

## Prevalence and socio-demographic correlates of attention-deficit/hyperactivity disorder among Albanian students

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### ABSTRACT

Attention-deficit/hyperactivity disorder (ADHD) may significantly interfere with daily functioning, particularly among nursing students who face high academic stress and demanding clinical schedules. This study aimed to assess prevalence of screening-positive ADHD symptoms and associated factors among 370 Albanian nursing students. A descriptive cross-sectional study was conducted using the adult ADHD self-report scale (ASRS) v1.1. Data analysis included descriptive statistics and inferential tests (such as  $\chi^2$  and analysis of variance (ANOVA)), with significance set at  $p < 0.05$ . Results indicated that 11.7% of students without a prior ADHD diagnosis screened positive for high ADHD symptom levels. Low to moderate symptoms were recorded by approximately 59% of participants in both ASRS part A and part B, and by 65% based on the total score. No significant associations were found between ADHD symptom severity and gender, living situation, residence, or peer integration ( $p > 0.05$ ). However, symptom severity was significantly associated with help-seeking behavior ( $p = 0.009$ ) and daily life difficulties, particularly economic challenges ( $p = 0.02$ ), with higher symptoms more common among students relying on themselves-coping strategies. Based on these results, targeted interventions such as cognitive-behavioral workshops, academic coaching, and psychoeducational programs could help Albanian nursing students develop organizational and time-management skills, improve emotional regulation, and enhance academic performance.

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## 1. INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is a prevalent neurodevelopmental disorder characterized by persistent patterns of inattention and/or hyperactivity-impulsivity that interfere with functioning or development. Although historically conceptualized as a childhood condition, robust longitudinal evidence demonstrates that ADHD frequently persists into adulthood, with symptoms continuing to affect academic, occupational, and psychosocial functioning [1]. In higher education settings, ADHD symptoms may become particularly prominent due to increased demands on executive functioning, including sustained attention, time management, planning, and emotional regulation [2]. Healthcare students are especially vulnerable, as they face intensive academic workloads, clinical responsibilities, and high expectations for self-regulation and professional competence [3], [4]. When ADHD remains undiagnosed or untreated, these demands may exacerbate symptoms and contribute to academic underperformance, emotional distress, and reduced well-being [5].

Conceptually, it is essential to distinguish between ADHD symptoms, ADHD diagnosis, and functional impairment [6], [7]. ADHD symptoms refer to self-reported or observed behaviors related to inattention, impulsivity, or hyperactivity [8], [9]. An ADHD diagnosis requires a comprehensive clinical evaluation meeting diagnostic and statistical manual of mental disorders fifth edition (DSM-5) criteria, including evidence of symptom persistence, onset before age 12, and clinically significant functional impairment across multiple settings [10]. Functional impairment reflects the degree to which symptoms interfere with academic, social, or occupational functioning and is a critical determinant of clinical relevance in adult populations [11].

Recent studies conducted between 2019 and 2024 indicate substantial variability in the prevalence of ADHD symptoms among university students across regions. Prevalence estimates of probable adult ADHD based on screening instruments range from approximately 10% to over 20%, depending on the population and methodology [2]. Research from Eastern Europe and neighboring regions suggests that ADHD may be underrecognized in young adults due to limited mental health literacy, stigma, and reduced access to diagnostic services [12]. These contextual factors are particularly relevant in countries undergoing transitions in mental health care systems, such as those in the Balkan region [13].

Despite growing international interest in adult ADHD among university students, no previous study has investigated the prevalence and correlates of ADHD symptoms specifically among nursing students in Albania. This represents a critical gap in the literature, given the central role of nurses in healthcare delivery. Attentional and self-regulatory difficulties may significantly affect both academic training and future professional practice. Understanding ADHD symptom patterns within this population is essential for informing targeted screening, prevention, and support strategies in Albanian higher education institutions [14].

