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# Alarmingly high prevalence and lack of gender differences in ADHD among high school students: Screening for ADHD with ASRS among adolescents and working adults

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**Abstract**

**Introduction:** The aim was to examine the psychometric properties of the Polish version of the Adult ADHD Self-Report Scale (ASRS) among adolescents and adult working populations of different genders, the prevalence of ADHD, and its relationship to stress.

**Materials and methods:** A sample of 723 professionally active people and 1744 high school students participated in the study. Part A of the Adult ADHD Self-Report Scale (ASRS) was used to measure ADHD and the 4-item Perceived Stress Scale (PSS-4) was used to measure stress.

**Results:** Confirmatory factor analyses showed that the original 6-item two-factor solution of ASRS Part A had a satisfactory fit and showed basic measurement invariance between age groups and genders. Inattention and hyperactivity were related mostly similarly to stress in all groups. The prevalence of ADHD among adolescents was much higher than in previous reports, and no gender differences were found. About every fifth high school student and every tenth adult showed a risk of ADHD. The potential cause of the difference in the prevalence in the studied groups can be generation change.

**Conclusions:** ASRS is a well-functioning screening measure with good psychometric properties. It is a convenient option for large-scale epidemiological surveys necessary to understand potential generational changes in the prevalence of ADHD and the lack of gender differences among adolescents.

*Keywords*: attention deficit hyperactivity disorder, measurement invariance, stress prevalence, validity, reliability

**Streszczenie**

**Wstęp:** Głównym celem przeprowadzonego badania była analiza właściwości psychometrycznych polskiej wersji skali ADHD - Adult ADHD Self-Report Scale (ASRS) wśród młodzieży oraz pracujących osób dorosłych obu płci. Zbadane zostało także rozpowszechnienia ADHD i jego związek ze stresem w badanej grupie osób.

**Materiał i metoda:** W badaniu wzięły udział 723 osoby aktywne zawodowo wykonujące szeroki zakres profesji oraz 1744 uczniów szkół ponadgimnazjalnych. Do pomiaru ADHD użyto części A kwestionariusza Adult ADHD Self-Report Scale (ASRS) oraz do pomiaru stresu wykorzystano 4-itemową Skalę Odczuwanego Stresu (PSS-4).

**Dyskusja:** Konfirmacyjne analizy czynnikowe wykazały, że oryginalne 6-pozycyjne dwuczynnikowe rozwiązanie ASRS części A miało zadowalające dopasowanie i wykazało podstawową inwariancję pomiędzy grupami wiekowymi i płciami. Nieuwaga i nadpobudliwość były w większości podobnie skorelowane ze stresem we wszystkich grupach. Rozpowszechnienie ADHD wśród młodzieży było znacznie wyższe niż w poprzednich badaniach i nie stwierdzono różnic między płciami. Około co piąty uczeń szkoły średniej i co dziesiąty dorosły wykazywał ryzyko ADHD. Potencjalną przyczyną różnicy w rozpowszechnieniu ADHD w badanych grupach może być zmiana pokoleniowa.

**Wnioski:** ASRS to kwestionariusz przesiewowy o dobrych właściwościach psychometrycznych. Jest to przystępna forma zarówno dla przesiewowych badań klinicznych jak i prowadzonych na szeroką skalę badań epidemiologicznych, niezbędnych do zrozumienia potencjalnych zmian pokoleniowych w rozpowszechnieniu ADHD oraz braku różnic między płciami wśród

młodzieży.

*Słowa kluczowe*: zespół nadpobudliwości psychoruchowej z deficytem uwagi, równoważność pomiaru, rozpowszechnienie stresu, rzetelność, trafność

## 1. Introduction

Attention deficit hyperactivity disorder (ADHD) is a complex neurodevelopmental condition that is one of the most common disorders among children and adolescents [1], and persists into adulthood in a considerable number of cases [2,3]. It is a cause of substantial functional impairment [4,5], particularly it may affect school, academic, and labor market functioning, often resulting in school dropouts, unemployment, and work instability [6]. It is frequently comorbid with other disorders [7], and may be a potential risk factor for addictive behaviors [8]. These may result from problems with executive functions [9] as well as constitute means to cope with chronic stress and other functional impairments [10]. Also, it significantly affects worse prognoses in other mental health problems [11].

