

zioni delle linee guida tedesche e inglesi. Dalla lista di servizi accreditati fornita dall'Appendice B.2 dei Rapporti ISTISAN 16/37 dell'ISS, sono stati selezionati i centri, che adottano un protocollo clinico e testale per la diagnosi di ADHD nell'adulto (condotta da personale specificamente formato) e prescrivono un trattamento farmacologico a soggetti adulti con ADHD. Ad ogni centro selezionato, nel febbraio 2020, è stato inviato un questionario *ad hoc* con domande aperte e chiuse. Il quadro complessivo risultante dall'analisi dei dati è stato confrontato con le raccomandazioni dalle linee guida tedesche e inglesi. Il presente studio mostra che in Italia solo pochi centri sono specializzati nella diagnosi e nel trattamento dell'ADHD nell'adulto. Inoltre, non esistono linee guida nazionali per l'ADHD nell'adulto. I dati raccolti suggeriscono che non esiste una pratica condivisa tra i centri né per quanto riguarda la transizione del paziente dai servizi per l'infanzia e l'adolescenza a quelli per l'età adulta né rispetto al processo diagnostico-terapeutico. Si rende pertanto necessaria la stesura di protocolli d'intesa e linee guida nazionali al fine di migliorare l'individuazione e la diagnosi dell'ADHD in età adulta e offrire trattamenti multimodali più mirati ed efficienti.

PAROLE CHIAVE: ADHD, servizi in Italia, offerte terapeutiche, conoscenza ADHD.

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is classified in DSM-5¹ as a neurodevelopmental disorder with onset in childhood, which compromises the individual's global functioning or development. The core symptoms are difficulty paying attention, impulsive behaviors and/or an increased level of motor activity.

ADHD is among the most common psychiatric disorders of childhood that often persists into adulthood and old age, and it is associated with significant psychosocial impairment, a high comorbidity rate and multimorbidity². According to available evidence from longitudinal studies, approximately two-thirds of youths with ADHD maintain impairing symptoms of the disorder into adulthood^{3,4}.

A recent study estimated the prevalence of ADHD in adults to be around 2.8% across twenty countries, with a range between 1.4-3.6%⁵. ADHD symptoms may change throughout the lifespan. In adults, hyperactivity/impulsivity may decrease and turn into inner restlessness, while inattention may persist⁶⁻⁸ and result in serious impairment across multiple domains of living.

ADHD in the adult population is frequently associated with emotional dysregulation⁹ and comorbid psychiatric diseases that complicate its recognition, diagnosis and management. The most frequent comorbid psychopathologies include mood and anxiety disorders¹⁰, substance use disorders, personality disorders^{11,12}, and behavioural disorders⁵. Several studies have also shown a high incidence of suicidal ideation in adult ADHD^{13,14} and a possible association with an alteration of the circadian rhythm^{15,16}. Furthermore, untreated ADHD has negative long-term consequences such as poor academic and work related outcomes, low self-esteem, relational problems, accidents and increased involvement with the criminal justice system^{4,17}.

Despite the persistence of the disorder and its socio-relational impact, ADHD in adults, in Italy as well as in many other countries, is often underdiagnosed or misdiagnosed¹⁸, undertreated when recognized, or not treated at all¹⁹. To address this problem, 48 centres for adult ADHD were accredited in six regions of Italy (Emilia-Romagna, Lazio, Lombardy, Piedmont, Sardinia, Veneto) and in the Autonomous Province of Bolzano in 2016.

To date, however, accreditation has not really led, with rare exceptions, to the birth of specific services for managing adult ADHD, so much so that the accredited centres are not generally operational.

The German and English guidelines for the diagnosis and treatment of ADHD in adults

The German guidelines

The Interdisciplinary Evidence- and Consensus-based (S3) Guideline "Attention Deficit/Hyperactivity Disorder (ADHD) in Children, Young People and Adults"^{20,21} has been updated in 2018.

With the aim of making valid and replicable diagnoses, these guidelines highlight the need to use, alongside the clinical assessment, self and hetero-administered test instruments and behavioral observations (Table 1).

Furthermore, the German guidelines highlight the importance of cooperation between different specialists and consider the transition from child to adult mental health services to be an important aspect to pay attention to. In order to facilitate the transition process and the sharing of information between professionals, the use of a specific form is suggested.

With regard to treatment, the guidelines recommend to adopt a global and multimodal therapeutic approach. The pillars of this approach are psychoeducation, in which different treatment options must be offered to the patient, with the aim of promoting an informed and participatory decision, and – on the contrary with respect to the care for children and adolescents – pharmacotherapy, considered the primary treatment option in mild, moderate, and severe symptomatic expression. Patient preferences should be always respected and adherence to pharmacological therapy regularly checked.

The multimodal treatment plan can also combine psychosocial interventions (including psychotherapy) with the above mentioned interventions, according to the individual symptoms, the level of functioning, participation, and the preferences of the patient and his social network. If psychotherapy is suggested, the guidelines recommend cogni-

Table 1. Tests recommended by the German guidelines for the diagnosis of adult ADHD.

Clinical assessment	Self-assessment
ADHS-DC (HASE)	ADHS-SB (HASE)
ADHS Interview (IDA)	ADHS-E
CAARS-O	CAARS-S
WIR (HASE)	KATE
	WR-SB

Survey on centres and procedures for the diagnosis and treatment of adult ADHD in public services in Italy

tive behavioral therapy, with the aim of developing strategies and practical techniques that contribute to a reduction in the impact of ADHD symptoms on daily life functioning, for example through the improvement of problem solving skills, techniques for reducing distractibility, and stress management skills. The dysfunctional beliefs, that the patient has developed throughout his life, must also be identified and addressed.