To facilitate efficient identification of adults at risk for ADHD, the World Health Organization (WHO) developed the adult ADHD self-report scale (ASRS) v1.1, a brief and widely validated screening instrument aligned with DSM-5 criteria [15]. The ASRS has demonstrated good psychometric properties across diverse cultural contexts and is commonly used in university-based research to estimate ADHD symptom burden and associated functional difficulties [16]. This study aimed to determine the prevalence and severity of screening-positive ADHD symptoms and to examine their associations with demographic characteristics, help-seeking behavior, and daily life difficulties among undergraduate nursing students in Albania between January and December 2024. It was hypothesized that financial stress, living away from family, and limited social support would be significantly associated with higher levels of ADHD symptoms.

## 2. METHOD

### 2.1. Study design and setting

This was a descriptive cross-sectional observational study conducted between January 2024 and December 2024 at the Faculty of Medical Technical Sciences in “Aleksandër Xhuvani” University, Elbasan, and “Ismail Qemali” University, Vlorë, Albania. The study included only nursing students, excluding students from other programs. Nursing students were selected because their curriculum combines intensive theoretical coursework with early and continuous clinical training. This dual academic-clinical structure demands sustained attention, strong executive functioning, multitasking, and rapid adaptation to complex clinical environments, making attention-related difficulties more observable than in other student populations. Nursing programs also involve high stress, shift-based clinical schedules, and elevated academic expectations, factors that may exacerbate ADHD symptoms [17].

Although data were collected across an entire academic year, each student completed the survey only once, providing a snapshot of their symptom levels at that moment. Because responses were not analyzed by semester or examination period, possible seasonal or time-related influences on symptom reporting cannot be ruled out and are acknowledged as a limitation of the study. This study adhered to the strengthening the reporting of observational studies in epidemiology (STROBE) guidelines for cross-sectional studies [18].

### 2.2. Sampling method

All bachelor nursing students from the two universities who provided informed consent were enrolled using a census approach, targeting all eligible students. Out of 420 invited students, 370 completed the survey, yielding a response rate of 88.1%. Aggregate program-level data indicated no notable differences in gender distribution or year of study between respondents and the overall cohort. Individual-level data were not available for non-responders; however, comparison using available aggregate characteristics suggests that systematic differences between respondents and non-respondents were unlikely.

### 2.3. Inclusion/exclusion criteria and variables

Participants included all bachelor nursing students from the two universities who consented to participate. Students from other health programs and those with a prior clinical diagnosis of ADHD were excluded. Furthermore, sociodemographic variables include age, gender, academic year, province of residence, comorbid conditions, psychiatric medication use, and family history of psychiatric disorders.

### 2.4. Instruments and procedures

Adult ADHD symptoms were assessed using the ASRS v1.1, an 18-item screening tool developed by the WHO based on DSM-5 criteria [19]. Part A (6 items) contains the most predictive items for ADHD, while part B (12 items) provides additional symptom information. The ASRS is a validated tool for screening ADHD risk but does not provide a formal clinical diagnosis [19]. Although a formally validated Albanian version of the ASRS is not currently available, the scale was translated and adapted using standard forward–backward translation procedures to ensure linguistic clarity and conceptual equivalence. Cut-off scores and symptom severity categories were applied in accordance with established ASRS scoring guidelines and prior university-based studies, allowing for comparability with international research. Students scoring high on the ASRS were advised to seek follow-up clinical assessment.

### 2.5. Reliability and validity

In our sample, the ASRS demonstrated good internal consistency, with a Cronbach's alpha of 0.87 for the total scale, 0.82 for part A, and 0.79 for part B. For Albanian-speaking participants, the ASRS was translated into Albanian using a forward-translation and back-translation procedure to ensure semantic and conceptual equivalence.

### 2.6. Data collection tool

A structured questionnaire was used, comprising three sections:

- Demographic characteristics: age, gender, academic year, province, living situation.
- Knowledge, attitudes, and perceptions regarding adult ADHD: assessing factual knowledge and personal beliefs about ADHD.
- ADHD symptom screening: using ASRS v1.1 to quantify symptom frequency and severity.