The negative consequences of ADHD should be considered a public concern since they are related to increased public spending in the sectors of healthcare and education, more frequent accidents, attendance of the emergency department, criminal activity, and incarceration [4,12]. Consequently, investigation of psychiatric diseases and disorders, and general studies on health and health-related behaviors should include ADHD as a variable of interest and important covariate. Therefore, there is a need for a valid and reliable short ADHD screening instrument that could be used in diverse settings and among various demographic groups, particularly in large-scale epidemiological surveys. This study aimed to investigate the measurement invariance of the Polish version of the short (Part A) Adult ADHD Self-Report Scale (ASRS) among adolescents and adult working population of different genders, and its prevalence and relationship to perceived stress in diverse sociodemographic groups. To the Authors' knowledge, the validity of the short screening part of ASRS has not been compared among these demographic groups.

### *1.1 ADHD prevalence and clinical presentation in different gender and age groups*

The estimates of the prevalence of ADHD range from 4 to 13% due to the methodological differences and lack of systematic measures to assess the functional impairment in ADHD, which consequently might lead to underdiagnosis or overdiagnosis [13]. However, most studies report that the prevalence rate of ADHD varies between 2 and 7%, with an average of around 5% in children and adults [2,12,13]. Males meet the criteria of ADHD considerably more often than females, with a proportion of 1.9 – 3.2 to 1 [12,13]. There are also differences in how ADHD affects functional impairments in women and men, with females suffering more negative consequences [5,14,15].

ADHD is mostly defined by symptoms such as inattention, impulsivity, and hyperactivity. It significantly impacts many aspects of life, both in childhood and adulthood [16]. The diagnosis of ADHD, even recently, was focused on children, but nowadays, it is recognized that the disorder persists in adulthood from 10% to 66% of the time [2,3]. Due to the lack of professional diagnosis and limited information about ADHD in adulthood, adults often do not receive adequate, specialized help [17–19]. Studies show that age is a significant factor in the variability of symptoms of ADHD, as well as other ADHD-related conditions [20].

The symptoms might manifest differently in older age, and therefore be more difficult to diagnose. In most cases, hyperactivity is less apparent, whereas the problems related to inattention become more evident; in adulthood, responsibilities related to attention and planning increase, thus deficiencies in this area cause more distress [4,19,21]. Inattention issues may have a detrimental impact on academic or occupational performance and the structuring of daily activities [4,22]. However, a consistent and relatively strong relationship between ADHD and compulsive overworking among adult working populations in different countries [23–25] suggests that hyperactivity may also be integrated into work-related activities and consequently masked, causing excessive and harmful involvement with work [26].

### *1.2 ADHD and stress*

Previous studies have shown that ADHD symptoms are positively associated with perceived stress in adults [10,27]. Consequently, people with ADHD and high level of stress are more prone to anxiety [28], depression [29], and even suicide ideation [30]. In addition, studies show that people struggling with ADHD are more vulnerable to daily stressors [31], and are more often exposed to them because of symptoms interfering with daily duties like work or school demands [29]. ADHD is also associated with maladaptive stress coping strategies which may cause psychological distress and increased life impairments [32]. Current research points to the relationship between ADHD and parenting stress, which is associated with

fewer parents' supportive approaches [33].

*1.3 The Adult ADHD Self-Report Scale*

The ASRS is a widely used measure that consists of an 18-item symptoms checklist based on the diagnostic criterion A of ADHD in DSM-IV [34]. According to DSM – IV, six or more of both hyperactive-impulsive and inattentive symptoms must occur for at least six months to diagnose ADHD. These are mostly consistent with the way ADHD is diagnosed in DSM-5 and ICD-11 [35,36]. The ASRS is divided into two sections. Part A consists of six questions, four of which measure inattention and two measure hyperactivity. Both correlated traits have adequate test-retest reliabilities [37]. Patients, who give positive answers to four or more questions in this section, are considered a positive screen, as part A is the most predictive of the disorder. Part A alone obtained better results than the 18-question ASRS in terms of sensitivity, specificity, and total classification accuracy [3]. In the short version of the ASRS, all descriptive measures were considered the best for the 0–24 approach, and the optimal cut-off for this approach is 14 points [38]. The area under the curve (AUC) with the four-stratum classification (range 0-9; 10-13; 14-17; 18-24) for 0-24 approach is .90 [38]. According to most of the studies, men score higher and more often above the cut-off point than women [39–41]. The prevalence above the cut-off point (≥14) for men and women is 5.1% and 2.9%, respectively [41]. Although Part B is not intended for core diagnostic purposes, these 12 items provide additional cues to explore individual symptoms and the disorder's severity [42,43]. The ASRS questions concern the frequency of occurrence of the symptoms over the past six months, and respondents answer by choosing an answer on a 5-point Likert scale from never (0) to very often (4); in the full scale, the sum of scores range is 0 to 72 [44].

