Adult ADHD : Psychometric properties of the Wender Utah Rating Scale

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INTRODUCTION

Attention Deficit Disorder with/without Hyperactivity-Impulsivity (ADD/ADHD) is one of the disorders most frequently diagnosed in children.
In the past century, ADHD was widely held to be strictly a disorder of childhood albeit some clinicians in Europe described adults with inattentive-hyperactive symptoms. For instance, Emil Kraepelin named these patients Haltlosen (restless) and pointed out the similarities with the psychomotor instable children in the French psychiatric literature. Additionally, descriptions of inattentive adults existed in the French theatre back in the 17th century (e.g. Molière and La Bruyère).

Expectedly, results published in the late 1960s were in conflict with widely held belief that hyperactive-impulsive behaviour tended to wane in adolescence. Nowadays, it is acknowledged that ADHD persists in adulthood in about 50%, causing a significant impairment. Regardless of culture and language, the prevalence of ADHD is estimated around 4% of the adults in the general population. Surprisingly, it remains under-recognised and under-diagnosed.
In 1976, Paul Wender and his colleagues were the first to initiate a scientifically based study of medication treatment for ADHD and to propose explicit diagnostic criteria because the DSM-II and DSM-III criteria were not developmentally appropriate for adult patients. Patients and an additional informant, preferably a parent, are interviewed to assess retrospectively the childhood diagnosis of ADHD. Seven symptoms were proposed:

- Inattentiveness
- Hyperactivity
- Mood lability
- Irritability and hot temper
- Impaired stress tolerance
- Disorganization
- Impulsivity

The Utah criteria encompass:

- a retrospective childhood diagnosis
- ongoing difficulties with inattentiveness and hyperactivity
- at least two of the remaining five symptoms

Wender developed a rating scale to aid in the retrospective diagnosis of childhood ADHD: the Wender Utah Rating Scale (WURS). The original 61-item instrument was shortened to 25 items; hence the WURS-25 total score ranges from 0 to 100. A cut-off score of 46 was proposed to detect adult with ADHD.

The French version of the Wender Utah Rating Scale (WURS)

METHOD

Following WHO's guidelines the WURS was translated into French and back-translated into English. The psychometric properties were studied in a sample of students from a large university in Paris (France) and of parents of children referred to a specialized consultation in Nice (France) for ADHD and learning disorders. The students were recruited by word of mouth, were not seeking evaluation for ADHD and were not paid for their participation.
The booklet included the Adult ADHD Self-Report Scale v1.1 (ASRS v1.1) Symptom Checklist and the 25-item WURS.

RESULTS

Out of the 372 observations, only 321 complete WURS were analyzed (99 males, 30.8%; 222 females, 61.2%; $\chi^2(1)=8.000$; $p<0.005$). The distribution of the total score is not normal. Males score higher than females: 30.98±16.18 vs. 27.51±17.77 ($z=2.139$, $p<0.032$). Students score higher than parents: 32.29±18.09 (N=161) vs. 24.85±15.76 (N=160) ($z=3.695$, $p<0.0002$). Overall, an ANOVA shows a significant effect for the 'Being a student or not' ($F(1,317)=9.82$, $p<0.002$) but not for gender and interaction (both $F(1,317)<1$).

The reliability is high: $\alpha=0.900$ in males and $a=0.912$ in females. There is enough information in the polychoric correlation matrix to perform an exploratory factor analysis (Kaiser-Mayer-Olkin coefficient=0.902). With regard to both a parallel analysis and a scree test, we extracted and obliquely rotated three factors (PROMAX criterion with d=3). The solution is quite simple in Thurstone's sense with each item loading on one factor only except items 40 and 56. Factor 1 is "Impulsivity/Temper", factor 2 is "Inattentiveness" and factor 3 is "Mood/Self esteem". Additionally, we compared the congruence of this three-factor solution between genders after Procrustes rotation; Tucker's congruence coefficients are high: 0.966, 0.943 and 0.846 for each factor respectively, and 0.928 for the entire solution.

We used the 6-item ASRS Screener to detect probable cases of ADHD within our sample. ANOVA shows that the WURS-25 total score is higher in subjects with more than 3 points on the Screener (37.97±19.90 vs 25.91±15.64, $F(3,314)=19.24$, $p<0.0001$) without any effect of gender ($F(1,314)=1.70$) or interaction ($F(1,314)<1$). Using the recommended cutoff score of 46 for the WURS-25, we obtain the following statistics:

- Sensitivity =
  32.86%, CI95 = [22.09% - 45.12%]
- Specificity =
  89.11%, CI95 = [84.56% - 92.70%]
- Positive predictive value =
  46.00%, CI95 = [31.81% - 60.68%]
- Negative predictive value =
  82.46%, CI95 = [77.37% - 86.82%]

CONCLUSION

The diagnosis of ADHD at adulthood requires several conditions including a retrospective childhood diagnosis of ADHD. The WURS-61 was devised for such an assessment.

The WURS-61 was translated into French and the properties of the shorter WURS-25 were assessed using a multicentric design.

Results show that the WURS-25 has good psychometric properties and a clear three-factor structure. Additionally, subjects scoring below 46 on the WURS-25 are unlikely to have ADHD at adulthood. It is possible that this cutoff would be revised in subsequent studies with a clinical assessment rather than the self-rated ASRS v1.1 in order to improve the sensitivity and the positive predictive value of the WURS-25.

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
w25_3	-0.096	**0.809**	0.056	0.215
w25_4	0.116	0.012	**0.598**	0.359
w25_5	**0.513**	0.310	-0.101	0.358
w25_6	-0.090	**0.732**	0.129	0.288
w25_7	**0.814**	-0.079	0.037	0.173
w25_9	**0.874**	-0.106	0.035	0.052
w25_10	0.176	**0.463**	0.290	0.241
w25_11	**0.428**	0.124	-0.078	0.476
w25_12	0.191	-0.047	**0.702**	0.257
w25_15	**0.466**	0.315	-0.177	0.357
w25_16	0.071	0.173	**0.666**	0.229
w25_17	**0.692**	-0.061	0.196	0.285
w25_20	**0.564**	-0.024	0.336	0.234
w25_21	**0.749**	-0.216	0.275	0.205
w25_24	**0.456**	0.259	-0.067	0.360
w25_25	0.055	**0.401**	0.057	0.489
w25_26	0.015	0.091	**0.709**	0.279
w25_27	**0.710**	-0.002	0.050	0.170
w25_28	**0.633**	0.137	0.010	0.179
w25_29	0.059	0.051	**0.417**	0.584
w25_40	0.174	0.251	0.075	0.511
w25_41	0.253	**0.500**	-0.319	0.376
w25_51	-0.184	**0.658**	0.116	0.338
w25_56	-0.164	0.318	0.313	0.591
w25_59	-0.083	**0.558**	0.062	0.564
Factor 2	0.527	1.000		
Factor 3	0.358	0.332	1.000	