### 2.7. Statistical analyses

Data were analyzed using statistical package for the social sciences (SPSS) version 26.0 (IBM Corporation). Means and standard deviations were calculated for continuous variables (e.g., age), while frequencies and percentages were calculated for categorical variables (e.g., gender, academic year). Categorical variables: associations were analyzed using Pearson  $\chi^2$  tests. Differences between groups were assessed using independent t-tests or one-way analysis of variance (ANOVA) as appropriate. Total ASRS scores were divided into four categories: low, mild to moderate, high, and very high, based on established cut-off scores [12]. Significance threshold: a p-value < 0.05 was considered statistically significant. Potential variables such as age, gender, and academic year were explored using bivariate analyses.

## 3. RESULTS AND DISCUSSION

### 3.1. Sociodemographic results

Table 1 presents the sociodemographic characteristics of the study sample (N=370). The mean age of participants was 20.19 years (SD=5.29). The relatively wide age range reflects the inclusion of students from different academic years, as well as older students who entered the nursing program later or returned after a break in their studies. The majority of participants were female (89.2%, n=330), whereas males accounted for 10.8% (n=40), reflecting a sample with a higher representation of women. Regarding place of residence, most participants resided in urban areas (91.9%, n=340), with a smaller proportion living in rural areas (8.1%, n=30). This distribution highlights that the sample is primarily urban-based, which may influence lifestyle, access to resources, and social support systems. Regarding proximity to family, 60.8% (n=225) of students lived near their families, while 39.2% (n=145) lived away from family. This variation may affect students' daily routines, independence, and coping strategies.

Participants reported a range of challenges in daily life. Economic difficulties were the most commonly reported (51.1%, n=189), followed by social difficulties (13.5%, n=50), cultural difficulties (6.2%, n=23), and other unspecified difficulties (29.2%, n=108). These results suggest that financial challenges represent a major source of stress among university students, potentially impacting academic performance and well-being. Regarding social integration, 53.0% of students reported being a little integrated into the university community, 35.7% indicated being very much integrated, and 11.4% reported not at all

integrated. This distribution indicates that while a majority of students have some level of engagement with peers, a notable subset remains socially unintegrated, which may influence emotional well-being and adaptation to university life. When facing emotional distress, 44.6% of participants sought support from family, 28.6% from friends, 20.8% relied on themselves, and 5.9% turned to other sources such as psychologists. These findings highlight the central role of family and peer support in managing emotional difficulties among students, while self-reliance and professional help are less frequently utilized.

Table 1. Characteristics of participants

Variable		N	%
Age		20.19±5.29	—
Gender	Male	40	10.8
	Female	330	89.2
Place of residence	Urban area	340	91.9
	Rural area	30	8.1
Living situation (in relation to family)	Living near family	225	60.8
	Living away from family	145	39.2
What kind of difficulties do you face in daily life?	Economic	189	51.1
	Cultural	23	6.2
	Social	50	13.5
	Other	108	29.2
Have you integrated into your new university community?	Not at all	42	11.4
	A little	196	53.0
	Very much	132	35.7
Where do you seek help when feeling emotionally distressed?	Myself	77	20.8
	Family	165	44.6
	Friends	106	28.6
	Other (e.g., psychologist)	22	5.9