The average time to complete the first part of the ASRS is 54.3 seconds [3]. It makes the ASRS a very time-efficient and practical tool to screen people with ADHD in primary care settings due to the lack of time devoted to individual clinical appointments and difficulties associated with attention deficit, for instance, keeping their mind on task [3,45]. The substantial advantage of the tool is that it does not require a former diagnosis of ADHD in childhood to use on adults. Previous research on the ASRS has shown that the scale has satisfactory validity and reliability, and is an applicable tool for screening adults' ADHD [38,44,46].

To the Authors' knowledge, measurement invariance among different age and gender groups has not been previously investigated. Also, comparisons of the relationships of ASRS with perceived stress between age and gender groups are lacking in the literature. Such data could provide valuable information on the validity of using ASRS Part A as a screening instrument among various demographic groups and the comparability of the results.

*1.5 Hypotheses*

Based on previous research and theoretical frameworks, it was hypothesized that: the Polish version of the ASRS has satisfactory factorial validity and reliability (H1); hyperactivity is negatively related to age in the adult sample (H2); inattention and hyperactivity are positively related to perceived stress; (H3).

## 2. Method

*2.1 Samples and procedure*

*2.1.1 Participants*

*Sample 1.* The sample included 723 professionally active people from a wide range of professions, such as lawyers, managers, IT specialists, academics, researchers, medical doctors, psychologists, teachers, engineers, accountants, commercial trades, librarians, and functionaries, of whom 513 (71.9%) were females, and 200 (27.7%) were males (10 respondents did not report gender). The mean age in the sample was 35.78 years (SD = 10.98) for females and 37.19 years (SD = 11.62) for males.

*Sample 2.* The sample consisted of 1744 adolescents from three different high schools in Gdansk, of whom 992 (56.9%) were females, and 635 (36.4%) were males (117 respondents did not report gender). The mean age for females was 17.10 years (SD = 0.90) and 17.04 for males (SD = 0.88). The numbers of observations in different variables vary, because of the missing answers and the fact that some schools did not participate in all of the three waves of the study.

*2.1.2 Procedure*

Both samples were gathered using convenience sampling in pencil-paper survey form. However, considerable effort was put into ensuring that the adult working population sample is diverse and represents a wide range of professions and that the adolescent sample is diverse and includes different schools and a wide range of class profiles. Also, the samples are large, providing proper statistical power. Therefore, the risk of bias when generalizing the current results to the population is minimized, especially since the study focuses on measurement invariance and relationships between variables. The prevalence estimates should be interpreted more cautiously.

Employees and self-employed people were invited to participate anonymously in the study through their employers or directly. It was a 'paper and pencil' cross-sectional study. No monetary or other material rewards were given for participation. We obtained written

informed consent from each participant. Data were gathered between January 2014 and July 2016 as part of a research project on behavioral addiction.

In the high school sample, students willing to participate filled in 'paper and pencil' anonymous questionnaires during regular school classes. Underage students were obliged to provide parents' written consent to participate in the study. The questionnaires were divided into three sets; each one was completed a week apart from the other. Data were gathered between January and April 2018 as part of a research project on behavioral addictions.

*2.2 Instruments*

*ADHD.* Part A of the ASRS comprises six questions of symptoms of ADHD in adults [34]. The validation of the Polish full version of ASRS was conducted by the paper's authors after obtaining permission from Prof. R.C. Kessler, the author of the original version. The Polish version was developed, including the back-translation procedure. Initial translations and back translations were prepared by two psychologists fluent in English and two bilingual persons working separately. The final Polish version of the tool was consulted within a panel consisting of all four translators and a psychometrician. In the final step, the Polish version of the scale was pre-tested among a group of individuals (n = 15) for any problems with understanding the items and their intended meaning.

