskraftsundersökningarna*. [The Working Force Survey] *Serie AM 12 SM 1701*. Stockholm: Statistiska centralbyrån.
- Svensk författningssamling (SFS 1998:204). The Personal Data Act [Personuppgiftslagen].

Stockholm: Parliament [Riksdagen].

Theorell, T., Hammarström, A., Aronsson, G., Träskman Bendz, L., Grape, T., Hogstedt, C., & ... Hall, C. (2015). A systematic Review Including Meta-analysis of Work Environment and Depressive Symptoms. (2015). *BMC Public Health*, (1) 15:738. doi:10.1186/s12889-015-1954-4

Torgersen, T., Gjervan, B., & Rasmussen, K. (2006). ADHD in Adults: A Study of Clinical Characteristics, Impairment and Comorbidity. *Nordic Journal Of Psychiatry*, 60(1), 38-43. doi: 10.1080/08039480500520665

Wahl, A. K., Rustøen, T., Hanestad, B. R., Lerdal, A., & Moum, T. (2004). Quality of Life in the General Norwegian Population, Measured by the Quality of Life Scale (QOLS-N). *Quality of Life Research: An International Journal of Quality of Life Aspects or Treatment, Care & Rehabilitation*, 13(5), 1001-1009. Retrieved from: <http://www.jstor.org/stable/4038908>

Wendsche, J., & Lohmann-Haislah, A. (2016). A Meta-Analysis on Antecedents and Outcomes of Detachment from Work. *Frontiers in Psychology*, 7, 2072. doi:10.3389/fpsyg.2016.02072

Vetenskapsrådet [Swedish Research Council]. (2002). *Principles of Research Ethics within Social Science* [Forskningsetiska principer inom humanistisk-samhällsvetenskaplig]. Retrieved from: [http://www.gu.se/digitalAssets/1268/1268494\\_forskningsetiska\\_principer\\_2002.pdf](http://www.gu.se/digitalAssets/1268/1268494_forskningsetiska_principer_2002.pdf)

Wilcox, R.R. (2005). *Introduction to robust estimation and hypothesis testing*. (2nd ed.) Amsterdam: Elsevier/Academic Press.

Wilens, T. E., Biederman, J., Faraone, S. V., Martelon, M., Westerberg, D., & Spencer, T. J. (2009). Presenting ADHD Symptoms, Subtypes, and Comorbid Disorders in Clinically Referred Adults with ADHD. *Journal of Clinical Psychiatry*, 70, 1557-1562. doi:10.4088/JCP.08m04785pu

Willcutt, E. G. (2012). The Prevalence of DSM-IV Attention-Deficit/Hyperactivity Disorder: a Meta-analytic Review. *Neurotherapeutics*, 9(3), 490-499. doi:10.1007/s13311-012-0135-8

World Health Organization. (n.d.) Process of Translation and Adaptation of Instruments. Retrieved 2017-01-16 from: [http://www.who.int/substance\\_abuse/research\\_tools/translation/en/](http://www.who.int/substance_abuse/research_tools/translation/en/)

Young, S., Emilsson, B., Sigurdsson, J. F., Khondoker, M., Philipp-Wiegmann, F.,

Baldursson, G., & ... Gudjonsson, G. (2017). A Randomized Controlled Trial Reporting Functional Outcomes of Cognitive-Behavioural Therapy in Medication-Treated Adults with ADHD and Comorbid Psychopathology. *European Archives Of Psychiatry And Clinical Neuroscience*, 267(3), 267-276. doi:10.1007/s00406-016-0735-



## Appendix A



LUNDS UNIVERSITET  
Institutionen för psykologi  
Psykologprogrammet

Hej!

Är du över 18 och lider av ADHD (Attention Deficit Disorder) med eller utan hyperaktivitet?

Vi är två psykologstudenter från Lunds universitet och skriver vår avslutande examensuppsats om vuxna med ADHD i Sverige.