### 3.2. Results of ASRS symptom levels

Table 2 shows the distribution of ADHD symptom severity based on ASRS v1.1 screening, including part A (criterion symptoms), part B (additional symptoms), and the combined total ASRS score. Overall, the majority of participants were classified within the lower symptom categories across all ASRS components. In part A, which evaluates core ADHD symptoms, 60.3% of participants were categorized as having low symptom levels. A similar pattern was observed for part B, where 60.0% of students fell into the low category. When considering the total ASRS score, this proportion increased to 65.7%, indicating that nearly two-thirds of the sample exhibited minimal ADHD-related symptoms. The mild to moderate symptom category accounted for approximately one-quarter of the participants in both part A (27.8%) and part B (27.6%). However, a lower percentage (21.6%) fell into this category according to the total score, suggesting that some individuals with mild symptoms in one subscale did not retain the same classification when both subscales were combined. Higher symptom levels were less common. Specifically, high symptom severity was reported in 9% of participants in part A and 6.5% in part B, while 8.1% were classified as high based on the total ASRS score. A small but notable proportion of students demonstrated very high symptom levels: 2.9% in part A, 5.9% in part B, and 4.6% when considering the total score. These findings reflect the distribution of screening-positive ADHD symptom levels rather than the prevalence of clinically diagnosed ADHD. All components of the ASRS had a total valid response count of 370 students, ensuring consistency across the assessment.

Table 2. Distribution of ADHD symptom levels (ASRS v1.1 screening)

ASRS levels	Criterion (Part A) (0-24)		Additional symptoms (Part B)		Total score ASRS	
	N	%	N	%	N	%
Low	223	60.3	222	60.0	243	65.7
Mild to moderate	103	27.8	102	27.6	80	21.6
High	33	9.0	24	6.5	30	8.1
Very high	11	2.9	22	5.9	17	4.6
Total	370	100	370	100	370	100

### 3.3. Results on gender differences in ASRS scores

Table 3 presents the comparison of ASRS scores between male and female participants across part A (criterion symptoms), part B (additional symptoms), and the total ADHD score. Overall, no statistically significant gender differences were observed in any of the ASRS components. For part A, males had a mean score of 7.95 (SD=4.37), while females had a slightly higher mean score of 8.76 (SD=4.33). However, this difference was not statistically significant ( $F=0.061$ ,  $p=0.805$ ). A similar pattern was found in

part B. Male participants reported a mean score of 15.85 (SD=7.45), compared with 18.40 (SD=8.50) among female participants, and this difference was also not statistically significant ( $F=1.370$ ,  $p=0.243$ ). When analyzing the total ADHD score, males obtained a mean of 23.80 (SD=11.31), whereas females scored 27.16 (SD=11.94). Despite the higher average score among females, the difference did not reach statistical significance ( $F=0.274$ ,  $p=0.601$ ). Although female participants exhibited higher mean scores across all ASRS domains, these differences did not reach statistical significance, indicating comparable levels of ADHD symptom severity between male and female students in the present sample. It should be noted, however, that the male subsample ( $n=40$ ) was considerably smaller than the female group ( $n=330$ ), which may have limited statistical power to detect subtle gender-related differences. Accordingly, these findings should be interpreted with caution, and future studies with larger and more balanced gender distributions are recommended.

Table 3. Gender differences in ASRS scores

Variable	Male (Mean±SD)	Female (Mean±SD)	F	Sig. (p-value)
Part A	7.95±4.37	8.76±4.33	0.061	0.805
Part B	15.85±7.45	18.40±8.50	1.370	0.243
Total ADHD	23.80±11.31	27.16±11.94	0.274	0.601

### 3.4. Results on the association of ADHD symptom levels with sociodemographic and psychosocial factors

Table 4 presents ADHD symptom levels (low, mild to moderate, high, very high) across sociodemographic and psychosocial variables, including  $\chi^2$  and p-values. There was a significant association between source of emotional support and ADHD symptom severity ( $\chi^2=22.118$ ,  $p=0.009$ ). Among students relying on themselves ( $n=77$ ), 50.6% were low, 26.0% mild to moderate, 13.0% high, and 10.4% very high. Those seeking family support ( $n=165$ ) had 71.5% low, 20.6% mild to moderate, 6.1% high, and 1.8% very high symptoms. Students turning to friends ( $n=106$ ) reported 71.7% low, 17.0% mild to moderate, 6.6% high, and 4.7% very high, whereas those using other sources such as psychologists ( $n=22$ ) had 45.5% low, 36.4% mild to moderate, 13.6% high, and 4.5% very high. These results highlight that relying on themselves or limited support is associated with higher ADHD symptoms, while family support is protective.