*Perceived Stress.* Perceived stress was measured with the Perceived Stress Scale (PSS-4; [47]). The scale contains four items referring to the perceived stress during the last month. The response scale ranges from 0 (never) to 4 (very often). The Polish version of the scale showed good validity and reliability in previous research [48]. In the present study, the Cronbach's alpha reliability coefficients were .77 for professionally active females, .70 for professionally active males, .77 for high school females, and .75 for high school males.

*2.3 Statistical Analyses*

All statistical analyses were performed using IBM SPSS 26.0 and R 4.0.2 [49]. First, a series of confirmatory factor analyses separately in the four groups (professionally active females, professionally active males, high school females, and high school males) were performed. A model with two correlated factors reflecting the nature of ADHD was assessed. It is congruent with the way ADHD is diagnosed with either of the components (inattention and hyperactivity) potentially dominating with the absence of symptoms related to the other component [50–52], especially among adults [53–55]. After identifying a configural model, which adequately fitted the data in all four groups, a series of multigroup confirmatory factor analyses to investigate measurement invariance of the six-item version of the ASRS between the four groups were performed. Due to a lack of responses in the fifth category of the first, second, and sixth item of the ASRS in some groups, which made multigroup analyses impossible, these items were recoded into items with four response categories in all groups. As the response scale of the items of the ASRS is ordinal, guidelines proposed by Wu and Estabrook [56] were followed to investigate the measurement invariance of the ASRS. Four nested models with increasingly constrained model parameters were estimated. In Model 1, items' thresholds, factor loadings, and items' intercepts were freely estimated in all groups. In Model 2, items' thresholds were set to be equal among groups, and factor loadings and items' intercepts were freely estimated in all groups. In Model 3, items' thresholds and factor loadings were set to be equal among groups, and items' intercepts were freely estimated in all groups. In Model 4, items' thresholds, factor loadings, and items' intercepts were set to be equal among groups. In Model 4a items' thresholds and factor loadings were set to be equal among groups, items intercepts were set to be equal among the high school female group and high school male group and freely estimated in the professionally active female group and professionally active male group.

The confirmatory factor analyses were performed with the lavaan 0.6-3 package [57]. The robust weighted least squares estimator (WLSMV) was used due to the non-normality of item distributions and ordinal character of the item response scales [58]. The fit of the configural model of the ASRS in all groups was evaluated with the following fit indices: $\chi 2$, Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Suggested cut-off points for these indices for acceptable fit are: CFI ≥ .95, RMSEA ≤ .06 to .08, and SRMR ≤ .08 [59,60]. To evaluate the measurement invariance of the ASRS, delta parameterization was used and fit indices of the following pairs of models were compared: M1 vs. M2, M2 vs. M3, M3 vs. M4, and M3 vs. M4a. The following differences in fit indices were suggested as an indication of measurement invariance on a higher level of parameters constraints: $\Delta$CFI ≥ –.010, $\Delta$RMSEA ≤ .015, and $\Delta$SRMR ≤ .010 [61,62].

Correlation coefficients and confidence intervals for the four groups separately were calculated. Two Student's t-tests for independent samples were calculated to investigate differences in attention and hyperactivity between the high school female group and the high school male group (due to items' intercepts equivalence only between these groups). All tests were two-tailed, and the alpha level was set to .05.

## 3. Results

*3.1 Factor Analysis and Measurement Invariance of the ASRS*

The two-factor model of the ASRS showed a good fit for the data in the four groups (see Table 1). The two-factor model of the ASRS was used as a configural model when testing the measurement invariance of the ASRS. Consecutive steps of testing measurement invariance of the ASRS are presented in Table 1. The results showed that items' thresholds and factor loadings of the ASRS are equivalent in the four groups, but items' intercepts of the ASRS are equivalent only between high school females and high school males. Consequently, variances of attention and hyperactivity and correlations of attention and hyperactivity with criterion variables could be compared across the four groups, but means of attention and hyperactivity could be compared only between high school females and high school males.

*3.2 Reliability*

In the present study, the Cronbach's alpha reliability coefficients for inattention were .63 for professionally active females, .68 for professionally active males, .68 for high school females, and .59 for high school males. The Spearman-Brown reliability coefficients for hyperactivity were .43 for professionally active females, .43 for professionally active males, .47 for high school females, and .49 for high school males.