NICE guidelines

The National Institute for Health and Care Excellence (NICE) clinical guidelines for the diagnosis and management of Attention deficit hyperactivity disorder in children, young people and adults²² have been last updated in 2019.

According to these guidelines, a diagnosis of ADHD should only be made by a specialist psychiatrist, paediatrician or other appropriately qualified healthcare professional with training and expertise in the diagnosis of ADHD, on the basis of a full clinical and psychosocial assessment of the person (this should include discussion about behaviour and symptoms in the different domains and settings of the person's everyday life), a full developmental and psychiatric history, observer reports, and assessment of the person's mental state. A diagnosis of ADHD should therefore not be made solely on the basis of rating scale or observational data. However, rating scales such as standard symptom and adverse effect rating scales are considered valuable adjuncts for clinical assessment and throughout the course of treatment for people with ADHD.

The NICE guidelines suggest that people with ADHD would benefit from improved organisation of care and better integration of child and adolescent mental health services and adult mental health services. A young person with ADHD should be reassessed at school-leaving age to establish the need for continuing treatment into adulthood. If treatment is necessary, arrangements should be made for a smooth transition to adult services and patient information should be shared between professionals. After transition to adult services, adult healthcare professionals should carry out a comprehensive assessment of the person with ADHD that includes personal, educational, occupational and social functioning, and assessment of any coexisting conditions.

Medication is considered the first-line treatment for adult ADHD, although there is still uncertainty over the long-term benefits and the side effects of medication. However, untreated ADHD can have a negative impact on a person's life, with lower educational attainment and higher criminality. That's why the NICE guidelines recommend medication when ADHD symptoms are still causing a significant impairment in at least one domain of everyday life despite environmental modifications.

Furthermore, the use of non-pharmacological treatments is recommended, although their efficacy according to various studies appears lower than that of the medication. Non-pharmacological treatment should include a full cognitive behavioral therapy program and at least a structured psychological support intervention focused on ADHD, with regular follow-ups in person or by phone.

According to these guidelines, mental health services for children, young people and adults should form multidisciplinary

nary specialist ADHD teams and/or clinics for children and young people, and separate teams and/or clinics for adults. These teams and clinics should have expertise in the diagnosis and management of ADHD, and should provide diagnostic, treatment and consultation services for people with ADHD who have complex needs, or where general psychiatric services are in doubt about the diagnosis and/or management of ADHD. They should also put in place systems of communication and protocols for information sharing among professionals, including arrangements for transition from child to adult services, and they should ensure that clear lines of communication between primary and secondary care are maintained.

The situation in Italy

In Italy, there are no reference guidelines or specific indications on the organization of services for the diagnosis and treatment of ADHD in adults.

With the aim of investigating the national prevalence of ADHD in children and adults and monitoring the use of specific medications for the disorder (i.e. methylphenidate and atomoxetine), the Italian National Institute of Health (ISS) was commissioned to establish a dedicated register (Italian Attention-Deficit/Hyperactivity Disorder Registry, see the Official Gazette of the Italian Republic No. 106 of 24/4/2007). Pharmacovigilance activities on minors were therefore started in April 2007, while the register for adults was created only in February 2016 (see the Official Gazette No. 275 of 26/11/2014). According to the ISS indications, the prescription of pharmacological therapy with methylphenidate or atomoxetine can only be guaranteed to patients diagnosed according to the DSM-5 criteria and registered in the national register.

More recently, in May 2019 (determination of the Italian Medicines Agency (AIFA) in the Official Gazette No. 113 of 16/5/2019), the national ISS register was closed due to a new and more specific one created by AIFA on its online portal, the PT-AIFA register.

Regions have been instructed to identify and accredit authorized centres for the prescription of pharmacological treatments for ADHD in adults. The organization of the centres, their nature of first or second level services and their interface with the territorial psychiatric services have not been defined, as well as no operational methods and/or protocols have been indicated for the diagnosis and/or the treatment of adult ADHD.

It is therefore to be highlighted how in Italy an appropriate treatment for adult patients with ADHD, despite clear evidence and extra-national guidelines, is made difficult to apply due to the fact that, in case of first diagnosis in adulthood, the only medication approved for treatment is a non-stimulant, i.e. atomoxetine (determination AIFA in the Official Gazette No. 275 of 26/11/2014). In addition, methylphenidate is not licensed for use in adults with ADHD, even in the event of need for therapeutic continuity during transition from child to adult care, but it is allowed thanks to special regulatory measures (rectification of the determination AIFA in the Official Gazette No. 168 of 22/07/2015). This happens despite the fact that a substantial efficacy of the medication for the well-being and quality of

life of individuals and the community has long been clearly demonstrated also in adults²³. ADHD medication use is in fact associated with lowered rates of mood disorders, substance use disorders, criminality, suicidality, traumatic brain injuries, motor vehicle crashes, injuries, and academic outcomes²⁴.

AIM OF THE STUDY

The aim of the study is to describe the mental health services currently existing in Italy for ADHD in adults and the procedures they follow in the diagnosis and treatment of this disorder, comparing this offer with the recommendations of the German and English guidelines.

METHODS

In order to identify the Italian mental health centres for ADHD in adults, Appendix B.2 of the ISTISAN 16/37 Reports of the ISS²⁵ was consulted at first. From the list in Appendix B.2, the centres that adopt a clinical and test protocol for adult ADHD diagnosis carried out by specifically trained personnel and that prescribe pharmacological treatment for ADHD in adults have been selected, through telephone investigations and contacts between specialists. An ad-hoc survey with open-ended and close-ended questions was sent to each selected centre in February 2020.

Finally, the overall picture resulting from the analysis of the data collected by the selected centres was compared with the recommendations of the German and English guidelines.