Table 4. Distribution of ADHD symptom severity by sociodemographic and psychosocial factors

Variable	Category	Low	Mild to moderate	High	Very high	$\chi^2$	p-value	Total
Where do you seek help when emotionally distressed?	Self	39	20	10	8	22.118	0.009	77
	Family	118	34	10	3			
	Friends	76	18	7	5			
	Other	10	8	3	1			
Have you integrated with your new university peers?	Not at all	31	6	3	2	3.585	0.733	42
	A little	122	46	17	11			
	Very much	90	28	10	4			
Difficulties encountered in daily life	Economic	110	47	16	16	19.702	0.02	189
	Cultural	17	3	2	1			
	Social	35	10	5	0			
	Other	81	20	7	0			
Living situation	Near family	144	54	19	8	3.177	0.365	225
	Away from family	99	26	11	9			
Residence	Urban	229	69	26	16	6.426	0.093	340
	Rural	14	11	4	1			
Gender	Male	30	6	3	1	1.952	0.582	40
	Female	213	74	27	16			

Regarding peer integration, no significant association was observed ( $\chi^2=3.585$ ,  $p=0.733$ ). Students reporting not at all integrated ( $n=42$ ) were 73.8% low, 14.3% mild to moderate, 7.1% high, and 4.8% very high. Those with a little integration ( $n=196$ ) had 62.2% low, 23.5% mild to moderate, 8.7% high, and 5.6% very high, while very much integration ( $n=132$ ) showed 68.2% low, 21.2% mild to moderate, 7.6% high, and 3.0% very high. Peer integration appears not to significantly influence ADHD symptom levels.

Economic difficulties ( $n=189$ ) were significantly associated with ADHD symptoms ( $\chi^2=19.702$ ,  $p=0.02$ ), with 58.2% low, 24.9% mild to moderate, and 16.9% high/very high. Cultural ( $n=23$ ), social ( $n=50$ ), and other difficulties ( $n=108$ ) were not significantly associated, indicating economic stress is a more relevant factor for ADHD-related behaviors. Living near vs. away from family ( $\chi^2=3.177$ ,  $p=0.365$ ), residence in urban vs. rural areas ( $\chi^2=6.426$ ,  $p=0.093$ ), and gender ( $\chi^2=1.952$ ,  $p=0.582$ ) were not significantly related to

ADHD symptom levels, with most students in all categories classified as low. It should be noted that several subgroups were relatively small (e.g., male participants, rural residence, cultural difficulties, and “other” sources of emotional support), which may have resulted in low expected cell frequencies and partial violations of chi-square test assumptions. Consequently, these associations should be interpreted with caution. Future studies with larger and more evenly distributed subgroup sizes are recommended to confirm the robustness of these findings.

### 3.5. Results on the frequency of ADHD-related behaviors among students

A substantial proportion of students reported challenges in attention and organization, as shown in Table 5. Specifically, 39.6% sometimes experienced trouble finishing final project details, and 39.1% sometimes reported difficulty organizing tasks. Difficulty maintaining attention during boring tasks was sometimes reported by 32.4%, while 35.6% reported difficulty concentrating on what others say. Problems remembering appointments were sometimes reported by 21.8% of students, indicating that attentional and memory-related challenges are common in this population.

Hyperactive behaviors were prevalent. Fidgeting while seated was reported sometimes by 39.1%, often by 13.6%, and very often by 13.6% of students. Feeling overly active was reported sometimes by 24.2%, and difficulty unwinding or relaxing was reported sometimes by 28.2%, with 22.9% experiencing this very often. These results suggest that a notable proportion of students display hyperactive and restless behaviors regularly.