*3.3 Correlation Analysis, and Group Differences*

Correlation coefficients with attention and hyperactivity in the professionally active female group, professionally active male group, high school female group, and high school male group are presented in Table 2. Correlations between attention and hyperactivity were equal .24 ($p < .001$), .33 ($p < .001$), .20 ($p < .001$), and .24 ($p < .001$) in these groups, respectively. The correlations of hyperactivity with age were negative and significant among adults but not adolescents. The correlations of hyperactivity and inattention with perceived stress did not differ among the groups. High school females (M = 10.45, SD = 2.87) did not differ from high school males (M

*Table 1 Results of the Measurement Invariance of the ASRS*

| | $\chi2$ | *df* | CFI | RMSEA | SRMR | Model comparison | $\Delta\chi2$ | $\Delta df$ | *p* | ΔCFI | ΔRMSEA | ΔSRMR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Professionally active females | 14.85 | 8 | .985 | .041 | .033 | | | | | | | |
| Professionally active males | 3.17 | 8 | 1.000 | .000 | .018 | | | | | | | |
| High school females | 48.82 | 8 | .969 | .072 | .043 | | | | | | | |
| High school males | 11.37 | 8 | .994 | .026 | .026 | | | | | | | |
| M1: Configural invariance | 78.46 | 32 | .982 | .050 | .034 | | | | | | | |
| M2: Thresholds invariance | 111.66 | 59 | .980 | .039 | .034 | M1 | 27.00 | 27 | .464 | −.002 | −.011 | .000 |
| M3: Thresholds and loadings invariance | 156.34 | 71 | .967 | .046 | .044 | M2 | 22.68 | 12 | .031 | −.013 | .007 | .010 |
| M4: Thresholds, loadings, and intercepts invariance | 365.50 | 83 | .892 | .077 | .049 | M3 | 78.40 | 12 | <0.001 | −.075 | .031 | .005 |
| M4a: Thresholds, loadings, and partial intercepts invariance | 180.10 | 75 | .960 | .049 | .044 | M3 | 9.47 | 4 | 0.050 | −.007 | .003 | .000 |

*Table 2 Means, standard deviations, correlation coefficients and confident intervals between the factors of the ASRS, stress and age in in the professionally active female and male groups and in the high school female and male groups*

| | | | | | Inattention | | | Hyperactivity | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | M | SD | N | | $CI^{95\%}_{upper}$ | $CI^{95\%}_{lower}$ | | $CI^{95\%}_{upper}$ | $CI^{95\%}_{lower}$ |
| Stress - adults | | | | | | | | | | |
| | Men | 5.42 | 2.39 | 196 | .41** | .28 | .52 | .39** | .25 | .51 |
| | Women | 9.01 | 1.78 | 509 | .36** | .29 | .44 | .31** | .23 | .39 |
| Stress - high school students | | | | | | | | | | |
| | Men | 6.52 | 2.81 | 609 | .34** | .26 | .42 | .18** | .11 | .26 |
| | Women | 7.95 | 2.99 | 971 | .29** | .23 | .35 | .19** | .12 | .25 |
| Age - adults | | | | | | | | | | |
| | Men | 37.19 | 11.62 | 196 | .08 | -.06 | .24 | -.38** | -.49 | -.26 |
| | Women | 35.78 | 10.98 | 509 | -.06 | -.15 | .03 | -.20** | -.28 | -.12 |
| Age - high school students | | | | | | | | | | |
| | Men | 17.04 | 0.88 | 609 | .04 | -.04 | .12 | -.06 | -.14 | .03 |
| | Women | 17.10 | 0.90 | 971 | .-01 | -.07 | .06 | -.02 | -.08 | .05 |

*Note. ** p < .01; number of bootstrap samples: 5000.*

= 10.64, SD = 2.65) in terms of attention, t(1403.9) = –1.36, p = .173. High school females (M = 5.96, SD = 1.91) did not differ from high school males (M = 5.91, SD = 1.88) in terms of hyperactivity, t(1605) = 0.52, p = .603.

*3.4 Prevalence*

Based on the cut-off score, the prevalence of ADHD was estimated at 9.2% in professionally active women, 11,0% in professionally active men, 25.7% in high school girls, and 23.6% in high school boys. It is worth noting that in the adult sample, none of the participants has reported being ever diagnosed with ADHD.