Följande formulär beräknas ta cirka 15-20 minuter. Det innehåller frågor om hur det är för dig att leva med din ADHD, hur du har upplevt arbetslivet och vad du har erbjudits för stöd för din ADHD.

Undersökningen är helt anonym och det går bra att avbryta deltagandet när som helst. Det går också bra att ta en paus så länge formuläret inte stängs.

Tack för din medverkan!

Vänliga hälsningar,

Sara Leinerud och Josef Sandström, Psykologprogrammet Lunds universitet

---

**1. Jag har tagit del av informationen om denna studie och jag samtycker till att delta. Jag vet att svaren är anonyma och att jag kan avbryta när jag vill.**

Ja

**Först kommer några frågor om dig och din situation**

**2. Ange kön**

Kvinna

Man

Annat

**3. Hur gammal är du?**

**4. Vilken är din högst avslutade utbildning?**

Ingen avslutad utbildning

Grundskola (årskurs 9)

Gymnasieskola

Folkhögskola eller yrkeshögskola (2 år)

Högskola/universitet (3 år)

Högskola/universitet (magister, masterexamen)

Högre akademisk examen

**5. Hur ser din huvudsakliga sysselsättning ut just nu?**

- jag är anställd
- jag är studerande
- jag är arbetslös
- jag är sjukskriven
- annat

**6. Under de senaste 12 månaderna, hur många månader har du varit sysselsatt mer än 50% med arbete eller studier?**

- 0 månader
- 1-4 månader
- 5-8 månader
- 9-12 månader

**7. Är du nöjd med hur mycket du arbetar eller studerar?**

- Ja
- Nej, jag skulle vilja jobba mer
- Nej, jag skulle vilja jobba mindre

**8. Vilken är din huvudsakliga inkomstkälla?**

- Lön från anställning
- Studiestöd
- Förtidspension
- Försörjningsstöd eller ekonomiskt bistånd
- Annat

**Nu kommer det några frågor om dig och din ADHD****9. Har du fått en formell ADHD-diagnos av en legitimerad vårdgivare?**

- Ja
- Nej

**10. Om du har fått en formell ADHD-diagnos, kan du uppskatta hur gammal du var när diagnosen sattes?**

- under 18 år
- över 18 år
- Vet ej

**11. Har du någon gång fått utskrivet någon centralstimulerande medicin för din ADHD? exempelvis, Adderall, Concerta, Dexedrine, Ritalin eller liknande.**

- Ja  
 Nej  
 Vet ej

**12. Har du någon gång fått någon form av icke-centralstimulerade läkemedel specifikt för din ADHD, till exempel Strattera eller antidepressiva läkemedel?**

- Ja  
 Nej  
 Vet ej

**13. Tar du centralstimulerande medicin för din ADHD för närvarande?**

- Ja  
 Nej

**14. Tar du för närvarande någon icke-centralstimulerande medicin specifikt för din ADHD?**

- Ja  
 Nej  
 Vet ej

**15. Har du någon gång erbjudits någon form av psykologisk samtalsterapi för din ADHD?**

- Ja  
 Nej  
 Vet ej

**16. Går du för närvarande i någon form av psykologisk samtalsterapi för din ADHD?**

- Ja  
 Nej

**Följande frågor handlar om hur ADHD har påverkat ditt liv under de senaste 2 veckorna. Välj det alternativ som beskriver din situation bäst. Det finns inga rätt eller fel svar.**

**17. Under de senaste 2 veckorna, hur svårt har det varit för dig att:**

	1. inte alls	2. lite grann	3. måttligt	4. mycket	5. extremt
Hålla din bostad ren eller städad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hantera din ekonomi (hålla koll på bankkonton, betala räkningar i tid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Komma ihåg viktiga saker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Få inköp gjorda (som mat, kläder eller hushållsartiklar)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vara uppmärksam när du interagerar med andra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**18. Under de senaste 2 veckorna, hur ofta har du känt dig:**