RESULTS

At the end of the selection process, nine centres had the desired characteristics: the Centre of Excellence in ADHD in adults (Bolzano), the DSM of the AULSS 8 Berica (Vicenza), the Centre for the diagnosis and treatment of ADHD in adulthood (Milan), the Adult ADHD Reference Centre (Turin), the ADHD Centre (Rome), the CSM of the ULSS 6 (Padua), the Centre for adult ADHD - ASL Roma 5 (Rome), the Centre for ADHD in adults - AOUP (Pisa), the DSM of ASST Papa Giovanni XXIII (Bergamo).

The main characteristics of these services are shown below both from a diagnostic and clinical intervention point of view.

The Centre of Excellence in ADHD in adults [Ambulatorio d'eccellenza per ADHD nell'adulto] at the Psychiatry Service of the Bolzano Hospital

The Centre started its activity in 2009 and follows around 100 patients per year. It is for adult patients only and adopts a transition protocol agreement with Child Neuropsychiatry to promote therapeutic continuity.

During the first phase of the diagnostic process the patient receives a self-administered test battery via email; in the second phase one or more interviews with the psychologist are held to administer other tests; if ADHD diagnosis is confirmed, a psychiatric consultation is carried out to complete the diagnosis and create an individual treatment plan (Table 2).

Table 2. Battery of tests administered by the Centre of Excellence in ADHD in adults (Bolzano).

1 st phase: self-administered tests	2 nd phase: tests administered in the clinic
ASRS-V1.1 BDI-II Becks Depression Inventory Short mental health history HCL-32 MDQ SCID-II questionnaire TEMPS-A WURS	Mental health history – part 2 DIVA 2.0 HASE SCID-II interview

The diagnostic process is completed with an exhaustive series of physical tests. The Centre normally prescribes the following blood tests to patients with ADHD: blood count with formula; liver values (GammaGT, Transaminase); creatinine; electrolytes; CRP; TSH (T3/T4); Vitamin B12 concentration; folate concentration. ECG, EEG and NMR imaging of the brain without contrast are also prescribed (if waiting times are too long, the brain CAT is alternatively prescribed).

The Centre prescribes atomoxetine and/or methylphenidate for the treatment of ADHD in adults. The first stage of methylphenidate administration is carried out following patients' admission to the day hospital with the aim of monitoring patients' response to the drug. For more complex cases, e.g. in the presence of comorbidities such as substance abuse, hospitalization may also be provided for longer periods. If necessary, other medications are prescribed to treat comorbidities.

Furthermore, the following services are offered by the Centre to adult patients with ADHD: psychoeducation, cognitive-behavioral psychotherapy, systemic therapy, group therapy, family therapy, therapy for relatives, mindfulness. The aforementioned interventions are for both inpatients and outpatients with variable average waiting times. In the case of outpatients, waiting times can be longer.

The Mental Health Department (DSM) of the AULSS 8 Berica in Vicenza

It offers diagnosis and treatment of ADHD in adulthood. Its working group on Neurodevelopmental Disorders facilitates the intervention and dissemination of theoretical and practical materials among the clinicians of the CSM (Mental Health Centres) and the SPDC (psychiatric ward). The Department started its activity in 2016 and accepted about 40 adult patients with ADHD until the end of 2019. The service is for adults only and adopts a transition protocol agreement with the Child Neuropsychiatry.

Steps of the psychodiagnostic process are:

1. Initial psychiatric interview and team discussion of the case;
2. Psychodiagnostic testing (from 2 to 4 meetings with the Psychologist, possible interviews with Social Worker and/or Doctor);
3. Team discussion of the case, diagnostic report writing, therapy/rehabilitation proposal, and feedback to the patient (Table 3).

The prescribed clinical tests are ECG and routine tests (complete blood count, liver values, electrolytes, creatinine).

When drug treatment for ADHD is needed, atomoxetine or methylphenidate are usually prescribed. Mood stabilizers, antide-

Survey on centres and procedures for the diagnosis and treatment of adult ADHD in public services in Italy

Table 3. Battery of tests administered by the DSM of the AULSS 8 Berica (Vicenza).

1 st phase	2 nd phase: ADHD assessment	3 rd phase: outcome evaluation
ASRS-V1.1 WURS MOCA MCMI-III MMPI-RF Rorschach test Mental health history (unstructured or structured interview on the model of Adult Attachment Interview) Sociogram	DIVA 2.0 ACE Plus HASE SCID II	CORE-OM Possible follow-up at 6 months

pressants and antipsychotics may also be prescribed to treat comorbidities, or to optimize the patient's clinical conditions before beginning or during ADHD-specific treatment.

If needed, clinical monitoring and follow-ups are conducted by the patient's referral Mental Health Centre.

As for the non-pharmacological therapeutic offers, the Centre offers: differentiated group psychoeducational pathways (for patients and family members) to provide scientific and clinical information on the nature of the disorder and promote effective strategies to minimize the negative impact of the disorder on daily life; possible social support interventions and career guidance; possible short psychotherapy focused on ADHD-related problems; possible patient's reevaluation.

The Centre accepts also patients from other local health units (AULSS), whose regional centres authorized to prescribe drugs for the treatment of ADHD in adult patients are not active, of the Veneto Region.

The Centre for the diagnosis and treatment of ADHD in adulthood [Ambulatorio per la diagnosi e il trattamento dell'ADHD in età adulta] of ASST Fatebenefratelli-Sacco in Milan

The Centre was born in 2014, follows around 100 patients and accepts around 60 new ones per year. The service is for patients between the ages of 18 and 35. It carries out assessments on adults with clinical suspicion of ADHD and accepts young adults, who have already been diagnosed with ADHD by the Child Neuropsychiatry. It is a suprazonal and supra-departmental centre and is structured as a second level specialist service.