## 4. Discussion

*4.1 Psychometric properties of the ASRS*

Confirmatory factor analysis showed that the original 6-item two-factor solution of ASRS Part A had a satisfactory fit. Full invariance of thresholds and loadings across the four groups and partial invariance of intercepts across the four groups were shown (H1 substantiated). Therefore, variances of attention and hyperactivity and correlations of attention and hyperactivity with criterion variables can be compared among women and men of different ages. However, the means of attention and hyperactivity can be compared only between high school females and high school males.

The reliability of the subscales was acceptable. Because hyperactivity is measured by only two items, the reliability was lower than inattention. Previous studies showed that the test-retest reliability of this scale is good [38]; therefore, the interpretation of this result should be taken carefully, considering that internal consistency measures underestimate the reliability of two-item scales [63].

*4.2 Prevalence*

While working adults' prevalence estimates of ADHD are congruent with previous studies, which typically show rates between 2 and 7% [2,12,13], adolescents' ADHD was considerably higher in the present sample. About one-fifth of high school students showed a risk of ADHD that would require further clinical evaluation. Also, among adults, more men than women showed ADHD consistently with previous findings [12,13]; however, among high school students, this was reversed with somewhat more adolescent women screened positively for ADHD. These results may indicate that ADHD symptoms could be on the rise among young populations in Poland, with disappearing gender differences in rates of this disorder.

Among notable possible reasons for that could be the fast development of social media, which are known to affect the attention of young people [64,65]. Moreover, growing school pressures may cause young people to overestimate their problems with hyperactivity and attention because they may perceive normal functioning as inadequate in relation to the educational system's and parents' extremely high demands [66,67]. More studies on this concerningly high prevalence of ADHD among young generations are warranted.

*4.3 Age*

As expected, hyperactivity was negatively related to age in the adult sample (H2 substantiated). It is congruent with previous findings showing that symptoms related to this component decrease with age [4,19,21].

*4.4 Stress*

As expected, both inattention and hyperactivity were positively related to the perceived stress in all groups (H3 substantiated). While inattention and hyperactivity showed almost identical relationships to stress among adult women and men, hyperactivity among adolescents was somewhat less strongly associated with stress than inattention. It suggests that inattention at the school age may have slightly more severe consequences for functioning than excessive activity. These differences, however, were not statistically significant.

*4.5 Strengths and limitations of the study*

The main strengths of this study include relatively large, diverse samples and valid and reliable psychological questionnaires. The results are highly consistent with previous studies and the theoretical frameworks of the constructs of inattention and hyperactivity. In light of the relatively high prevalence, high comorbidities with other psychiatric disorders, and considerable individual and social impairments and costs related, the present research represents a valuable contribution to the field. It substantiates the use of short ADHD screening instrument across samples differing in demographic backgrounds. Also, it provides important data on the similarities and differences in patterns of relationships of ADHD with perceived stress across samples of different ages and gender.

In terms of limitations, the samples were predominantly female and non-representative, which means that the results cannot be generalized without some restrictions, especially to older populations. While the conclusions concerning measurement invariance and relationships between variables can be extrapolated more readily due to large and diverse samples, the prevalence estimates should be interpreted more cautiously. Furthermore, all data in the present study were self-reported, and since "people with ADHD might have poor insight into their impairments" [46], it increases the risk of common method bias and poses other limitations related to such data.

Future research could involve a more representative sample from the general population. The predictive validity of the ASRS could be examined by conducting longitudinal studies.

## 5. Summary

The 6-item Part A version of the Polish adaptation of the ASRS is a promising short screening measure that showed good psychometric properties in terms of factorial structure, measurement invariance (among age and gender groups), validity, and reliability. Due to its brevity, the tool is a valuable option for researchers to use as a screening instrument and can be included in large epidemiological studies on adults and adolescents. The current study showed that research conducted with this scale is, to a significant extent, comparable across different age and gender groups. Since ADHD is considerably under-recognized among adults, ASRS may allow for better estimates of its prevalence, comorbidity, and role in functional impairment. The alarmingly high prevalence of ADHD among adolescents and lack of gender differences in this group point to a pending need for more research replicating these findings and explaining such concerning results.

## Conflict of interest

The authors have declared no conflict of interest.

## Ethics

The project was approved by the Research Ethics Committee at the Psychology Department of the University of Gdańsk. Written informed consent was obtained from all participants. Additionally, in the student sample parents', school principals', and teachers' written consent was obtained.

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