	1. aldrig	2. sällan	3. ibland	4. ofta	5. väldigt ofta
Överväldigad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ångestfylld	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deprimerad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**19. Under de senaste 2 veckorna, hur ofta har du känt:**

	1. aldrig	2. sällan	3. ibland	4. ofta	5. väldigt ofta
Att du inte har lyckats nå upp till andras förväntningar av dig (antingen hemma eller på arbetet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du har irriterat andra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att få saker gjorda är för ansträngande	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att andra är frustrerade på dig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du har överreagerat i svåra eller stressfyllda situationer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du spenderar din energi på ett bra sätt (får positiva resultat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du kan njuta av tid tillsammans med andra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du klarar av att styra ditt liv väl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du är så produktiv som du skulle vilja vara	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**20. Under de senaste 2 veckorna, hur mycket har du bekymrats av:**

	1. inte alls	2. lite grann	3. måttligt	4. mycket	5. extremt
Negativ spänning i relationer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att du inte har tid till positiv samvaro med andra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**21. Under de senaste två veckorna, hur besvärad har du varit av:**

	1. inte alls	2. lite grann	3. måttligt	4. mycket	5. extremt
Att känna dig uttröttad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humörsvängningar (upp och ned) i känslolivet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**22. Under de senaste två veckorna hur mycket problem har du haft med att:**

	1. inte alls	2. lite grann	3. måttligt	4. mycket	5. extremt
Göra färdigt projekt eller uppgifter (i hemmet eller på arbetet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Påbörja uppgifter som du inte finner intressanta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att hantera flera uppgifter på en gång/ att göra flera saker samtidigt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Få saker gjorda i tid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hålla koll på viktiga saker (som nycklar eller plånbok)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**23. Under de senaste två veckorna, hur ofta har du:**

	1. aldrig	2. sällan	3. ibland	4. ofta	5. väldigt ofta
Känt dig nöjd med dig själv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Känt att andra tycker om att spendera tid med dig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Att dina närmaste relationer går bra känslomässigt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Vi vill veta hur du har känt dig den senaste veckan.**

**24. Jag har kunnat koncentrera mig på det jag gör**

- stämmer helt  
 stämmer bra  
 stämmer delvis  
 stämmer inte alls

**25. Jag har haft svårt att sova på grund av problem och svårigheter**

- stämmer helt  
 stämmer bra  
 stämmer delvis  
 stämmer inte alls

**26. Jag har känt att jag spelar en betydelsefull roll för andra**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**27. Jag har känt mig kapabel att fatta beslut**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**28. Jag har känt mig väldigt pressad**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**29. Jag har haft svårt att klara av de dagliga problemen**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**30. Jag har kunnat uppskatta det positiva i tillvaron**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**31. Jag har kunnat ta itu med svårigheter**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**32. Jag har känt mig olycklig och nedstämd**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**33. Jag har känt att mitt självförtroende har minskat**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**34. Jag har tänkt på mig själv som en betydelselös person**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**35. Jag har känt mig ganska lycklig, på det hela taget**

- stämmer helt
- stämmer bra
- stämmer delvis
- stämmer inte alls

**36. Är du för närvarande anställd (och arbetar för lön) eller studerar?**

- Ja
- Nej



**37. Vissa jobb är mer intressanta och tillfredsställande än andra. Vi vill veta vad du tycker om ditt jobb. Om det är så att du huvudsakligen studerar svara utifrån din studiesituation.**

	1. håller inte alls med	2. håller inte med	3. håller inte helt med	4. varken eller	5. håller lite med	6. håller med	7. håller fullstän- digt med
Jag känner mig ganska nöjd med mitt nuvarande jobb eller studiesituation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
De flesta dagar är jag positivt inställd till mitt arbete eller mina studier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Varje arbetsdag känns som att den aldrig kommer att ta slut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jag finner njutning i mitt arbete eller mina studier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jag gillar inte mitt jobb eller mina studier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Följande frågor handlar om hur dina hälsoproblem påverkar din förmåga att arbeta eller studera och utföra vardagliga aktiviteter. Med hälsoproblem avser vi alla eventuella fysiska eller känslomässiga problem eller symtom.