Diagnosis is based on the collection of information from multiple sources, including direct observation and questionnaires completed by the patient and by his family and/or significant others.

After a first phase of screening with self-administered questionnaires that investigate both the core clinical manifestations of the disorder and possible comorbidities of axis I and axis II, a structured anamnestic collection is carried out and symptoms of ADHD in childhood and adulthood are investigated through a structured diagnostic interview and cognitive and affective tests. When possible, a careful analysis of elementary and middle school report cards is carried out to understand the subject's functioning between 7 and 13 years. Attention is paid to the patient's quality of life - both overall and in the areas specifically affected by ADHD symptoms, as well as the ability to regulate emotions and affects. Finally, a clinical and test

assessment is undertaken to identify possible comorbid conditions²⁶ (Table 4).

As for clinical tests, ECG and blood tests are prescribed (blood count with formula; GGT, transaminase, creatinine; electrolytes, TSH reflex, blood sugar, Vitamin B12, folate). Blood pressure and heart rate are also detected before the start of the drug therapy and at each check.

Atomoxetine, methylphenidate and, secondly, bupropion are prescribed to adults with ADHD²⁷ in combination, if necessary, with other medications for comorbid mental illness. The Centre organizes psychoeducational groups.

The Adult ADHD Reference Centre [Centro di riferimento ADHD per i soggetti in età adulta] of the Psychiatry Unit, San Luigi Gonzaga University Hospital (Orbassano, Turin)

The service was born in 2014 and became Piedmont coordinator centre after the Regional Decree in 2016. The Centre is for adult patients, evaluates about 150 people every year and accepts about 80 new ones. About 10% of patients come from the Child Neuropsychiatry, which has been organized in reference centres in Piedmont for years. For the transition from child to adult mental health services, a protocol was drawn up together with the Piedmont Region.

The diagnostic process is structured as follows:

1. A general psychiatric consultation with a detailed anamnestic collection and psychiatric evaluation;
2. A second consultation to investigate ADHD symptoms and consult elementary and middle school report cards;
3. If necessary, a psychiatric comorbidity assessment;
4. A third appointment to provide diagnostic feedback to the patient and start the drug therapy;
5. One-week follow-up (Table 5).

Table 4. Battery of tests administered by the Centre for the diagnosis and treatment of ADHD in adulthood (Milan).

1 st phase: self-administered tests	2 nd phase	3 rd phase
WURS ASRS-V1.1 MDQ SDS Zung SCID-II questionnaire STAI-Y 1 and 2	DIVA 2.0 SCID-II interview ADD Brown Scales WHOOOL DERS	CGI VGF AA-QoL

Table 5. Battery of tests administered by the Adult ADHD Reference Centre - San Luigi Gonzaga (Turin).

1 st phase	2 nd phase	3 rd phase (possible)
ASRS-V1.1 ADHD-RS	DIVA 2.0 in the presence of a family member MCMI-III	WURS BAARS-IV M.I.N.I. PLUS 5.0.0 MDQ BDI-II HAM-A/HAM-D DES-II

The following clinical tests are prescribed in case of drug administration: blood count with formula, thyroid, kidney and liver function, ECG, and any further tests deemed necessary on a case by case basis. In addition, blood pressure and heart rate are detected before the start of therapy and at each check.

As for the therapeutic offer, a multimodal approach is adopted consisting of psychoeducation, coaching, cognitive psychotherapy, dynamic supportive psychotherapy, mindfulness as well as pharmacological therapy that includes methylphenidate, atomoxetine, and any other drugs to treat comorbidities.

The ADHD Centre [Ambulatorio ADHD] at the Complex Operative Unit (UOC) of Psychiatry of the Sant'Andrea Hospital - Sapienza University of Rome, Faculty of Medicine and Psychology

The Centre started its activity in 2016 and carries out around 30 new medical consultations and 100 follow-ups per year. The Centre is for adult patients only, who independently contacted the Centre or have been sent to the UOC from internal services, external specialists (psychiatrists and psychotherapists), or the Child Neuropsychiatry.

As for the diagnostic evaluation, at the first medical examination, a detailed collection of anamnestic data (medical and psychiatric) is carried out and specific tests are administered. Follow-ups are taken at two months, four months and six months (Table 6).

The drug therapy is constantly monitored with possible drug dosage changes or drug switching. Patients perform instrumental medical tests and blood chemistry tests externally, if needed.

Patients are administered atomoxetine and methylphenidate (immediate and prolonged release), and any other drugs to treat comorbidities, such as mood stabilizers, antidepressants, anxiolytics, and antipsychotics.

The Local Health Unit ULSS 6 Euganea (Padua)

It offers diagnosis and treatment of adult ADHD, although it does not have a formal service specifically dedicated to this disorder. Patients are followed by the Mental Health Centre (CSM). The CSM accepted five patients on first medical consultation in 2015, four in 2016, five in 2017, twenty-two in 2018 and ten in 2019 (data collected until the end of May 2019). Usually patients are sent to this clin-

ic by colleagues when ADHD is suspected. Few patients in transition from the Child Neuropsychiatry of Padua are accepted, as this Centre continues to follow ADHD patients even in adulthood.

The diagnostic process is structured in three medical consultations: the first one includes a psychiatric evaluation following the criteria of the ADHD Semi-structured interview Krause/Krause; the tests listed in Table 7 are administered in the first and second medical consultation; in the third consultation a re-evaluation of the patient is carried out and a feedback to the patient and his family members is provided.

The medical tests are: blood chemistry routine, ECG and MRI.

Regarding the therapeutic offer, the CSM offers ADHD patients individual interviews and drug therapy: atomoxetine and methylphenidate.