Impulsive and socially disruptive behaviors were also evident. Talking excessively in social situations was reported sometimes by 36.4%, finishing others’ sentences by 28.2%, and difficulty waiting for one’s turn by 37.8% of students. Interrupting others occurred sometimes in 17.3% of cases, demonstrating that impulsivity affects a significant subset of students. Distractibility was particularly pronounced. Being distracted by activity or noise was reported as occurring often or very often by 50% of students, highlighting that external stimulus substantially interfere with attention and task performance.

Table 5. ADHD symptom behaviors: frequency among students

Item	Never	%	Rarely	%	Sometimes	%	Often	%	Very often	%
Trouble finishing final project details	53	14.1	133	35.4	149	39.6	20	5.3	15	4.0
Difficulty organizing tasks	49	13.0	136	36.2	147	39.1	21	5.6	17	4.5
Problems remembering appointments	156	41.5	108	28.7	82	21.8	15	4.0	9	2.4
Avoiding tasks requiring thought	72	19.1	124	33.0	118	31.4	29	7.7	27	7.2
Fidgeting while seated	30	8.0	91	24.2	147	39.1	51	13.6	51	13.6
Feeling overly active	103	27.4	143	38.0	91	24.2	10	2.7	23	6.1
Making careless mistakes	102	27.1	131	34.8	96	25.5	21	5.6	20	5.3
Difficulty keeping attention in boring tasks	64	17.0	145	38.6	122	32.4	19	5.1	20	5.3
Difficulty concentrating on what others say	85	22.6	110	29.3	134	35.6	24	6.4	17	4.5
Misplacing things at home/work	112	29.8	112	29.8	78	20.7	25	6.6	24	6.4
Distracted by activity/noise	25	6.6	84	22.3	112	29.8	94	25.0	94	25.0
Leaving seat in meetings	65	17.3	137	36.4	133	35.4	19	5.1	16	4.3
Feeling restless/fidgety	105	27.9	126	33.5	89	23.7	21	5.6	29	7.7
Difficulty unwinding/relaxing	39	10.4	78	20.7	106	28.2	61	16.2	86	22.9
Talking too much in social situations	50	13.3	95	25.3	137	36.4	54	14.4	34	9.0
Finishing others’ sentences	97	25.8	126	33.5	106	28.2	20	5.3	21	5.6
Difficulty waiting turn	47	12.5	111	29.5	142	37.8	59	15.7	11	2.9
Interrupting others	140	37.2	146	38.8	65	17.3	12	3.2	7	1.9

### 3.6. Discussion

Approximately 66% of students in the present sample reported low levels of ADHD symptoms, while 21.6% fell within the mild to moderate range and a smaller proportion (4.6–8.1%) exhibited high or very high symptom severity, indicating that a clinically meaningful subgroup of university students experiences elevated ADHD-related difficulties. Within the Albanian context, persistent mental health stigma and the social discouragement of psychological help-seeking may contribute to underdiagnosis and underreporting of ADHD symptoms, particularly among students with mild to moderate impairment [5], [6]. As a result, many students rely primarily on self-coping strategies rather than professional support. Students relying on self-coping reported higher symptom levels, suggesting a potential association between limited support and ADHD symptoms, although the cross-sectional design does not allow determination of causal relationships. These findings underscore the potential importance of culturally sensitive interventions, including awareness campaigns, destigmatization initiatives, and the development of accessible campus-based psychological services.