**38. Under de senaste sju dagarna, hur många timmar var du borta från arbetet eller dina studier på grund av dina hälsoproblem? Räkna med timmar vid sjukdagar, de gånger du kom sent till arbetet, gick hem tidigare, etc., till följd av hälsoproblemen. Inkludera inte tid som du förlorat på att delta i denna studie.**

**39. Under de senaste sju dagarna, hur många timmar var du borta från arbetet eller dina studier på grund av någon annan orsak, t.ex. semester, helgdagar, ledig tid för att delta i denna undersökning?**

**40. Under de senaste sju dagarna, hur många timmar arbetade du eller studerade?**

**41. Under de senaste sju dagarna, i vilken utsträckning påverkade dina hälsoproblem din produktivitet medan du arbetade eller studerade? Tänk på de dagar då det fanns begränsningar i den mängd eller typ av arbete du kunde utföra, dagar då du utträttade mindre än du önskade eller dagar då du inte kunde göra ditt arbete så noggrant som vanligt. Om hälsoproblemen påverkade ditt arbete endast i mindre grad väljer du en låg siffra. Välj en hög siffra om hälsoproblemen påverkade ditt arbete avsevärt.**

- 0. Hälsoproblemen hade ingen påverkan på mitt arbete/ studier.
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10. Hälsoproblemen hindrade mig fullständigt från att arbeta/ studera.

**42. Under de senaste sju dagarna, i vilken utsträckning påverkade dina hälsoproblem din förmåga att utföra dina vardagliga aktiviteter förutom arbete eller studier? Med vardagliga aktiviteter avses sådant som du brukar göra, t.ex. hushållsarbete, åka och handla, barnpassning, motionera, etc. Tänk på de gånger då det fanns begränsningar i den mängd eller typ av aktiviteter du kunde utföra och gånger då du utträttade mindre än du önskade. Om hälsoproblemen påverkade dina aktiviteter endast i mindre grad väljer du en låg siffra. Välj en hög siffra om hälsoproblemen påverkade dina aktiviteter avsevärt.**

- 0. Hälsoproblemen hade ingen påverkan på mina dagliga aktiviteter.
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10. Hälsoproblemen hindrade mig fullständigt från att utföra mina dagliga aktiviteter.

Följande frågor gäller för din nuvarande eller senaste anställning. Studerar du, svara så bra du kan utifrån din studiesituation. Om din arbetsgivare vet om att du har ADHD och har erbjudit dig stöd på arbetsplatsen skulle vi vilja att du tittade på följande typer av stöd som ibland erbjuds av arbetsgivare till arbetstagare med ADHD. Sedan skulle vi vilja veta om du erbjudits någon av dessa och hur hjälpsamt du i så fall tyckt att det varit. Om du inte erbjudits något av dessa stöd skulle vi vilja att du svarar på om tror att de hade varit till hjälp för dig

**43. Vet din närmaste chef om att du har ADHD?**

- Ja
- Nej
- Ej relevant
- Vet ej





Table B1.

*Items and scoring algorithms for WPAI:GH.*Items:

Q1 Are you currently employed (working for pay)?

Q2 During the past seven days, how many hours did you miss from work because of your health problems? Include hours you missed on sick days, times you went in late, left early, etc., because of your health problems. Do not include time you missed to participate in this study.

Q3 During the past seven days, how many hours did you miss from work because of any other reason, such as vacation, holidays, time off to participate in this study?

Q4 During the past seven days, how many hours did you actually work?

Q5 During the past seven days, how much did health problems affect your productivity while you were working? Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual.