The Centre for adult ADHD [Ambulatorio per ADHD Adulto] of the Local Health Department "ASL Roma 5"

It is located at the SS Gonfalone Hospital in Monterotondo (RM). At the moment, it represents the only active centre officially approved by the Lazio Region with determination G03276 of 21/3/2019. For this reason, it is the only centre in Lazio formally authorized to prescribe atomoxetine (determination AIFA GU No. 275 of 26/11/2014) and methylphenidate (determination AIFA GU No. 168 of 22/7/2015). Within the ASL Roma 5, a second centre has been approved by the Lazio Region at the Parodi Delfino Hospital in Colferro (RM), which will soon be open to the public.

The Centre for adult ADHD started its activity in June 2019 and carried out 64 new medical consultations and 97 follow-ups (data collected until 5/3/2020). The estimated total number of first medical consultations during the first year of the centre's activity is 72, while the estimated total number of follow-ups is 120. The service is for adult patients only which usually contact the ASL Roma 5 on suggestion of internal territorial services, other ASL of Rome and Lazio (mainly CSM, SerD and TSMREE), external specialists (psychiatrists and psychotherapists), or request for a consultation on their own initiative.

The clinical activity of the Centre is summarized as follows:

1. During the first phase a medical consultation is conducted to collect a full medical history and perform a psychiatric evaluation; the test listed in Table 8 are administered to the patient; when possible, a diagnostic feedback is immediately given to the patient and the drug therapy is prescribed;
2. Only when it is needed, another medical consultation is conducted to provide a diagnostic feedback to the patient and start the drug therapy, if this had not been done in the previous phase; other tests are administered on a case by case basis.
3. In the third phase, the patient is followed by the Centre together with the referring health care provider or physician. One- and two-month follow-ups are taken in case of treatment titration or unstable patients, while follow-up time-points are set at three- and six-month for stabilized patients. Clinical progress is also monitored by interviewing an informant.

Table 6. Battery of tests administered by the ADHD Centre (Rome).

1 st phase	2 nd phase: follow-ups
ASRS-V1.1	ASRS-V1.1
DIVA 2.0	BPRS
BPRS	CGI-bp
CGI-bp	WHODAS 2.0
HCL-32	DERS
WHODAS 2.0	RIPoSt
DERS	MEQ-SA
RIPoSt	CAARS - Observer: Screening Version
Barratt Impulsiveness Scale	
FAST	
Brief TEMPS-M (self-report)	
MEQ-SA	
CAARS - Observer: Screening Version	

Table 7. Battery of tests administered by the CSM of the ULSS 6 Euganea (Padua).

1 st phase	2 nd phase	3 rd phase
ASRS-V1.1	DIVA 2.0	Current Symptoms Questionnaire
WURS	Current Symptoms Questionnaire	
Current Symptoms Questionnaire		

Survey on centres and procedures for the diagnosis and treatment of adult ADHD in public services in Italy

Table 8. Battery of tests administered by the Centre for adult ADHD (Rome).

1 st phase	2 nd phase (possible)	3 rd phase
ASRS-V1.1 DIVA 2.0 Possible integration with ACE plus	MCMI-III WAIS-IV WHODAS 2.0 Specific neuropsychological test battery	Repeated administration of ASRS-V1.1

Patients carry out instrumental clinical tests and blood chemistry analyzes externally, if necessary.

Atomoxetine and methylphenidate drug therapy is proposed to patients who meet the diagnostic criteria, for whom at least moderate severity and functional impairment are ascertained and who do not have ongoing clinical conditions incompatible with ADHD-specific therapy. When necessary, methylphenidate is prescribed off-label with written consent in the case of an adult who has never undergone methylphenidate therapy before the age of 18. In case of methylphenidate administration, patients do not attend day hospital.

The Centre may also prescribe mood stabilizers, antidepressants and antipsychotics to less complex patients, who do not need more intensive care, to treat comorbidities, or to optimize the patient's clinical conditions before beginning or during ADHD-specific treatment. More complex patients, who need frequent follow-ups or intensive care, are sent instead to territorial centres for the necessary stabilization to start the ADHD-specific therapy or integrated parallel follow-ups.

To date, the Centre does not have enough resources to allow structured individual or group non-pharmacological interventions. Despite this, elements of psycho-education are provided to patients and their family members during follow-ups.

The Centre for ADHD in adults [Ambulatorio per l'ADHD dell'Adulto] of the UO Psychiatry 2 - University Hospital of Pisa (AOUP)

It is located at the Santa Chiara Hospital in Pisa. To date, it is the only Centre formally authorized to prescribe atomoxetine (determination AIFA GU No. 275 of 26/11/2014) and methylphenidate (determination AIFA GU No. 168 of 22/7/2015) in Tuscany. The Centre started its activity in collaboration with the Centre for ADHD of the 'Stella Maris' - Institute of Child Neuropsychiatry in February 2018. Since then, the Centre carried out a total of 194 new consultations and more than 400 follow-ups (data collected until 30/3/2020). The service is for adult only. Patients are usually referred to the Centre from other adult psychiatric services of Tuscany and other regions of Italy, from the child psychiatric services of Tuscany at the age of 18 years, from external specialists (psychiatrists and psychotherapists), or they request for a consultation on their own initiative.

During the first medical consultation the patient's personal history is collected and a psychiatric evaluation is performed; the test listed in Table 9 are administered to the patient, a diagnostic feedback is immediately given to the patient and the drug therapy is prescribed. Flexible follow-up schedules are planned in case of treatment titration or unstable patients, while follow-up time-points are set at three- and six-month for stabilized patients. Clinical progress is also monitored by standardized clinical evaluation.

Patients carry out instrumental clinical tests, brain imaging and blood chemistry analyses, if necessary.