No significant gender differences were observed across ASRS part A, part B, or total scores, suggesting comparable ADHD symptom severity among male and female students. This finding is consistent with previous university-based research [6] and supports evidence that gender disparities commonly observed in childhood ADHD tend to diminish in adulthood, particularly in higher education settings where similar organizational and cognitive demands affect both genders. The observed right-skewed distribution of ADHD symptoms, with a predominance of low scores, aligns with international evidence indicating that most adults report minimal or subclinical symptom levels, while a substantial minority experience persistent difficulties [15], [20]. Across diverse cultural contexts, including Western countries, the Middle East, and South Asia, studies consistently report that approximately one-quarter of university students present with mild to moderate ADHD symptoms. Prevalence estimates from the United States and the Netherlands suggest relatively low rates of full-syndrome adult ADHD (approximately 3–4%), yet a much larger proportion experience impairing symptoms below diagnostic thresholds [19], [21]. Similar proportions of mild to moderate symptomatology have been reported among university students in Saudi Arabia and Pakistan, supporting the view that subthreshold ADHD symptoms are common across higher education systems worldwide [22], [23]. These convergent findings suggest that, irrespective of cultural context, university environments may be associated with attentional and executive functioning challenges among a substantial minority of students.

Several mechanisms may help explain these patterns. Selection effects may partially account for the predominance of low symptom levels, as individuals with more severe ADHD are less likely to enter or persist in university due to earlier academic challenges or dropout [2]. Additionally, students with ADHD who do reach higher education may employ compensatory strategies, such as increased effort, structured learning environments, or pharmacological treatment, which could reduce observable impairment while increasing cognitive and emotional load [24]. In countries with greater awareness and access to mental health resources, such as the United States, Canada, and the Netherlands, academic accommodations and psychoeducational support may further mitigate functional impairment, potentially contributing to similar symptom distributions across contexts [3].

Importantly, the proportion of students scoring in the mild to moderate range is clinically relevant. This group is at elevated risk for academic underachievement, executive dysfunction, emotional distress, and reduced well-being [25]. Comparable symptom distributions have been reported in university samples from the United Kingdom and South Korea [26], [27]. Despite experiencing functional difficulties, these students frequently remain undiagnosed and underserved, highlighting the potential value of routine screening and proactive academic support services within university settings [13]. Although less prevalent, the presence of high and very high symptom levels in 4.6–8.1% of the sample remains noteworthy, as these individuals may meet criteria for clinical ADHD and require formal diagnostic evaluation [13]. Similar symptom levels have been documented among university students in Germany, Turkey, and China, suggesting that clinically significant adult ADHD in higher education represents a global phenomenon with implications for educational policy and mental health practice [28]–[31]. The internal consistency observed between ASRS subscales (part A and part B) supports the construct validity of the instrument within this population, reinforcing its value as a brief and cost-effective screening tool [32]. Its cross-cultural applicability has been confirmed in validation studies across Europe, Asia, and the Middle East, supporting its suitability for use in diverse educational settings [33].

Financial stress and reliance on self-coping were associated with higher reported ADHD symptom levels [22]. Economic challenges may be linked to attentional and self-regulatory difficulties through chronic cognitive and emotional load, and delayed help-seeking may be associated with increased emotional distress and symptom persistence, although causal relationships cannot be inferred from this cross-sectional study [34], [35]. Broader sociocultural and economic stressors in Albania, including post-communist economic transitions, limited employment opportunities, restricted social mobility, and migration-related pressures may further interact with attentional and self-regulatory vulnerabilities. In contrast, hypotheses regarding living away from family and peer integration were not supported, as no significant associations were observed in this sample. These null findings suggest that, in this context, proximity to family or social integration may be less relevant to ADHD symptom severity than financial stress or coping strategies.

While quantitative screening tools such as the ASRS v1.1 provide valuable epidemiological insights, future qualitative research using interviews or focus groups could offer a more nuanced understanding of how students perceive, experience, and manage ADHD-related difficulties within this cultural setting [14]. The present findings align with international literature in demonstrating a right-skewed distribution of ADHD symptoms among university students, with most reporting low symptom severity but a substantial minority experiencing clinically relevant difficulties [23]. These results highlight the need for routine screening, increased awareness, and the development of targeted academic and psychological interventions, including skills-based programs, mental health literacy initiatives, peer support, and accessible counseling services.

Addressing ADHD within higher education is important for promoting academic success and mental health equity across university systems [11].