Q6 During the past seven days, how much did health problems affect your ability to do your regular daily activities, other than work at a job? By regular activities, we mean the usual activities you do, such as work around the house, shopping, childcare, exercising, studying, etc. Think about times you were limited in the amount or kind of activities you could do and times you accomplished less than you would like.

Scoring Algorithms:

Absenteeism: Percent work time missed due to problem  $Q2 / (Q2 + Q4)$

Presenteeism: Percent impairment while working due to problem:  $Q5/10$

Work productivity loss: Percent overall work impairment due to problem:

$Q2/(Q2 + Q4) + [(1 - (Q2/(Q2 + Q4))) \times (Q5/10)]$

Activity Impairment: Percent activity impairment due to problem:  $Q6/10$

Note. The information in this table originally appeared in: Pulay, A. J., Bitter, I., Papp, S., Gulásci, L., Péntek, M., Brodszky, V., Hevér, N. V., Rencz, F & Baji, P. (2016). Exploring the Relationship between Quality of Life (EQ-5D) and Clinical Measures in Adult Attention Deficit Hyperactivity Disorder (ADHD). *Applied Research in Quality of Life*. doi: 10.1007/s11482-016-9467-6 . WPAI:GH = Work Productivity and Activity Impairment scale, General Health version.

## Appendix C

Table C1.

*Proportion of participants being offered work ADHD-specific supports at work and helpfulness of these supports. All participants, both those who had informed their employer of their ADHD and those who had not are included.*

	Received	Perceived helpfulness		
		Helpful	Not helpful	Not relevant
Written work plan (n received = 223, n helpful = 208)	22 (9.9%)	73 (35.1%)	20 (9.6%)	115 (55.3%)
Flexible time arrangements (n received = 222, n helpful = 211)	75 (33.8%)	112 (53.1%)	23 (10.9%)	76 (36.0%)
Regular supervision including frequent, structured feedback on performance (n received = 222, n helpful = 206)	34 (15.4%)	85 (41.2%)	29 (14.1%)	92 (44.7%)
Mentor at work (n received = 222, n helpful = 207)	15 (6.8%)	59 (27.5%)	44 (21.3%)	104 (50.2%)
Feedback or instructions given in both verbal and written formats, with clear, structured goals and time targets (n received = 222, n helpful = 205)	24 (10.8%)	72 (35.1%)	26 (12.7%)	107 (52.2%)
Daily written agenda setting out the various tasks to be completed, and the time it should take for each task. (n received = 222, n helpful = 206)	11 (5.0%)	48 (23.3%)	42 (20.4%)	116 (56.3%)
Structured breaks from long meetings or assignments (n received = 222, n helpful = 208)	43 (19.4%)	84 (40.4%)	26 (12.5%)	98 (47.1%)
Opportunities throughout the day to move around (n received = 221, n helpful = 215)	102 (46.2%)	141 (65.5%)	11 (5.1%)	63 (29.3%)
Headphones or some other noise quieting device to reduce distraction (n received = 221, n helpful = 208)	26 (11.8%)	79 (38.0%)	26 (12.5%)	103 (49.5%)

Table C1. Continued.

	Received	Perceived helpfulness		
		Helpful	Not helpful	Not relevant
Private office or quieter work space to reduce distractions (n received = 220, n helpful = 207)	33 (15.0%)	86 (41.6%)	20 (9.7%)	101 (48.8%)
Reassign tasks to other colleagues (n received = 221, n helpful = 207)	27 (12.2%)	68 (32.9%)	33 (15.9%)	106 (51.2%)
Frequent incentives or rewards for progress during long or complicated tasks (n received = 221, n helpful = 208)	81 (36.7%)	124 (56.1%)	16 (7.7%)	68 (32.7%)
Employer prompting to help to stay focused on tasks (emails, SMS, input from colleague/manager) (n received = 221, n helpful = 207)	41 (18.6%)	93 (44.9%)	24 (11.6%)	90 (43.5%)

*Note.* Differences in n between received and helpful responses are due to technical difficulties with the survey program used for data collection.