Table 9. Battery of tests administered by the Centre for ADHD in adults (Pisa).

ASRS-V1.1 DIVA 2.0 ACE plus MCMI-III DERS WHODAS 2.0 MINI- PLUS 5.0.0 RIPoS BPRS CAARS Brief TEMPS-M DOTES CGI FAST
--

If necessary, atomoxetine and methylphenidate are prescribed to the patients. Methylphenidate is prescribed off-label with written consent in the case of an adult who has never undergone methylphenidate therapy before the age of 18.

Psychoeducation is provided for patients and for their families.

The Department of Mental Health and Addiction of ASST Papa Giovanni XXIII in Bergamo

This Department offers diagnosis and treatment of adult ADHD and is organized on three levels:

1. The outpatient Clinic offers clinical evaluation of adult ADHD and, if necessary, it administers the questionnaires listed in the Table 10 to patients to complete the diagnosis. When needed, it provides psychotherapy interventions and follow-ups to ADHD patients. The Clinic provides advice to the patient's referral mental health and addiction services. The patients contact the Clinic on their own initiative or they are referred by the units of Child Neuropsychiatry, the Service of Drug Addiction (SerD), or by other Psychiatric units. There are currently no age or geographic barriers that limit patient access to the Clinic. The team is composed of one psychiatrist and one psychologist. To date, the Clinic follows 109 patients.
2. The Psychosocial Center 1 (CPS1) accepts only patients of territorial competence. It has enough resources to follow more complex patients and to offer multimodal interventions. Patients are referred to the Centre by the local units, the Psychiatric Diagnosis and Treatment Service, the Child Neuropsychiatry, and local agencies such as the Child Protection Services. The Centre follows about 50 patients (all complex patients). It carries out psychodiagnostic and neuropsychological assessment with the aim of structuring an intervention project which may include rehabilitation intervention for more complex patients (carried out by the following structure).
3. Psychosocial Rehabilitation 1 offers specific interventions for ADHD patients: semi-residential care and job placement (including preparatory courses for work carried out by social cooperatives, which are authorized to exercise this function since they won a public sector contract with ASST).

Table 10. Battery of tests administered by the DSM of Bergamo

DIVA 2.0 Possible integration with Rorschach test, ENB-2 and WAIS IV

4. Before treatment, ECG and blood tests are prescribed: blood count, liver function, kidney function, electrolytes, iron metabolism, thyroid function, vitamin B12 dosage, folate.
5. All three levels offer drug therapy with methylphenidate as a first choice in absence of impeding factors (e.g. substance abuse, absence of support in adherence to treatment, unaffordable drug prices for the patient) or atomoxetine (Table 11).

DISCUSSION

From the above results, it is possible to notice that only a few centres in Italy offer diagnosis and treatment of ADHD

in adults, especially if compared with the number of existing services for ADHD in childhood and adolescence. For this age group, in fact, diagnostic and treatment services are available and well established throughout most of Europe, as highlighted by the European Network Adult ADHD (ENAA)².

Thanks to longitudinal studies, it is now established that approximately two thirds of young people with ADHD maintain impairing symptoms of the disorder into adulthood^{4,28}. The lack of services for ADHD in adults determines a significant organizational and clinical issue.

Many young people with ADHD continue to experience significant difficulties into adulthood. ADHD symptoms of-

Table 11. Summary results.

	Centre of Excellence in ADHD in adults (Bolzano)	DSM of the AULSS 8 Berica (Vicenza)	Centre for the diagnosis and treatment of ADHD in adulthood (Milan)	Adult ADHD reference centre (Turin)	ADHD Centre (Rome)	CSM of the ULSS 6 (Padua)	Centre for adult ADHD - ASL Roma 5 (Rome)	Centre for ADHD in adults AOUP (Pisa)	DSM (Bergamo)
Drug therapy:									
<i>Atomoxetine</i>	x	x	x	x	x	x	x	x	x
<i>Methylphenidate</i>	x	x	x	x	x	x	x	x	x
<i>Bupropion</i>			x					x	
Day Hospital for methylphenidate administration	x								
Psychoeducation	x	x	x	x		x	x	x	x
Cognitive behavioral psychotherapy	x								x
Other psychotherapeutic interventions	x	x		x					x
Mindfulness	x			x					
Transition protocol agreement with Child Neuropsychiatry	x	x		x		x		x	x
Multidisciplinary team	x	x	x					x	x
Prescribed medical tests:	Blood tests ECG EEG NMR imaging of the brain without contrast or brain CAT	Blood tests ECG	Blood tests ECG		Blood tests ECG MRI	Blood tests ECG EEG	Blood tests ECG NMR CAT if necessary		Blood tests ECG
Tests used by multiple Centres	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	ASRS-V1.1	
	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0	DIVA 2.0
	WURS	WURS	WURS	WURS		WURS			

(Continued) Table 11

Survey on centres and procedures for the diagnosis and treatment of adult ADHD in public services in Italy