### 3.7. Strengths and limitations

The main strengths of this study include its methodological rigor and regional novelty. The survey employed a validated screening instrument, the WHO 18-item ASRS v1.1, which demonstrated good internal consistency in this sample (Cronbach's  $\alpha=0.87$ ) [9]. A total of 370 nursing students participated, providing a robust sample for descriptive and inferential analyses. This study also represents the first quantified assessment of ADHD symptoms among university students in Albania, addressing a notable gap in research on adult ADHD in the Balkans, which has predominantly focused on children and adolescents [13].

Despite these strengths, several limitations should be acknowledged. First, the cross-sectional design prevents inference of causal relationships between ADHD symptoms and academic or psychosocial outcomes [13]. Second, the use of self-report data may introduce bias, including under- or overreporting of symptoms, and cultural factors may influence item interpretation [9]. Third, although the sample size was adequate, participants were recruited from only two universities, which limits external validity and generalizability to other student populations and to non-student or clinical adult samples. Fourth, students with a prior clinical diagnosis of ADHD were excluded from participation, which may have led to an underestimation of the overall burden of ADHD-related symptoms within the university population. Finally, the ASRS is a screening instrument rather than a diagnostic tool, and the findings should not be interpreted as formal ADHD diagnoses without comprehensive clinical assessment [9].

### 3.8. Implications for future research and practice

The findings highlight the need for increased attention to adult ADHD within university settings in Albania and the wider Balkan region. Economic stress and limited social support were significantly associated with higher ADHD symptom severity, suggesting that targeted interventions addressing financial counseling and peer/family support could mitigate symptom impact on students' academic performance and well-being. Universities should consider implementing psychoeducational programs, cognitive-behavioral workshops, and routine screening initiatives to identify at-risk students early and provide tailored support. Faculty training in recognizing ADHD-related behaviors and promoting inclusive teaching strategies may further enhance student engagement and academic success. Future research should replicate these findings in larger, multi-university cohorts and consider longitudinal designs to explore symptom trajectories over time. Incorporating comprehensive psychological assessments and validating the ASRS in the Albanian context will strengthen the reliability and applicability of results. By addressing both research and applied dimensions, this study underscores the importance of integrating mental health literacy and structured support systems into university policies across Albania and the Balkans, contributing to evidence-based improvements in student mental health care [28]–[31].

## 4. CONCLUSION

This study achieved its objective of examining the distribution and correlates of ADHD-related symptoms among Albanian university students. Approximately 22% of participants reported mild to moderate levels of ADHD symptoms, while 12.7% exhibited high or very high symptom levels, with inattention, distractibility, and impulsivity being the most frequently reported features. Among the sociodemographic and psychosocial factors examined, economic difficulties and reliance on self-coping strategies were significantly associated with higher ADHD symptom severity, whereas gender, place of residence, peer integration, and living conditions were not associated with symptom levels.

These findings indicate that students experiencing financial strain and limited external emotional support may report greater attentional and executive functioning difficulties, consistent with conceptual models linking ADHD-related symptoms to challenges in emotional regulation and executive control. Importantly, the results reflect symptom-based screening outcomes rather than clinical diagnoses. Based on these findings, targeted interventions such as cognitive-behavioral skills workshops, academic coaching, and psychoeducational programs may be beneficial in supporting students with elevated ADHD symptoms. The implementation of such initiatives within Albanian universities could inform broader higher education and mental health strategies in the Balkan region, contributing to more inclusive, supportive, and academically responsive learning environments.

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### AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

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### CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

### INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

### ETHICAL APPROVAL

This study was carried out on the basis of the agreement for academic and scientific activities between the University of Elbasan "Aleksandër Xhuvani" and the University of Vlora "Ismail Qemali" (Prot. No. 1043; Date 07.05.2021). During this study, we followed the guidelines of the Declaration of Helsinki, as revised in 2008.

### DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [FZL], upon reasonable request.




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