(Continued) Table 11

	Centre of Excellence in ADHD in adults (Bolzano)	DSM of the AULSS 8 Berica (Vicenza)	Centre for the diagnosis and treatment of ADHD in adulthood (Milan)	Adult ADHD reference centre (Turin)	ADHD Centre (Rome)	CSM of the ULSS 6 (Padua)	Centre for adult ADHD - ASL Roma 5 (Rome)	Centre for ADHD in adults AOUP (Pisa)	DSM (Bergamo)
		ACE plus					ACE plus	ACE plus	
	BDI-II			BDI-II					
	HCL-32				HCL-32				
	SCID-II	SCID-II	SCID-II						
	MDQ		MDQ	MDQ					
		MCMI-III		MCMI-III			MCMI-III	MCMI-III	
			DERS		DERS			DERS	
					WHODAS 2.0		WHODAS 2.0	WHODAS 2.0	
	HASE	HASE							
		Rorschach test							Rorschach test
							WAIS-IV		WAIS-IV
				M.I.N.I. PLUS 5.0.0				M.I.N.I. PLUS 5.0.0	
					BPRS			BPRS	
					RIPoSt			RIPoSt	
					CAARS			CAARS	
					FAST			FAST	
					CGI			CGI	
					Brief TEMPS-M			Brief TEMPS-M	

ten persist and are accompanied by comorbidity such as personality disorders, emotional and social difficulties, substance abuse, unemployment, and involvement in criminal activities. Failure to treat adults with ADHD has significant social costs and represents a significant public health issue. Yet, in Italy only a minority of adults with ADHD are correctly diagnosed and treated²⁷.

Also Aifa Onlus (“Associazione italiana famiglie ADHD”), the “Società italiana di psichiatria” and the “Società italiana patologie da dipendenza” highlighted in 2018 that “it is difficult for adults, or even impossible, to receive the diagnosis of ADHD”. AIFA has created the National Register for ADHD in adults at the ISS (Determination No. 1291/2014). Although the ISS has repeatedly requested that

the Regions identify the Centres of Reference for ADHD in adults, after 4 years few regions have done so and there is no official list of the established Centres.

To aggravate this situation of absolute lack of specialised services that can correctly diagnose and treat adults with ADHD, there are no official guidelines for ADHD in adult in Italy.

From the comparative evaluation of the nine Centres for adult ADHD that offer structured diagnostic interventions and specific pharmacological and non-pharmacological treatments, it is found that, although some similarity, there is no shared practice between the Centres. The Centres apply diagnostic procedures that are partially different from each other in terms of methods, administered tests and timing. Not

everyone applies a protocol for the patient's transition from child to adult mental health services. In this regard, both the English and German guidelines have highlighted the importance of the transition phase and are trying to systematize this step to encourage better patient care. Research shows that disruption of care during transition adversely affects clinical outcome and can lead to a drop-out from services^{2,29,30}.

With regard to the NICE recommendations about creating multidisciplinary teams of specialists on the disorder, it is to notice that not all the Centres considered by this study resort to teams composed of professionals who are members of different disciplines (e.g. Psychiatrists, Psychologists, Social Workers, etc.).

There is also a significant diversity of the non-pharmacological therapeutic offer among the Centres. Both the English and German guidelines highlight the importance of adopting a global and multimodal therapeutic approach and propose, in cases where non-pharmacological treatment is advisable, the use of psychoeducation interventions and cognitive behavioral therapy. However, not all Italian Centres offer this type of intervention. In addition to the lack of homogeneity between the services, the lack of non-pharmacological treatment offer limits the patient's choice of treatment, the importance of which is indicated by an impressive scientific literature and has been highlighted by both guidelines, and reduces the possibility for the patient to receive adequate and personalized care according to his needs.

Regarding the pharmacological treatment of ADHD, all Centres offer treatment with atomoxetine and methylphenidate (in therapeutic continuity in subjects already treated before 18 years of age according to law 23 December 1996, No. 648 or with off-label modality), in addition to specific drugs to treat any comorbidities.

In conclusion, on the basis of the collected data on the current situation of our country, it is desirable to develop national guidelines for the diagnosis and treatment of ADHD in adults and to define a network of specialised centres that can share practices and modalities of clinical intervention. In order to deal with the disparities that emerged on the national scene, the first Italian network for ADHD, which involves both centres for adults and children, was recently set up under the aegis of the Italian Society of Neuropsychopharmacology (SINPF). Further research will be necessary to better define the clinical characteristics of the disorder in adults and old age, identify its prevalence in Italy and develop universally shared therapeutic programs.

It would also be important to create a shared protocol for the transition of patients from child to adult mental health services. Adult clinics should be able to offer young adults with ADHD in transition services that enable them to obtain the multimodal care and interventions that were available to them as children and adolescents or to establish appropriate interventions for those receiving diagnosis for the first time in adulthood.

CONCLUSIONS

The present survey shows that in Italy only a few centres are specialised in the diagnosis and treatment of ADHD in

adults. Given that people with ADHD may experience significant difficulties during adulthood, the data highlight a serious public health issue. Furthermore, the collected data suggest that there is no shared practice neither for the patient's transition from Child and Adolescent Mental Health Services to adult care nor in the diagnostic-therapeutic process.

It is therefore crucial to create specific protocols and develop national guidelines to better identify and diagnose ADHD in adults and provide targeted and more efficient multimodal treatments.

Conflict of interests: the authors have no conflict of interests to declare.

REFERENCES

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (5th ed.). Washington, DC: American Psychiatric Association, 2013.
2. Kooij JJS, Bijlenga D, Salerno L, et al. Updated European Consensus Statement on diagnosis and treatment of adult ADHD. *Eur Psychiatry* 2019; 56: 14-34.
3. Faraone SV, Biederman J, Mick E. The age dependent decline of attention-deficit/hyperactivity disorder: a meta-analysis of follow-up studies. *Psychol Med* 2006; 36: 159-65.
4. Faraone SV, Asherson P, Banaschewski T, et al. Attention-deficit/hyperactivity disorder. *Nat Rev Dis Primers* 2015; 1: 15020.
5. Fayyad J, Sampson NA, Hwang I, et al. The descriptive epidemiology of DSM-IV Adult ADHD in the World Health Organization World Mental Health Surveys. *Atten Defic Hyperact Disord* 2017; 9: 47-65.
6. Franck W, Zwiers MP, Mennes M, et al. White matter microstructure and developmental improvement of hyperactive/impulsive symptoms in Attention-Deficit/Hyperactivity Disorder. *J Child Psychol Psychiatry* 2015; 56(12): 1289-97.
7. Turgay A, Goodman DW, Asherson P, et al. ADHD Transition Phase Model Working Group. Lifespan persistence of ADHD: the life transition model and its application. *J Clin Psychiatry* 2012; 73: 192-201.
8. Biederman J, Mick E, Faraone SV. Age-dependent decline of symptoms of attention deficit hyperactivity disorder: impact of remission definition and symptom type. *Am J Psychiatry* 2000; 157: 816-8.
9. Perugi G, Pallucchini A, Rizzato S, Pinzone V, De Rossi P. Current and emerging pharmacotherapy for the treatment of adult attention deficit hyperactivity disorder (ADHD). *Expert Opin Pharmacother* 2019; 20: 1457-70.
10. Oliva F, Carezana C, Nibbio G, Bramante S, Portigliatti Pomeri A, Maina G. Treatment of Comorbid Adult Attention-deficit/Hyperactivity Disorder and Generalized Anxiety Disorder: 2 Case Reports. *J Psychiatr Pract* 2018; 24: 292-8.
11. Oliva F, Mangiapane C, Nibbio G, Portigliatti Pomeri A, Maina G. MCMI-III Personality Disorders, Traits, and Profiles in Adult ADHD Outpatients. *J Atten Disord* 2020; 24: 830-9.
12. Katzman MA, Bilkey TS, Chokka PR, Fallu A, Klassen LJ. Adult ADHD and comorbid disorders: clinical implications of a dimensional approach. *BMC Psychiatry* 2017; 17: 302.
13. Giupponi G, Giordano G, Maniscalco I, et al. Suicide risk in attention-deficit/hyperactivity disorder. *Psychiatr Danub* 2018; 30: 2-10.
14. Giupponi G, Innamorati M, Rogante E, et al. Characteristic of mood polarity, temperaments and suicide risk in adult ADHD. *Int J Environ Res Public Health* 2020; 17: 2871.

Survey on centres and procedures for the diagnosis and treatment of adult ADHD in public services in Italy

15. Tonetti L, Conca A, Giupponi G, Filardi M, Natale V. Circadian activity rhythm in adult attention-deficit hyperactivity disorder. *J Psychiatr Res* 2018; 103: 1-4.
16. Tonetti L, Conca A, Giupponi G, Natale V. Circadian pattern of motor activity in adults with attention-deficit/hyperactivity disorder. *Chronobiol Int* 2017; 34: 802-7.
17. Shaw M, Caci H, Hodgkins P, Kahle J, Callamaras N, Woods A. Review of studies of ADHD: long-term outcomes of ADHD: global and regional study publication trends. *Eur Psychiatry* 2011; 26 (Suppl. 1): 579.
18. Asherson P, Akehurst R, Kooij JJ, et al. Under diagnosis of adult ADHD: cultural influences and societal burden. *J Atten Disord* 2012; 16 (5 Suppl): 20S-38S.
19. Targum SD, Adler LA. Our current understanding of adult ADHD. *Innov Clin Neurosci* 2014; 11: 30-5.
20. Arbeitsgemeinschaft Der Wissenschaftlichen Medizinischen Fachgesellschaften. Langfassung der interdisziplinären evidenz- und konsensbasierten (S3) Leitlinie "Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) im Kindes-Jugend- und Erwachsenenalter". AWMF-Registernummer 028-045. 2018.
21. Banaschewski T, Hohmann S, Millenet DPS, et al. Leitlinienreport der interdisziplinären evidenz- und konsensbasierten (S3) Leitlinie "Aufmerksamkeitsdefizit- / Hyperaktivitätsstörung (ADHS) im Kindes-, Jugend- und Erwachsenenalter". AWMF-Registernummer 028-045. 2018.
22. National Institute for Health and Care Excellence. NICE Guideline [NG87]. Attention deficit hyperactivity disorder: diagnosis and management. 2019.
23. Chappuy M, Boulanger A, Nourredine M, Fournieret P, Rolland B. Disparate regulatory status of methylphenidate for adults with ADHD across Europe. *Lancet Psychiatry* 2020; 7: e1-e2.
24. Boland H, DiSalvo M, Fried R, et al. A literature review and meta-analysis on the effects of ADHD medications on functional outcomes. *J Psychiatr Res* 2020; 123: 21-30.
25. Germinario EAP, Arcieri R, Marzi M, Panei P, Vella S. Registro nazionale ADHD (Attention-Deficit/Hyperactivity Disorder): dati dal 2007 al 2016. Roma: Istituto Superiore di Sanità, 2016. (Rapporti ISTISAN 16/37).
26. Migliarese G, Venturi V, Cerveri G, Mencacci C. L'ADHD nell'adulto misdiagnosi e incidenza della patologia nei servizi. *Psichiatria oggi* 2015; 2: 16-25.
27. Migliarese G, Magni E, Cerveri G, Venturi V, Mencacci C. L'ADHD nell'adulto. Esperienza clinica e linee guida per il trattamento. *Psichiatria oggi* 2017; 1: 8-22.
28. Franke B, Michelini G, Asherson P, et al. Live fast, die young? A review on the developmental trajectories of ADHD across the lifespan. *Eur Neuropsychopharmacol* 2018; 28: 1059-88.
29. Singh SP. Transition of care from child to adult mental health services: the great divide. *Curr Opin Psychiatry* 2009; 22: 386-90.
30. While A, Forbes A, Ullman R, Lewis S, Mathes L, Griffiths P. Good practices that address continuity during transition from child to adult care: synthesis of the evidence. *Child Care Health Dev* 2004; 30: 439-52.